A semantic structural analysis
of logical relations in Eastern Arrernte

by

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Australian Society for Indigenous Languages
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- **'warte'** and **'since'**
- **'after'**
- **'dative'**
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Preface

In presenting this thesis in its current form for a wider audience, I have not attempted to address any of the most obvious short-comings of analysis or findings. I am aware that some of the proposed explication schemas for particular constructions need further justification to be fully convincing. I am aware that, at a more general level, greater attention needs to have been focussed on the distinction between encoded and implied meaning. I am also aware that the analysis of certain grammatical elements needs further work.

In many respects, I felt like I was writing the introduction to a much more complex subject in only tackling the restricted set of so-called logical relations, amongst the much bigger set of propositional/semantic relations. I also felt that, for the imposed limits on the task (University imposed word limit), I probably bit off more than I could chew—the final word count of 54,944 words, was well above the set limit. There are more than a few instances where an issue raised cries out for more extended discussion. However, given the overall word limit, there were many times when what was needed and what limits were imposed proved to be a poor match-up.

I am also aware that with the pressures of University deadlines, and having changed my thesis topic in the year of writing, there are sections that suffer a lack of clearly presented argumentation. More work is needed!

All this is to acknowledge that I realise there are things that could be done a lot better with extended discussion and more attention justifying some of the conclusions. But, for the present purpose, I am not willing to take on that bigger task. So, the document stays as is (apart from assistance with editing for the current purpose, which was much appreciated). It is simply a record of what was done at the time and I will have to live with the knowledge of what yet remains to be done, or done better, if I were ever to publish it more widely!
Acknowledgments

This work represents a step along the road in the process of enriching my knowledge and understanding of the Eastern Arrernte language. My journey began 1988 when I commenced living at Lyentye Apurte (‘Santa Teresa’), south-east of Alice Springs. I went there, as a member of the Summer Institute of Linguistics, to build relationships, learn the language and begin the task of translating the Bible into the Eastern Arrernte language. I owe a great deal to many in the community who patiently bore with me, gently corrected my innumerable faux pas, and extended to me the warmth of their friendship. I am particularly indebted to my friend and co-translator, Sammy Turner, who worked with me tirelessly over the entire period and introduced me to many of the rich aspects of the Arrernte language, life and culture. I am thankful, too, to Bessie Oliver, who also spent long hours teaching, correcting and working with me on the translation.

I thank my friend and fellow Bible translator Steve Swartz, who stimulated my original interest in the topic of logical relations, and who gave some valuable input in approaching the task of both analysing and displaying inter-propositional relations.

From the standpoint of linguistics, I am indebted, initially, to Dr Cliff Goddard of the Linguistics Department at the University of New England, who was my original thesis supervisor. Cliff is largely responsible for stimulating my interest in Natural Semantic Metalanguage theory, and it was at his prompting that this theoretical approach was applied to the task of analysing the semantics of logical relations in Eastern Arrernte. I am particularly thankful to Dr Jean Harkins, who took over the role of thesis supervisor at the mid-way point through the thesis year for my Master of Letters. I was deeply appreciative of Jean’s knowledge of Arrernte as I struggled with presenting my findings in a clear and comprehensible way. I am also indebted to Jean for her steady stream of helpful suggestions along the way (and to whoever invented email!) as well as her insightful questions, which helped in prompting me to clarify key issues and allowed me hopefully, to represent my findings in a clearer way.

I owe a debt of gratitude to my wife and family for their patience with me during many long nights and for their willingness to allow me to put aside many family responsibilities during the final stages of writing this. I am most thankful for their constant love and support.

I also thank the Lord my God for His call on my life. I count it a great privilege to work as a Bible translator and, by implication, a language learner. I am thankful to God for His sustaining power throughout.

... those who hope in the Lord
will renew their strength.
They will soar on wings like eagles;
they will run and not grow weary,
they will walk and not be faint.

Isaiah 40:31

Only I can take responsibility for any mistakes, omissions, oversights, inconsistencies or errors of analysis which may be found in this thesis.
Summary

This study is an analysis of the semantic structure of logical relations in Eastern Arrernte, focussing in particular on the level of inter-propositional relations and to a lesser degree on how logical relations are expressed at higher levels in the semantic hierarchy. Two particular theoretical models are applied to this task. The first uses an approach based on a theory of semantic structure set forth in *The Semantic Structure of Written Communication* (Beekman, Callow & Kopesec 1981) and further developed by Larson (1984). The second approach utilises Natural Semantic Metalanguage theory originated by Anna Wierzbicka (especially 1980, 1992, 1996).

Chapter 1, as well as introducing the topic in general terms, provides an introduction to the salient features of Eastern Arrernte phonology and grammar. Chapter 2 introduces the Semantic Structural Analysis (SSA) theory upon which the initial task of analysing logical relations, as they are expressed in Arrernte, was based, and discusses the inherent problems with this approach. The solution to the difficulties raised here effectively anchors the typology associated with logical relations in lexico-grammatical universals, that is, in effect, semantic primes allied with Natural Semantic Metalanguage (NSM) theory.

Chapter 3 begins by examining inter-propositional logical relations using Semantic Structural Analysis theory. The discussion turns to show how each of these types can be analysed and expressed as a reductive paraphrase, and how the seven differentiated types can be grouped into two core semantic structural categories, representing BECAUSE-types and IF-types. The discussion in Chapter 4 is an examination of the specific way in which the two core categories of logical relations are marked in Arrernte sentences. In so doing, recurrent patterns of marking logical relations and the key structural features are identified.

Chapter 5 introduces logical relations expressed at higher-than-sentence levels in the semantic hierarchy. Two specific texts, one a Dreaming narrative, the other a recount narrative, are examined, and some general observations made regarding the semantic structure of logical relations in Arrernte discourse. In addition, some preliminary observations are expressed regarding the type of reasoning process that can be identified in Arrernte discourse. Chapter 6 brings together the significant conclusions from this study.

Appendix 1 contains 77 examples of logically related ‘BECAUSE-type’ Arrernte sentences.
Appendix 2 contains 21 examples of logically related ‘IF-type’ Arrernte sentences.
Appendix 3 contains the propositionalised English version of the *Arltunga-werne Alpeke* text.
Appendix 4 contains the interlinearised morpheme analysis of the *Arltunga-werne Alpeke* text.
Appendix 5 contains the propositionalised English version of the *Ayeye Altyerrengentyele* text.
Appendix 6 contains the an interlinearised morpheme analysis of the *Ayeye Altyerrengentyele* text.
Structure of examples

All example sentences throughout the body of the main text are presented using a three-tiered system:

- The first conveys the Eastern Arrernte sentence in italics with morpheme breaks.
- The second uses plain text for an interlinear morpheme analysis and appropriate glosses.
- The last tier, which is enclosed within single quotes, provides an English translation.

Examples listed by number in the Appendices, as well as the two appended texts, are four tiered and, additionally, have a tag at the beginning of each line:

- ‘tx’ (text) introduces the Arrernte text,
- ‘ma’ (morpheme analysis) introduces a line where each Arrernte word is analysed into its constituent morphemes,
- ‘mg’ (morpheme gloss) provides an English gloss for each morpheme, and
- ‘ft’ (free translation) introduces an English translation.

Also, at the start of each example, a reference line is tagged by the abbreviation ‘rf’ (reference).

Note that round brackets ‘( )’ within a translation regularly convey elements which are implied or understood, but which are absent from the Arrernte sentence, whereas round brackets following the English translation may carry an alternative translation, background context to the utterance and/or the implications of the example. Text contained within square brackets ‘[ ]’ in the Arrernte and morpheme analysis lines indicates the word is an English or English-based word. Where a backslash ‘/’ has been used in the translation line it is to give an alternative rendering and in these instances either reading is suitable.

Example sentences are sourced primarily from either ‘Eastern and Central Arrernte to English Dictionary’ (1994) or from published Arrernte books. In instances where an example has been used from a source other than these, this is acknowledged in square brackets ‘[ ]’ at the end of an example. Example sentences which come from the those listed in Appendix 1 are marked by a final bracket conveying the reference number ‘rf ...’.

There are occasions when a specific Arrernte element or structure is being focussed upon and in such cases the constituent in focus is usually highlighted using a bold format.

The symbol ‘§ ’ is used as a reference to section headings/numbers.

The symbol ‘*’ is used to indicate something is either ungrammatical or an unacceptable form of what is being proposed.
Abbreviations and Symbols

Phonological Conventions

[ ] phonetic representation

/ / phonemic representation

Morphological Conventions

- morpheme boundary

Ø morpheme with zero realisation

Syntactic Conventions

Grammatical Functions

A subject of transitive

O object of transitive

S subject of intransitive

Nominal Morphology

Pronoun, Demonstrative and Quantifier Abbreviations

<table>
<thead>
<tr>
<th></th>
<th>first person</th>
<th>sg</th>
<th>singular</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>second person</td>
<td>dl</td>
<td>dual</td>
</tr>
<tr>
<td>2</td>
<td>third person</td>
<td>pl</td>
<td>plural</td>
</tr>
</tbody>
</table>

DEM demonstrative

DIST distal

KinPOSS pronominal kin possessive suffix

MID mid-distant

Cases

ABL ablative

AFTER ('after'-ative)

ASSOC associative

COM comitative

ERG ergative

LOC locative

POSS possessive

PROP proprietive

Other nominal and nominal-deriving forms

CLASS classifier

DIR in the direction of

KinPOSS (pronominal) kin possessor

MOAWAY movement away from

NMZR nominaliser

SPEC specific

Verb Morphology

Tense

FUT future

HPAST habitual past

NPP non-past progressive

PC past completive

PP past progressive

RPAST recent past

Other

AVER aversive

DS different subject

Gevet general event

HOPE hope to do

HYPO hypothetical

IMP imperative

PERM permissive

SSID same subject

VNEG verbal negative

VNEGIMP verbal negative imperative

VPURP verbal purposive

x
Optional (non-stem final)

- dl S/A: dual subject
- pl S/A: plural subject
- CONT: ‘do continuously (non-motional)’
- DO.ALONG: ‘do continuously while in motion’
- DO.COMING: ‘do verb action while coming’
- DO.COMING BACK: ‘do verb action while coming back’
- DO.PAST: ‘do verb action while moving past or through a place’
- DO.DOWNWARDS: ‘do verb action while moving downwards’
- DO+GO: ‘do verb action at a place and then go’
- DO+GO BACK: ‘do verb action at a place and then go back’
- FREQ.rdp: ‘frequentative (reduplication)’
- GO+DO: ‘go to a place and do verb action’
- GO.BACK+DO: ‘go back to a place and do verb action’
- HREDUP: ‘habitual reduplication’
- ITER: ‘iterative’

Derivational

- CAUS: causative
- INCH: inchoative
- RECIP: reciprocal
- REFL: reflexive

Adverb-deriving Morphology

- ADV: manner adverb formative
- CONNECT: ‘outer surface contact; connected to’

Particle/Clitics

Clitics

- BEFORE: ‘before doing anything else’
- DESPITE: ‘despite X, even though X’
- EMPH: emphatic
- FIRST: ‘be first’ in a series of things/events
- FOC: focal constituent
- IndReasAng: ‘indirect reason for anger’
- INTER: ‘interrogative’ (checking clitic)
- MISTAKE: ‘mistaken belief’
- MORE: comparative ‘more’
- NomNEG: nominal negator
- RELCL: relative clause marker
- SINCE: ‘because, as you should know’
- THAT: ‘that’-complement marker
- TOO: ‘too, as well, again, still’
- TYPE: ‘this type of thing, sort of like this’

Particles

- BUT: ‘now consider this one; on the other hand, by contrast; but’
- FACT: ‘it’s a fact that’
- INTENS: intensifier (‘very, really, truly’)‘
- OK: ‘ready, already; OK; so; the end’
- QUOT: quotative, hearsay
- REMEMB: ‘you remember the one?’
- THOUGH: ‘even though, anyhow, anyway’

Articles

- DEF: definite article
Chapter 1: Introduction

In this chapter, I introduce the main aims and purposes of the study and give some background as to why I chose this particular topic for my research. I also outline some underlying assumptions I had when I began writing. A brief statement introduces the Eastern Arrernte language community. Then an overview of the significant features of the phonology and grammar of Eastern Arrernte is provided and exemplified to provide some orientation for the reader to help them understand what follows in the remainder of the work. Chapter 1 concludes with an overview of what is covered in the remaining 5 chapters of this thesis.

1.1 Purpose and aims

The purpose of this study is an analysis of the semantic structure of logical relations in Eastern Arrernte, focussing in particular on the level of inter-propositional relations and to a lesser degree on how logical relations are expressed at higher levels in the semantic hierarchy. I began this task with the aim of examining and analysing logical relations using an approach based on a theory of semantic structure set forth in a volume entitled The Semantic Structure of Written Communication (Beekman, Callow & Kopesc 1981) and further developed by Larson (1984). My primary interest lay in analysing the semantic structure of the relations themselves, and to a lesser degree on the grammatical means used to encode these relations. However, as I progressed with the study using this approach it became increasingly clear that while the model had a number of important contributions to make in undertaking a semantic analysis of inter-propositional relations, and in particular those groups comprising the set of logical relations, there were a number of significant difficulties in the application of the theory which emerged. These difficulties arose primarily while attempting to explicate in a clear and transparent way precisely how logical relations were semantically structured in Arrernte, and what precise meaning was associated with the terms used to describe the inter-propositional relations so that someone not familiar with this particular theoretical approach could readily comprehend the nature of the relations.

A solution to the difficulties presented itself in the form of another theoretical model, namely Natural Semantic Metalanguage (NSM) theory originated by Anna Wierzbicka (especially 1980, 1988, 1992 and 1996; Goddard & Wierzbicka (eds) 1994; Goddard 1997a). I have, throughout this study, utilised both approaches in the analysis and description of findings in relation to the topic under review.

My original interest in this topic sprang from my work as a Bible translator with the Summer Institute of Linguistics and with my concern to do clear, accurate, natural and easily comprehensible translation. I began the study with the following assumptions.

Assumption 1

An analysis of the relationships that exist between propositions generally, and in particular between those propositions encoding a so-called ‘logical relation’, is both helpful and fruitful for the task of translation.

My initial interest in this topic emerged from my work with the Summer Institute of Linguistics with whom I work as a Bible translator, translating mainly New Testament Scriptures into the language of the Eastern Arrernte people living in and around the Alice Springs region. This general interest, in the way ‘logical relations’ were structured, was further stimulated by the observations of a fellow translator, Steve Swartz, concerning the difficulties he had experienced while working as a translation consultant and specifically while undertaking comprehension checking exercises relating to the way ‘because’ had been translated into various Aboriginal languages, including Djambarrpuynungu and Warlpiri. Further to this, he wanted to understand how clauses and sentences, once translated, were understood by speakers who had not previously worked on the translation. Swartz wrote a paper (unpublished) detailing his observations and challenging fellow translators to give an adequate account of the way the languages with which they were working handled constructions where the word ‘because’ or its near equivalents occurred in a given sentence frame. The challenge was issued in order that the translators would, with the understanding gained from such an exercise, be able to do accurate and natural translation that clearly communicated the meaning of the original message from which they were translating and, by implication, clearly signalled the same kind of semantic relations existing between propositions as were represented in the original texts.
Based on the initial theoretical approach I used in approaching this study, there was a further assumption I made:

**Assumption 2**

Semantic relationships exist between propositions both at the sentence level and at higher levels in the discourse hierarchy. There is both a semantic and a grammatical basis for making assumptions about the relationship between the various propositions and their higher level counterparts that together form the structure of a discourse. Sentences could be analysed on the basis of their propositional relationships to each other. At this level, where propositions combine and are typically manifested in the surface structure as a clause, combination of clauses, or a sentence, a propositional cluster has a proposition as its head which is clarified, argued for, or added to by other propositions. The grouping together of propositional clusters into larger units is based on the occurrence of particular tense and aspect markers, as well as on evidence of lexical and semantic cohesion, and the specifying of time, location and participants.

In addition to these assumptions, I had an underlying question relating to the type of reasoning process used in Eastern Arrernte that I expected the study would provide an answer to. Simply put, the question relates to the kind of reasoning process which emerges from the study of logical propositional structures in Arrernte: deductive or inductive? A deductive reasoning process is understood as ‘Present the thesis first and follow this with the supporting argument (s).’ An inductive reasoning process is understood as ‘Present the supporting argument (s) first and follow these by the thesis.’

In terms of the relations between propositions at sentence level, the conclusions reached in this study point clearly toward a deductive process of reasoning. However, at the higher levels of discourse structure the conclusions do not give unequivocal support to one or the other process. Rather, the tentative conclusions point to the need to consider a wider range of influencing factors than simply the semantic structure that emerges through this study of logical relations. This work, particularly Chapter 5, seeks to provide answers to these questions.

The remainder of this chapter serves as an introduction to the Eastern Arrernte language community and provides an overview of the key elements of the phonology and grammar and, in so doing, provides a general orientation to the language, before turning to the details associated with an analysis of the structure of logical relations in particular. The section summarising the phonology also serves to introduce the orthography as it used throughout this study.

### 1.2 Overview of Arrernte phonology and grammar

#### General comments

In general terms, Eastern Arrernte refers to the variety of Arrernte spoken in the area east of Alice Springs, and Mparntwe or Central Arrernte to the variety spoken in Alice Springs. Together these two, with an estimated population of 1500–2000 speakers, are part of the Arandic subfamily of the Pama-Nyungan family of Australian languages. Other languages in the Arandic family include: Kaytetye, Alyawarr, Anmatyerr, Western Arrernte and Alenyentarre or Lower Arrernte. The main communities where Eastern and Central Arrernte are spoken are Lityentye Apurte (Santa Teresa), Alkwerte (Alcoota), Artetyerre (Harts Range), Uthipe Atherre (Bonya), Amengwerne (Amoonguna) and, as previously mentioned, Mparntwe (Alice Springs). For the purposes of this study, Eastern Arrernte will be used in reference to the speech varieties of both Eastern and Mparntwe Arrernte without attempting to make a distinction between the two, and whenever the term Eastern Arrernte is used it should be understood as not excluding Mparntwe Arrernte. While it is acknowledged that a distinction can be drawn between these two varieties (mainly on the basis of differences pointed out by speakers themselves between a certain limited number of words, the pronunciation of some words and a limited variation in word endings), the two are certainly mutually intelligible. Wilkins (1989, p. 9) in his Mparntwe Arrernte grammar sees no basis for distinguishing between the two on linguistic grounds.

#### 1.2.1 Phonology

It is not my intention in this paper to attempt to provide a full account of the phonology of Arrernte\(^1\), however, a brief overview is offered, and a limited set of contrasts given to establish the set of relevant

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\(^1\) For a more detailed account see Wilkins’ chapter 2 (1989, pp. 74–101).
phonemes. Additionally, this overview provides an opportunity to present the orthographic symbols used throughout this study.

**Vowels**

Eastern Arrernte has four contrastive vowel phonemes; /i/, /u/, /a/ and /ə/. A four-vowel system such as this is extremely rare among the world’s languages\(^2\). Table 1 specifies the relevant features of articulation for each vowel phoneme:

<table>
<thead>
<tr>
<th>TABLE 1: EASTERN ARRERnte VOWELS</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Orthographic symbols are given in brackets)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Front</th>
<th>Central</th>
<th>Back</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>i (i)</td>
<td></td>
<td>u (u)</td>
</tr>
<tr>
<td>Mid</td>
<td>ə (e)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>a (a)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

With respect to the range of realisations of each of the vowel phonemes, /i/, /u/ and /ə/ have relatively small ranges compared to that of /a/, which is influenced to a very significant degree by its environment. Concerning the distribution within a word however, the phoneme /ə/ has a limited distribution; it does not occur in the word-initial position and, further to this, /a/ is the only vowel phoneme to occur in the word-final position. The following minimal set illustrates the contrasts in initial position:

(1) inteme /intəmə/ ‘is lying down’
untemə /untəmə/ ‘is running’
antemə /antəmə/ ‘now (particle)’

The full four-way contrast for each of the vowels between consonants is in fact very rare; however, the following three sets of close minimal forms serve to establish the contrast for each vowel phoneme.

(2) a. arrule /əruələ/ ‘long time’
arirيلة /ərilenə/ ‘sharp’
irarle /iraʃə/ ‘cocoon’
arerle\(^3\) /əɾəʃə/ ‘deaf, mad’

b. irrure–arrure /irura~/arura~/ ‘young single man’
irrare /irəɾə/ ‘(go somewhere) for a short time’
irrare /irəɾə/ ‘sad and lonely’
irrilpe /irilpMa/ ‘type of cricket’

c. tyipe /tiʃə/ ‘a piece of something’
tyape /tiʃəpə/ ‘an edible grub’
tyepetye /tiʃəpətəʃə/ ‘pattern, design’

**Consonants**

Eastern Arrernte has 52 consonant phonemes\(^4\), which represents a significantly large inventory when compared to most other Australian languages. The features which serve to assimilate it to many other Australian languages include the stops and nasals, which may be contrasted at six points of

\(^2\) Of the 317 languages surveyed by Ian Maddieson (1984, p. 126, quoted in Wilkins 1989, p. 75) only 15 (4.7%) had four vowel systems.

\(^3\) There is the form arele /əɾəʃə/ ‘see-Gevet’, however, because this form is comprised of two morphemes, the verb stem are- ‘see’ and -rle ‘Gevet’ (‘general event’) it was not used, in order to maintain consistency of representation with the other single morpheme examples.

\(^4\) Wilkins (1989, p. 83) lists only 49 in his consonant phoneme inventory acknowledging that while, in his data, the two labialised laminal prestopped nasals and the single labialised inter-dental nasal were not attested "[f]urther data may, indeed, reveal their existence and the phoneme inventory would have to be revised accordingly". This, in fact, is the case and the ‘missing’ examples have been supplied.
articulation: bilabial, lamino-dental, apico-alveolar, apico-post-alveolar, lamino-palatal and dorso-velar. Those features which serve to disseminate it from many other Australian languages and, according to Maddieson (1984, p. 27, quoted in Wilkins 1989, p. 83) make it extremely rare among the world’s languages, are the phonemic series of pre-stopped nasals which may be contrasted at each of the six points of articulation. A further feature of Arrernte, which again helps to make it atypical of Australian languages, is that it has two series of consonant phonemes which can be distinguished on the basis of the presence or absence of the secondary articulation feature of labialisation associated with the particular phoneme in question. That is, every one of the non-labialised phonemes can be found to correspond to a labialised phoneme at the same place and in the same manner of articulation. The feature of voicing is non-contrastive in Arrernte.

TABLE 2A: ORTHOGRAPHIC SYMBOLS USED FOR EASTERN ARRERNTE
NON-LABIALISED CONSONANT PHONEMES

<table>
<thead>
<tr>
<th></th>
<th>Bilabial (Peripheral)</th>
<th>Lamino-Interdental</th>
<th>Apico-Alveolar</th>
<th>Apico-Post-Alveolar (Retroflex)</th>
<th>Lamino-Palatal</th>
<th>Dorso-Velar (Peripheral)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stops</td>
<td>p</td>
<td>th</td>
<td>t</td>
<td>rt</td>
<td>ty</td>
<td>k</td>
</tr>
<tr>
<td>Nasals</td>
<td>m</td>
<td>nh</td>
<td>n</td>
<td>rn</td>
<td>ny</td>
<td>ng</td>
</tr>
<tr>
<td>Pre-stopped Nasals</td>
<td>pm</td>
<td>thn</td>
<td>tn</td>
<td>rtn</td>
<td>tny</td>
<td>knw</td>
</tr>
<tr>
<td>Laterals</td>
<td>lh</td>
<td>l</td>
<td>rl</td>
<td>l</td>
<td>y</td>
<td>h</td>
</tr>
<tr>
<td>Approximants</td>
<td></td>
<td></td>
<td></td>
<td>r</td>
<td>y</td>
<td>h</td>
</tr>
<tr>
<td>Trill</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>rr</td>
</tr>
</tbody>
</table>

TABLE 2B: ORTHOGRAPHIC SYMBOLS USED FOR EASTERN ARRERNTE
LABIALISED CONSONANT PHONEMES

<table>
<thead>
<tr>
<th></th>
<th>Bilabial (Peripheral)</th>
<th>Lamino-Interdental</th>
<th>Apico-Alveolar</th>
<th>Apico-Post-Alveolar (Retroflex)</th>
<th>Lamino-Palatal</th>
<th>Dorso-Velar (Peripheral)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stops</td>
<td>pw</td>
<td>thw</td>
<td>tw</td>
<td>rtw</td>
<td>tyw</td>
<td>kw</td>
</tr>
<tr>
<td>Nasals</td>
<td>mw</td>
<td>nhw</td>
<td>nw</td>
<td>rtw</td>
<td>nyw</td>
<td>ngw</td>
</tr>
<tr>
<td>Pre-stopped Nasals</td>
<td>pmw</td>
<td>thnw</td>
<td>tnw</td>
<td>rtnw</td>
<td>tnyw</td>
<td>kngw</td>
</tr>
<tr>
<td>Laterals</td>
<td>lhw</td>
<td>lw</td>
<td>rlw</td>
<td>lw</td>
<td>lyw</td>
<td></td>
</tr>
<tr>
<td>Approximants</td>
<td>(w)</td>
<td></td>
<td></td>
<td></td>
<td>yw</td>
<td>w</td>
</tr>
<tr>
<td>Trill</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>rrw</td>
</tr>
</tbody>
</table>

TABLE 3A: WORDS EXEMPLIFYING DISTINCTIONS AMONG CONSONANT PHONEMES
(Non-Labialised Consonant Phonemes)

| aper | ‘red river gum’ | ather | ‘grinding stone’ | atere | ‘afraid’ | aterme | ‘is building, covering’ | atyep | ‘a belt’ | kere | ‘game, animal’ |
| amenge | ‘a fly’ | anheme | ‘is wetting something’ | aneme | ‘is sitting’ | arne | ‘tree, thing’ | anynte | ‘one’ | angepe | ‘a crow’ |

---

5 According to Wilkins (1989, p. 83), Maddieson labels the pre-stopped nasals ‘post-nasalized voiced’ stops or ‘nasally-released’ plosives, and apparently the only language exemplifying this type, of the 317 languages surveyed, was Aranda. In his Aranda consonant table, Maddieson according to Wilkins (1989, p. 83) classes the pre-stopped nasals simply as ‘voiced plosive’.

---
<table>
<thead>
<tr>
<th>phoneme</th>
<th>meaning</th>
<th>phoneme</th>
<th>meaning</th>
<th>phoneme</th>
<th>meaning</th>
<th>phoneme</th>
<th>meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>apmere</td>
<td>‘camp, place’</td>
<td>uhneme</td>
<td>‘is biting something’</td>
<td>tnome</td>
<td>‘is standing’</td>
<td>arneme</td>
<td>‘is crying’</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>alheme</td>
<td>‘is going’</td>
<td>aleme</td>
<td>‘liver’</td>
<td>arlenge</td>
<td>‘a long way’</td>
<td>alyeme</td>
<td>‘is singing’</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>arlange</td>
<td>‘father’</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TABLE 3B: WORDS EXEMPLIFYING DISTINCTIONS AMONG CONSONANT PHONEMES**

(Labilised Consonant Phonemes)

<table>
<thead>
<tr>
<th>phoneme</th>
<th>meaning</th>
<th>phoneme</th>
<th>meaning</th>
<th>phoneme</th>
<th>meaning</th>
<th>phoneme</th>
<th>meaning</th>
<th>phoneme</th>
<th>meaning</th>
<th>phoneme</th>
<th>meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>apwe</td>
<td>‘emu down’</td>
<td>ithwenge</td>
<td>‘maybe not’</td>
<td>itwe</td>
<td>‘near’</td>
<td>artwe</td>
<td>‘man’</td>
<td>atywe</td>
<td>‘calf of leg’</td>
<td>akwarratyey</td>
<td>‘right hand’</td>
</tr>
<tr>
<td>mwerre</td>
<td>‘good, healthy’</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></td>
<td>inhwere</td>
<td>‘strong unpleasant smell’</td>
<td>anwerne</td>
<td>‘we (S, A)’</td>
<td>arnwere</td>
<td>‘humming sound’</td>
<td>anywere</td>
<td>‘native bee’</td>
<td>ingwe</td>
<td>‘night’</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>apmwe</td>
<td>‘snake’</td>
<td>athnwerte-irreme</td>
<td>‘to curl up’</td>
<td>atnware</td>
<td>‘heel of foot’</td>
<td>artnwere</td>
<td>‘dingo’</td>
<td>arratyatnywert-angeye</td>
<td>‘fat tailed antechinus’</td>
<td>akngwelye</td>
<td>‘dog’</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>alhwe</td>
<td>‘blood’</td>
<td>alwirreme</td>
<td>‘is running away’</td>
<td>arlwe</td>
<td>‘rounded stone’</td>
<td>alyweke</td>
<td>‘stone knife’</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(awethe)</td>
<td>‘more, again’)</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>
<thead>
<tr>
<th>phoneme</th>
<th>meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>arwe</td>
</tr>
</tbody>
</table>

1.2.2 Stress

The assignment of stress in Eastern Arrernte is, for the most part, predictable. The general rule, applicable in most instances, is that primary stress is assigned to the first syllable which is opened by a consonant.

(3) ayerneme /aːŋəma/ [aːŋəma] ‘is wrapping something up’

yerneme /ŋəma/ [ŋəma] ‘is sending something’

However, contrary to the above generalisation, in words with only a single consonant position there is some variation apparent between stress on the initial and final vowels. Additionally, in some words when there is an initial /a/ and the second vowel is /ə/, the primary stress may be manifest on either the initial or the second vowel. One pertinent example of this variation concerns the word Arrernte /arənte/ itself which may be realised as either [arənde] or [arənde].

---

6 This form is included twice in the table in order to show the /w/ is both bilabial and velar.

7 While this statement is generally true, Wilkins (1989, p. 94) has noted that a full understanding of the assignment of stress remains a subject for further investigation and as yet the rules governing stress are ‘not entirely clear’.
1.2.3 Pronouns

General Forms

The general set of pronouns manifest a threefold distinction for both person (first, second, third) and number (singular, dual, plural).

**TABLE 4A: S/A (SUBJECT) PRONOUN SET**

<table>
<thead>
<tr>
<th></th>
<th>Singular</th>
<th>Dual</th>
<th>Plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st person</td>
<td>S Ayenge</td>
<td>A ilerne</td>
<td>anwerne</td>
</tr>
<tr>
<td>2nd person</td>
<td>unte; nge</td>
<td>mpwele</td>
<td>arrantherre</td>
</tr>
<tr>
<td>3rd person</td>
<td>re</td>
<td>re-atherre</td>
<td>itne</td>
</tr>
</tbody>
</table>

**TABLE 4B: ACCUSATIVE (O) PRONOUN SET**

<table>
<thead>
<tr>
<th></th>
<th>Singular</th>
<th>Dual</th>
<th>Plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st person</td>
<td>ayyenge</td>
<td>ilernenhe</td>
<td>anwernenhe</td>
</tr>
<tr>
<td>2nd person</td>
<td>ngenhe</td>
<td>mpwelenhe</td>
<td>arrantherrenhe</td>
</tr>
<tr>
<td>3rd person</td>
<td>renhe</td>
<td>renhe-atherre(nhe)</td>
<td>itnenhe(nhe); renhe-areye</td>
</tr>
</tbody>
</table>

**TABLE 4C: POSSESSIVE PRONOUN SET**

<table>
<thead>
<tr>
<th></th>
<th>Singular</th>
<th>Dual</th>
<th>Plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st person</td>
<td>atyenhe</td>
<td>ilernekenhe</td>
<td>anwernekenhe</td>
</tr>
<tr>
<td>2nd person</td>
<td>ngkwinhe</td>
<td>mpwelekenhe</td>
<td>arrantherrenhe</td>
</tr>
<tr>
<td>3rd person</td>
<td>ikwerehenhe</td>
<td>ikwere-atherrenhe</td>
<td>itnekenhe</td>
</tr>
</tbody>
</table>

**TABLE 4D: DATIVE PRONOUN SET**

<table>
<thead>
<tr>
<th></th>
<th>Singular</th>
<th>Dual</th>
<th>Plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st person</td>
<td>atyenge</td>
<td>ilerneke</td>
<td>anwerneke</td>
</tr>
<tr>
<td>2nd person</td>
<td>ngkwenge</td>
<td>mpweleke</td>
<td>arrantherre</td>
</tr>
<tr>
<td>3rd person</td>
<td>ikwere</td>
<td>ikwere-atherre</td>
<td>itneke</td>
</tr>
</tbody>
</table>

Generation level and patrimoiety membership forms

In addition to the above set of general pronouns there exist in Eastern Arrernte some partial paradigms, which mark generation level and membership of patrimoietty. The nominative forms are as follows:

**TABLE 4E: GENERATION AND MOIETY PRONOUNS (NOMINATIVE ONLY ILLUSTRATED)**

<table>
<thead>
<tr>
<th></th>
<th>Singular</th>
<th>Dual</th>
<th>Plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dual 1st person</td>
<td>ilerne</td>
<td>ilake</td>
<td>ilanthe</td>
</tr>
<tr>
<td>2nd person</td>
<td>mpwele</td>
<td>mpweleke</td>
<td>mpwelekanthe</td>
</tr>
<tr>
<td>3rd person</td>
<td>re-atherre</td>
<td>alake</td>
<td>alanthe</td>
</tr>
<tr>
<td>Plural 1st person</td>
<td>anwerne</td>
<td>anwakerre</td>
<td>anwantherre</td>
</tr>
<tr>
<td>2nd person</td>
<td>arrantherre</td>
<td>arrakkerre</td>
<td>arrantherre</td>
</tr>
<tr>
<td>3rd person</td>
<td>itne</td>
<td>itnakkerre</td>
<td>itnantherre</td>
</tr>
</tbody>
</table>

A particular feature of the third person pronoun is that it may occur with other nominals to mark...
definiteness. When present, a definite pronoun occurs in the final position in an NP preceding case marking:

(4)  
\[
ampe \; \text{re}  
\]
child 3sg(DEF):NOM  
‘the child’

1.2.4 Morphology and syntax

Nominals

In terms of its morphology, Eastern Arrernte is an agglutinative language which employs, in accord with other Pama-Nyungan languages, only suffixes, making no use of prefixes. It has fourteen cases and these are marked on the final element of the noun phrase. A simple noun phrase (NP), that is, noun phrases that have no other NPs embedded in their structure, may be either pronominal or non-pronominal. Minimally, a simple pronominal NP consists of a case marked pronoun. When fully expanded, simple noun phrases contain the following slots:

\[
\text{FIGURE 1: FULLY EXPANDED SIMPLE NOUN PHRASE STRUCTURE}  
\]

[Classifier Noun]Hd Adj.P Quant.P Demonstrative 3pnDEF -Case

While the order of the above constituents is given as they obligatorily occur, it should be noted that there is a little more flexibility in the ordering with the Adjective Phrase, the Quantifier Phrase and the Demonstrative slots, which are pragmatically governed. There is, however, a noted tendency for core arguments to precede the verb and for the peripheral elements to follow the verb. The only obligatory slot is Case, which is suffixed to the final element of an NP. The constituent filling any of the other slots in the structure may stand as the only nominal in a NP; however, every NP obligatorily contains minimally one nominal. For illustrative purposes, some examples of simple NPs are given in (5):

(5)  
a. \[
dog black big two -ERG  
‘two big black dogs’

b. \[
artweN[Hd ampweAdj nhengeDem -ke  
man old REMEMB -DAT  
‘(...and ask) that old man’

c. \[
merneClass alangkweN[Hd nhenheDem re3pnDEF-nhe  
food bush banana this 3sg -ACC  
‘(...) eat) this bush banana’

d. \[
anwerne-nhe[Hd 1pl-ACC  
‘(...)hit) us’

Verbs

A fully expanded verb in Eastern Arrernte has a complex structure containing seven functionally distinct slots. The following structure, which has been slightly modified from Wilkins’ (1989, p. 226), illustrates the maximally expanded Arrernte verb:
FIGURE 2: FULLY EXPANDED STRUCTURE OF THE EASTERN ARRERnte VERB

<table>
<thead>
<tr>
<th>+ VERB ROOT</th>
<th>+ Derivational suffixes</th>
<th>+ Category of Associated Motion</th>
<th>+ Continuous Aspect</th>
<th>+ Number Agreement with S/A</th>
<th>+ Reduplication</th>
<th>a) Main Verb Suffixes: Tense IMP/NEG.IMP Generic Event Permissive Hypothetical b) Suffixes where Verb dependent on auxiliary to bear tense: Negative Purposive c) Typically Dependent Verb suffixes: HOPE Subsequent Aversive {Rel.Tense + Switch Negative} Ref.</th>
</tr>
</thead>
<tbody>
<tr>
<td>angke-</td>
<td>-rr</td>
<td>-inty.alpe</td>
<td>rle.ane</td>
<td>-rrr</td>
<td>-pe-rre</td>
<td>-me</td>
</tr>
<tr>
<td>speak</td>
<td>-RECIP</td>
<td>-DO. COMING BACK</td>
<td>-CONT</td>
<td>-dl.S/A</td>
<td>-FREQ.rdp</td>
<td>-NPP</td>
</tr>
</tbody>
</table>

‘(two people) frequently speaking continuously to each other while coming back (towards here)’

With respect to the figure above the following should be noted:

+ ‘obligatorily filled slot’

± ‘optionally filled slot’

Bearing this in mind, it can be seen that the only two slots obligatorily filled are the first and last slots. The first slot is filled by the verb root itself and the final slot may be filled by inflections indicating the tense, mood and/or modality of the clause in question and additionally inflections which show the type of semantic relation which a dependent verb holds with respect to the main verb. Some other examples of the various slots in the verb structure filled are given in (6):

(6) a. are\_vb.root -me\_tense
    see -NPP
    ‘is seeing’

b. are\_vb.root -rl.ane\_cont.asp -rrr\_A number agreement -rlenge\_dep suffix
    see -DO.BE -DUAL -DS
    ‘(...while) they are looking’

c. artnerre\_vb.root -nhe\_assoc. motion -ke\_tense
    crawl -DO.PAST PC
    ‘crawled past’

d. apetye\_vb.root -Ømain\_vb.suffix
    come -IMP
    ‘Come!’

In common with most Australian languages (Goddard 1982, p. 167, also Dixon 1976) Eastern Arrernte has the three core syntactic/grammatical case categories: nominative, ergative and accusative. This system is realised through a so-called ‘split case-marking’ system (or ‘non-homogeneous’ case-marking as Goddard (1982) has referred to it). Within this system, pronominal forms (with one notable exception) are marked according to a nominative–accusative pattern; that is, they will take Ø in S and A function and will take-nhe in O (i.e. Accusative) function. The exception relates to the first person singular pronoun which has the aberrant form the for A grammatical function and this contrasts with
the form *ayenge* for S and O grammatical functions. In this way the first person singular pronoun alone is marked according to an Ergative pattern while all other pronouns follow a nominative–accusative pattern of marking. A small set of examples illustrating case markings on pronominal forms is given in (7):

(7)  
a. *Ayenge-Ø unte-me.*  
1sg:NOM(S) run-NPP  
‘I am running.’

b. *Re-Ø unte-me.*  
3sg:S run-NPP  
‘She is running.’

c. *The-Ø re-nhe atwe-ke.*  
1sg:ERG(A) 3sg-ACC(O) hit-PC  
‘I hit him.’

d. *Re-Ø ayenge-Ø atwe-ke.*  
3sg:A 1sg:ACC(O) hit-PC  
‘He hit me.’

e. *Itne-Ø arrenhantherre-nhe atwe-rrirre-ke.*  
3pl:A 2pl-ACC(O) hit-PLURAL-PC  
‘They hit you.’

Non-pronominal forms are marked according to an ergative–nominative pattern; that is, they will take-le ‘Ergative’ in A grammatical function and they will take Ø in S and O grammatical function. The examples in (8) serve to establish the pattern of marking for non-pronominal forms:

(8)  
a. *Artwe-Ø unte-me.*  
man-(S) run-NPP  
‘The man is running.’

b. *Artwe-le akngwelye-Ø atwe-ke.*  
man-ERG(A) dog-(O) hit-PC  
‘The man hit the dog.’

c. *Artwe-Ø akngwelye-le uthne-ke.*  
man-(O) dog-ERG(A) bite-PC  
‘The dog bit the man.’

In contrast with a significant number of Australian languages, Eastern Arrernte has neither distinct verb conjugations nor bound pronominals. The verb may, however, incorporate a non-obligatory inflection specifying number, but not person, of the S or A (i.e. the subject) (see Henderson’s (1990) paper for a summary of the complexities of number-marking in Eastern Arrernte verbs). The examples given in (9) give a small indication of the scope of number marking in verbs. Note that the single form is taken as unmarked:

(9)  
a. *Ayenge-Ø ane-me.*  
1sg:NOM sit-NPP  
‘I am sitting.’

b. *Ratherre-Ø ane-rrre-me.*  
3dl:S sit-DUAL-NPP  
‘Those two are sitting.’

c. *Itne-Ø ane-rrrirre-me.*  
3pl:S sit-PL-NPP  
‘They are sitting.’

d. *The-Ø atwe-me.*  
1sg:ERG hit-NPP  
‘I am hitting (someone else).’
One particularly interesting and elaborate feature of the verb morphology in Eastern Arrernte concerns the ability within a verb to specify that the action associated with the verb-stem happens in association with a motion event with a specific orientation in space (see Wilkins 1989, pp. 270–298). A verb inflected in this way may variously indicate that the verb action occurred while the subject was moving back towards the speaker, or it happened while going downwards, or after the motion of the subject was completed, and so forth. No fewer than fourteen forms have been identified which convey this type of information; the forms which constitute this grammatical category have been called, following Koch (1984, p. 23, quoted in Wilkins 1989, p.270), ‘the category of associated motion’. The examples given in (10) present a limited number of ‘associated motion’ inflected verbs for illustrative purposes:

(10) a. Re atnye-tye+kerle-ke kwatye-werne...
   3sg:S fall-DO+DOWNWARDS-PC water-ALL
   ‘He fell down into the water...’ [Ayeye Altyerrengentyele ref. 50]

b. ...r-arle mpepe-ke atw-intye-ke...
   3sg:A-RELCL middle-DAT kill-TWD-PC
   ‘...which he had killed on his way (toward here)’ [Ayeye Altyerrengentyele ref. 5]

c. Ikwere-nge arrerne-lhe-ty+alpe-rlenge lyeke-le arne atnelhe tanthe-ke.
   3sg:DAT-ABL put-REFL-GO BACK+DO-DS prickle-ERG stick bottom
   ‘After that when he had returned and sat down, a prickle stabbed him in the bum.’
   [Wilkins 1989, p. 288]

Clauses and simple sentences

There remain a few generalised comments to be made concerning the basic structure of clauses and simple sentences. (For a full discussion of simple sentences and the basic elements of clause structure, see Wilkins 1989, pp. 432–453). A sentence in Arrernte, at its simplest, comprises a nominal or verbal predicate, and, if there are any, the NP arguments that satisfy the semantic roles determined by the predicate. While it has been mentioned above (under ‘nominal morphology’) that the ordering of constituents in NPs is reasonably well fixed, this is not the case concerning the ordering of the constituents in a simple sentence, which have a tendency to be relatively free.

Regarding the ordering of the core grammatical arguments S, A, O and V, the patterns typically encountered in elicited sentences, and also frequently in both conversation and text, are SV and A (O)V, however all alternate orders are possible. One particular ordering tendency emerges in those instances where the verb is associated with three arguments. In these cases, the tendency is for two arguments to precede the verb and for one to follow. The more common pattern to be displayed in these type of sentences is for the S, A or O arguments to precede the verb and for the argument following the verb to be marked as ablative, dative, instrumental or allative. Consider for example the following three sentences:

(11) Kele arwe re arrayte apmere mpware-tyenhenge
   OK man 3sg:DEF(A) true camp(O) make/do-SUBSQ(V)
   itne-ke-nge arlenge ulkere.
   3pl-DAT-ABL long way TYPE
   ‘So, the man made camp far from them.’ [Ayeye Altyerrengentyele ref. 13]
A gust of wind blew a spark towards the windbreak...

When are you giving that money (you remember) back to me?' [Wilkins 1989, p. 277]

With respect to relative clauses (see Wilkins 1989, pp. 414–431), they may be either fully embedded, or split from their head, although there are instances of headless relatives as well as both internally and externally headed relatives. The position of the head noun in relation to the subordinated (relative) clause is the particular structure which serves to distinguish the different relative clause types. An example of a headless relative clause type is found in the Ayeye Altyerrengentyele text and is reproduced here in (14). In this example of a headless relative, the main clause is marked with the allative (ALL) but the locative (LOC) marked head is missing altogether:

So then man stranger 3sg:S hill top-DAT climb-DO.PAST-PC

[artwe anew-ikwe r-arle ane-tyeme] RELCL -werne.

man spouse-3KinPOSS 3sg:S sit/live-PP -ALL

'So the stranger climbed up the hill towards (the place) where the woman\'s husband was sitting.' [Ayeye Altyerrengentyele, ref. 40, 41]

Dependent clauses can be of either the adjoined or the embedded type. Tracking of referents across clauses can be accomplished by either pronouns or zero anaphora. However, in addition to this, there is also a well developed system of switch-reference whereby the identity or non-identity of the subject (i.e. S or A) can be clearly tracked across two clauses. The clause which is switch-reference marked functions either as a temporal adverbial clause or as a causal clause with respect to the clause upon which it is dependent. Within this system, the subject (S or A) of the dependent clause is marked according to whether it is the same as or different from the subject of the main clause (see Wilkins 1989, pp. 454–487). Examples of switch-reference marked clauses where the dependent clause, which takes the switch-reference marker, is functioning as a temporal adverbial clause are given in (15), and examples of switch reference marked causal clauses are given in (16):

We learned a lot while we were going to school.' [Arltungawerne Alpeke ref. 28/29]

'She saw him sitting in a cave...’ [Ayeye Altyerrengentyele ref. 30/31]

'They spread things all over the place while they were searching for money.'
b. *Arelhe yanhe-le atherre antyame*

\[
\begin{align*}
\text{woman} & \quad \text{that(MID)-ERG} & \quad \text{two} & \quad \text{blanket} \\
\text{alparre-ile-me-le} & \quad \text{antyame-iwe-me}, \\
\text{flatten out-CAUS-NPP-SS} & \quad \text{blanket-throw-NPP} \\
\text{lyete-arle akwele mane akngerre-ke arrkene-irre-rirre-tyenhe-nge.} \\
\text{today-FOC QUOT money big-DAT fun-INCH-PL-FUT-DS}
\end{align*}
\]

‘Those two women are spreading out a blanket and straightening it out because people are going to be playing (cards) for a lot of money today.’

It has not been my intention here to give any kind of detailed description of all the rich variety of features of the grammar or phonology of Arrernte. This task, at least in respect of the grammar, has already been adequately accounted for by Wilkins (1989). Rather, it has been my aim to offer a brief introduction to Arrernte, drawing attention to the most salient features of the phonology and grammar in a way that provides an orientation to the material that follows in the remainder of this work.

## 1.3 Conclusions

In this chapter we have introduced the main concerns and aims of the study, and why they are significant. The remainder of this paper seeks to provide answers to the questions concerning the semantic structure of logical relations and the means of expressing these relations in Arrernte. An introduction to the phonology and grammar has also been provided, giving some indication of the complexity and richness of the language resources as well as providing an orientation to the significant features of syntax which will assist in the reading and understanding of the discussion of interpropositional relations.

A brief overview is now offered, by way of introduction to the content presented in the remaining chapters. Chapter 2 introduces the Semantic Structural Analysis (SSA) theory upon which the initial task of analysing logical relations, as they are expressed in Arrernte, was based. The methodology associated with the application of this theory to the task is also presented there. An orientation is provided as to how the semantic relation between propositions is displayed within the Semantic Structural Analysis theory. This chapter identifies the inherent problems with this approach and proposes a solution. The solution offered effectively anchors the typology associated with logical relations in lexico-grammatical universals, that is, in effect, semantic primes allied with Natural Semantic Metalanguage (NSM) theory. An overview of the fundamental tenets of NSM theory are also presented here. Chapter 2 concludes by positing a prototypical scenario for BECAUSE-type sentences and IF-type sentences.

Chapter 3 begins by looking at the relationships between propositions in Arrernte, specifically confining the discussion to logical types, using the Semantic Structural Analysis approach as set out in Chapter 2. The discussion then turns to an examination of each of the seven different SSA types to see if they can be combined into two general types—BECAUSE-types and IF-types—and described using NSM syntax. In so doing, I explain the main features and varieties of expression of the types under discussion. The remainder of the chapter examines a range of specific Arrernte examples in which each of the logical relation types is separately expressed. A semantic explication is proposed for each, expressed as a reductive paraphrase in terms of NSM semantic primes. In this way two core categories of logical types are established: a BECAUSE-type and an IF-type.

The discussion in Chapter 4 turns to an examination of the specific way in which the two core categories of logical relations are marked in Arrernte sentences. To accomplish the task, Chapter 4 identifies recurrent patterns of marking of logical relations, compares those features relevant to concept of natural and marked prominence, examines the distinguishing features of same and different subject purpose sentences, provides details of the range of devices in Arrernte used to indicate a BECAUSE-relation, examines the relevant features of switch-reference marked inter-clausal relations and looks at those juxtaposed clauses understood as encoding a BECAUSE-relation. The salient features associated with the semantic structure and expression of IF-type sentences are examined in a separate section in the remainder of this chapter.

Chapter 5 introduces how logical relations are expressed at higher than sentence levels in the semantic hierarchy. Some general comments provide an orientation to various discourse considerations including cohesion and the various means used to hold the thread of discourse together. Two specific
texts, one a Dreaming narrative, and the other a recount narrative in which childhood memory is recounted, are examined and some general observations made regarding the semantic structure of discourse. In addition some preliminary observations are expressed regarding the type of reasoning process that can be identified. Preliminary observations point to the need to consider factors beyond a straight analysis of the data. Despite the fact that both texts share the same author, two distinct patterns of argumentation are displayed: a deductive reasoning process is evident in the recount narrative, while an inductive process is evident in the Dreaming narrative. Some tentative reasons are suggested for why this should be the case. Chapter 5 concludes by pointing to topics which require further research before yielding any significant answers. Chapter 6 brings together the significant conclusions from this study.
Chapter 2: Theoretical Overview

The initial approach applied to the study and analysis of logical relations in Eastern Arrernte was based on Semantic Structural Analysis theory; what follows is an introduction to the key elements of this theory and an overview of how the methodology associated with the theory is applied to the analysis and display of the language material under review. The main terms associated with the theory are introduced and an explanation is offered of the way in which the relevant terms are used within the theory. The difficulties mentioned in the preceding chapter (see § 1.1), concerning the application of the theory, are discussed below. The solution set forth lies in the application of a second theoretical approach, namely the Natural Semantic Metalanguage (NSM) approach, and an overview of this theory is also introduced here. This introduction to the theoretical basis adopted for the study of logical relations in Arrernte concludes by raising the possibility that Larson’s (1984) seven distinct categories of logical relation can be grouped together and expressed as two core types using NSM syntax.

2.1 Overview of Semantic Structural Analysis theory

The kind of analytical approach to discourse referred to as a ‘Semantic Structural Analysis’ (SSA) is based on the theory of semantic structure set forth in ‘The Semantic Structure of Written Communication’ (Beekman, Callow & Kopesec 1981) and later developed by Larson (1984). Within this theory of the structure of meaning, a consistent and comprehensive approach to the analysis of the meaning is applied to the total text. The term structure when used in this context is meant to indicate that the text under consideration is regarded as consisting of a coherent grouping of constituent parts. Each of these constituents, in turn, consists of coherent groupings of yet smaller constituents, and so on. These constituents, of whatever size or complexity, are identified and then (apart from the concepts, the smallest constituents of all) they are described as to their role or function within the total structure and as to their relationship to other constituents. As a structural analysis, the focus of this approach is also on the most important (‘prominent’) information being communicated.

Concept within this theory corresponds roughly to the word or phrase in grammar—to the meaning content only, not to the actual form (word). It is typically a coherent grouping of semantic components which refers to or names a thing, an event, an attribute or a relation in the world spoken of in the discourse/text being considered. Each separate language has its own unique inventory of concepts; Barnwell (1980, p. 141) offers the following explanation as to how these concepts can be identified:

In a given language, the concept unit usually, but by no means always, is represented by a word; it may also be represented by a morpheme, or by an idiomatic expression, or by tone, or by word order. Concepts are identified in a given language on the principle of contrast and comparison within the system of that language. Each concept is associated with a particular area of meaning which is distinct from that of other concepts in the language; its function is to refer to some specific area of meaning.

The concept characteristically functions as a constituent of a proposition and has a role within it; but such roles, while part of the total theory, are little used in this type of analysis.

There are two main points of this theory relevant to the present discussion: The first is that a discourse may be assumed to consist of semantic units and these units are arranged in a hierarchical system. The second is that each semantic unit is characterised by a set of meaning features. The particular features of concern here (they may be grouped as analytical features) are consistency, coherence and prominence. The term semantic draws attention to the concern of this approach with meaning. It assumes that in a system of communication meaning has priority over the forms used to convey it.

The feature of consistency is that each semantic unit consists of other semantic units. Coherence has to do with how those constituent units combine with each other. Prominence has to do with the relative degree of importance of information in a semantic unit. Here a distinction is made between natural and marked prominence. Natural prominence is closely tied to the relational structure. In many binary pairs of relations, one of the two relations is assumed to be naturally more prominent. For example, in this approach to the analysis of relations between propositions, there is an assumption made that an exhortation is more prominent than the grounds it is paired with, the result is more prominent than the reason, and so on. Marked prominence is shown by special linguistic devices in the language under consideration. This could be by means such as non-typical ordering of the clauses, by a propositional
cluster of lesser natural prominence being given the form that would be expected of a prominent cluster, or in some instances by the use of clitic specifically marking focus or prominence.

Although semantic structure is spoken of as more of a network of configurations, each being part of a larger configuration, for practical purposes this study will look at semantic structure hierarchically as well. Following Larson (1984, pp. 30–31), the smallest unit is a meaning component. Meaning components unite into concepts, concepts into propositions, propositions into propositional clusters, propositional clusters into semantic paragraphs, semantic paragraphs into episodes, episodes into episode clusters, and these units unite to form larger units of the discourse. The structure is one of smaller groupings uniting to form larger groupings. These various groupings then make a statement about semantic structure. It should be noted here that, although these levels have been specified, it does not assume that there is widespread agreement about precisely how many levels may be distinguished in the semantic hierarchy. The concern of this paper is primarily with the way in which propositions combine into propositional clusters, and secondarily with how propositional clusters combine into semantic paragraphs.

While it has been stated that the groupings proposed within this theory make a statement about semantic structure, they are also related to the grammatical units, although there will, of course, be a certain degree of skewing between the two. Larson (1984, p. 271) acknowledges that if skewing did not take place, then in every instance the proposition would equate with the clause or simple sentence, the propositional cluster would equal the complex sentence, and so on. The following list (Larson 1984, p. 271) is presented as a means of showing, in relation to narrative discourse, the match that would exist between semantic structure and grammatical structure if there was no skewing of groupings:

<table>
<thead>
<tr>
<th>Semantic Structure</th>
<th>Grammatical Structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>proposition</td>
<td>clause/simple sentence</td>
</tr>
<tr>
<td>propositional cluster</td>
<td>sentence (of more than one clause)</td>
</tr>
<tr>
<td>semantic paragraph</td>
<td>paragraph</td>
</tr>
<tr>
<td>episode</td>
<td>section</td>
</tr>
<tr>
<td>episode cluster</td>
<td>division</td>
</tr>
<tr>
<td>part</td>
<td>part</td>
</tr>
<tr>
<td>discourse</td>
<td>text</td>
</tr>
</tbody>
</table>

Larson refers to those groupings in the left-hand column as communication units. So then, by way of explanation, Larson (1984, p. 272) goes on to say:

Just as the concepts within a proposition are related to one another other by case (role) relations such as AGENT, AFFECTED, and LOCATION, so propositions are related to one another by communication relations such as reason–RESULT, MEANS–purpose, and grounds–CONCLUSION.

According to this explanation, the role specified using capital letters identifies the HEAD proposition (or in some instances the HEAD cluster) while the role specified using lower case letters identifies the proposition (or proposition cluster) which supports the HEAD.

It has been said that the proposition corresponds roughly to the clause or simple sentence. By way of further explanation, the following is offered as a summary of the key ideas in relation to propositions:

(a) A proposition is the smallest unit of communication, the smallest unit of linguistic meaning which actually says something about something. (Barnwell 1980, p. 159)

(b) A proposition is a significant grouping of a small number of concepts into a unit which communicates. (Larson 1984, p. 189)

(c) Each concept within a proposition has its own distinctive role and each proposition consists of at least two concepts.

(d) In straightforward instances, a proposition is the meaning expressed by a simple declarative sentence when it is uttered to make a statement. (Lyons 1977, p. 141–2)

(e) In a discourse, propositions relate to each other and group together to form larger semantic units.

Although a proposition is the semantic equivalent of a clause, there is not always a one-for-one match between grammatical clauses and semantic propositions; it is at this point that skewing occurs between the semantic and the grammatical structure. Some clauses express two or even three propositions, and some propositions are expressed by a noun phrase rather than by a clause and so on at various levels of the semantic hierarchy.
There are two broad classes or kinds of propositions: *Event propositions*, that is those containing an Event concept as their central, semantically most important, part and *State* (or *Attributive*) *propositions*. Generally speaking, Event propositions can be distinguished from State propositions by the fact that they answer the questions: ‘What happened?’, ‘What’s happening?’, etc. State propositions generally consist of two (or three concepts), typically a Thing functioning as a Topic, and all other concepts together functioning as a Comment and may be expressed as either a stative or equate clause, as in (1) consisting of three concepts or as a simple NP, as in (4) comprising two concepts. These distinctions in classes of propositions are illustrated in Arrernte as follows:

**State propositions**

(1) 
[Arne pmerlpe]_topic_ [arlpentye kangerre ulyentye akngerre-arlke.]_comment_

tree quandong tall big shady big-TOO

‘The quandong tree is tall and shady.’

(2) 
[Ayeye]_topic_ [Antethe-kerte]_comment_

story flower-PROP

‘A story about flowers.’

(3) 
[Akaperte aheye-aheye]_topic_ [apele nhenge akaperte mpepe-le]_comment_

head fontanel FACT REMEMB head middle-LOC

‘The fontanel is in the middle of the head.’

(4) 
[kngwelye]_topic_ [urrperle]_comment_

dog black

‘the black dog’

**Event propositions**

(5) 
[Angepe]_thing_ [angkentye akngerre-irre-ke...]_event_

row talk big-INCH-PC

‘The crow started talking...’

(6) 
[Artwe alethenge re]_thing_ [re-nhe tyen-irtne-ke]_event_

man stranger 3sg:DEF 3sg-ACC say-back-DO.BACK-PC

‘The stranger answered her back.’

The proposition, as illustrated above, is typically a coherent grouping of concepts which communicates an event, or a state. Broadly speaking, the proposition carries out one of three communication, or illocutionary functions—it asserts, questions or commands the event or state that it refers to. Further to this, the constituents of a proposition (typically concepts) are linked together by a system of relations, referred to above, in which the constituents fulfil what have come to be called (as mentioned above) ‘case roles’ (see Beekman, Callow & Kopesec 1981, ch. 6), or as Larson (1989, p. 272) prefers ‘case relations’. Using this terminology in example (5) above, ‘the crow’ is fulfilling the ‘agent’ role, and in example (6) ‘the stranger’ is fulfilling the ‘agent’ role and ‘her’ is functioning in the ‘affectant’ role.

For present purposes, a discourse is the whole of what one speaker says at one time, and a semantic discourse is the meaning of the discourse. Despite some lingering uncertainty about exactly how many distinctive levels there are in the semantic hierarchy, this much is clear: At each (even non-distinctive) level the semantic side of discourse is structured; identifiable parts or units are organised in recognisable patterns, and these units have semantic relationships with each other and semantic roles within the next larger unit of which they are a part. It is these relationships and how they are expressed in Arrernte that remain the focus of this paper.

**2.2 Methodology—a standard format for representing propositions**

Within this type of proposition-based approach to the analysis of texts, several possibilities exist regarding the best way to represent each proposition. Of course, it would be helpful if the written representations of propositions were analogous to the form they take in the mind. However, very little is known concerning the precise form propositions take in the mind. So then, acknowledging the above limitation, some kind of schematic or algebraic representation of propositions could be used
according to their nature as far as we understand it. The difficulty here is that there are widely differing views about how this might be done, and some linguists’ representations can be quite complex and opaque and as such are open to a charge of obscurity (Goddard 1998). For instance, one could consider the types of semantic representations associated with proponents of the conceptual semantics theoretical approach (see, for example, Katz 1972 and more recently Jackendoff 1990), in which abstract metalanguages have been employed to represent conceptual functions. The following Jackendoff-style formula (example from Goddard 1998) as it is applied to the event concept ‘drink’ can only be understood if one mentally translates it into something similar to: ‘drinking is an event in which something causes liquid to go into its own mouth’:

\[
drink = \\
[\text{Event CAUSE (}\text{[Thing]}_i, \text{[Event GO (}\text{[Thing LIQUID]}_j, \\
\text{[Path TO (}\text{[Place IN (}\text{[Thing MOUTH OF (}\text{[Thing }_j)\text{])])\text{]])]\text{])})\text{])}]}
\]

Pictures or diagrams have sometimes been used (see, for example, Lindner 1983, cited in Goddard 1998, Johnson 1987, Langacker 1988), but these cannot handle all situations, nor can they be understood by everybody without ambiguity. It is also not at all clear in what way various image schemas can be made to ‘interface with the propositional aspects of meaning’, as noted by Goddard.

To meet the need for having a method of representation that is not dependent on theoretical niceties, and can be applied here-and-now, despite the deficiencies of our current understanding, a tradition has developed, and been expounded within the Semantic Structural Analysis approach to meaning relations, that propositions should be represented by language itself in its clearest possible form.

The following points, based upon the method of representation set out in Beekman, Callow & Kopesec (1981, p. 65), summarise briefly the procedure for representing propositions within the Semantic Structural Analysis theory:

(i) Rewrite the material, representing each proposition by a single clause on a new line.
(ii) Reword the material conservatively so as to match grammatical classes with semantic classes, using nouns to represent Thing concepts, verbs to represent Event concepts, etc.
(iii) Wherever possible put verbs into active, finite forms. (Avoid passives, infinitives and stand-alone participles.)
(iv) Use words only in their primary sense to verbalise semantic notions.
(v) Replace figures of speech, idioms etc. with non-figurative language. (Note that some linguists prefer to retain live similes and make their topic and point of similarity explicit.)
(vi) Make explicit the full meaning of semantically compact expressions such as genitive and causative expressions.
(vii) Unpack complex concepts (e.g. in abstract nouns) by expressing their imbedded propositions as separate relative clauses.
(viii) For an Event proposition, explicitly state all its obligatory roles.
(ix) Put in parentheses any implicit information that has been made explicit in the propositionalisation.

While recognising that the above summary represents a significant step within the SSA theoretical framework in the process of representing the semantic analysis of a particular set of propositional relations, it is not my intention here to attempt to exemplify each of these processes and their application to the material being analysed. For the most part throughout this study the analysis of the semantic structure of logical relations is focussed upon inter-propositional relations at sentence level and the method of representation outlined above has not been applied rigorously at this level. Rather, attention is drawn to a comparison of the way the two texts (see Appendix 3) have been represented: in one instance as an interlinearised straight translation of the Arrernte into English, and in the second instance having been analysed into their base propositional structure where the above methodology has been applied and each proposition is represented on a separate numbered line.

2.3 Relations between propositions in discourse

Semantic relationships between propositions or between small clusters of propositions transcend grammatical sentence boundaries. According to the analytical framework associated with the Semantic Structural Analysis theory the following are the five main tenets which underlie the description of inter-propositional relations:
(a) The semantic relation between two propositions may be described by a so-called ‘modest set’ of twenty-eight inter-propositional relations (as Larson 1984 has described them) and each of these is represented in Table 5 below.

(b) Most inter-propositional relations are intrinsically bilateral. There are, however, five relations of the twenty-eight identified which potentially include more than two. That is, they are intrinsically multilateral relations, including those relations labelled below as ‘sequential’, ‘simultaneous’, ‘conjoining’ and ‘alternation’, and therefore would be considered as ‘coordinate’ rather than ‘subordinate’, which involve only a pair of clauses, as noted by Blake (1987, p. 139).

(c) It seems that, in general, it is best to regard the linear order of two clauses as a property of the morphosyntax/grammar and to regard the semantic relation between two propositions as unordered.

(d) In the majority of languages there is not a one-to-one matching between the semantic inter-propositional relations and the grammatical sentence types and/or conjunctions used to encode them.

(e) The definitions of the various inter-propositional relations tend to have a few fuzzy edges.

2.4 Analysing and displaying sentences semantically

The system adopted here for displaying the inventory of inter-propositional relations is that used by Larson (1984); the chart itself is adapted from Roberts (1997).

<table>
<thead>
<tr>
<th>Table 5: Chart of Relations between Communication Units</th>
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<tbody>
<tr>
<td><strong>EQUAL</strong></td>
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<td><strong>NATURAL</strong></td>
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<td><strong>PROMINENCE</strong></td>
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<td><strong>UNEQUAL</strong></td>
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<td><strong>NATURAL</strong></td>
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<td><strong>PROMINENCE</strong></td>
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<td><strong>UNIT</strong></td>
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18
Within this theory, it has proved convenient to describe each intrinsically bilateral relation with a hyphenated label, and to attach the appropriate half label to each proposition (e.g. reason–RESULT). In many of the relations between propositions, one part of the hyphenated label is traditionally written in full capital letters. In Larson’s framework of binary relationships between propositions, a key notion is that of support–HEAD, where one proposition is deemed more ‘prominent’ semantically than the other proposition. Accordingly, Larson divides propositional relationships into those having ‘equal natural prominence’ and those having ‘unequal natural prominence’. The so-called support–HEAD relationship is one of unequal natural prominence. In this relationship the more prominent proposition is labelled HEAD and the second proposition supports this HEAD proposition by orientation, clarification or logical argumentation. While Larson does not define the basis on which the HEAD proposition is determined, the support–HEAD relationship tends to correspond with the distinction between the subordinate clause and the main clause and the proposition functioning as the main clause is the semantic head of the relationship.

Beekman and Callow (1974) however do define the notion of HEAD proposition in semantic terms as the ‘development’ proposition. By this they mean the proposition that develops a semantic unit of a discourse in some way. Further to this, they say that support relations can be classified on the basis of their semantic function in a discourse according to three different functions:

(i) The support proposition clarifies another proposition, by explaining or highlighting it.
(ii) The support proposition argues for another proposition, by giving its logical antecedent or consequent.
(iii) The support proposition orients (by association) another proposition, by giving its setting relative to time, space, or other events.

The following Anarnte examples are given here to provide some orientation to the way in which this system of classifying propositions according to their semantic function applies. An example in which a support proposition clarifies another proposition is given in (7); (8) provides an example of a support proposition which argues for another proposition, and an example in which the support proposition orients another proposition is given in (9):

(7) HEAD Kenhe urreyer e artwe ikwere ile-ke
     BUT boy 3sg:A man 3sg:DAT tell-PC

     manner arretye-me-le.
     whisper-NPP-SS

     ‘But the boy, in a low voice, did tell the man.’ [Ayeye Altyerrengentyele ref. 100]

(8) RESULT Atyenge anewe ilwe-ke
     1sg:DAT spouse die-PC

     reason ngkwenge-nge ware.
     2sg:DAT-ABL JUST

     ‘My husband is dead because of you.’ [Ayeye Altyerrengentyele ref. 140]

(9) HEAD Ayenge ampe kweke [5 years old] ane-relenge
     1sg:NOM child small 5 years old sit/be-DS

     comment [dormitory]e-ke akwerne-ke
     (circumstance) dormitory-DAT put in-PC

     ‘I was a child of 5 years old when they put me in the dormitory.’ [Arltunga-werne Alpeke ref. 22/23]

2.5 Problems with the methodology

The methodological framework used for carrying out a proposition-based analysis of texts is not without its problems and critics; the ensuing difficulties of applying the methodology become increasingly clear as one progresses with an analysis of a particular set of features. In their book Discourse Analysis (1983), Brown and Yule quote Kintsch (1974, p. 124), who states the fundamental difficulty with this type of approach to semantic analysis, and then gives his solution:
one of the major problems in work of this type is that no algorithmic procedure exists to analyse a given sentence (or paragraph) into its propositional base structure. However, one can start with the propositional expressions themselves and translate these into English text.

While this may be true, it hardly provides an adequate resolution of the problem and basis for proceeding with this kind of approach to the analysis of semantic structure. However, it must be acknowledged here that Beekman, Callow and Kopesec (1981) have at least made an attempt (see § 2.2) to establish a set of principled guidelines for undertaking a proposition-based analysis of text. According to Beekman, Callow and Kopesec (1981), what Kintsch is saying above is that:

...despite the appearance of a highly formal and therefore objective type of approach, the proposition-based analysis of natural language texts is inevitably subjective...It cannot really be tested. It can only be challenged by another analyst saying, 'My semantic representation is different from yours', and no principled means is available for deciding which of the two is correct, or even which is better...A set of sentences constructed from a set of propositions may indeed demonstrate that the resultant natural language texts have propositional structure, but the argument has a distressing circularity.

Brown and Yule (1983, p. 115) go on to say:

An attempt to find an appropriate relationship between propositions and natural language texts which avoids the claim that the content of texts is stored in propositional form can be found in Clark & Clark (1977). They suggest that ‘even if information is represented in forms other than propositions, one might argue that it must be transformed into propositions before it can take part in the utilization process or in memory retrieval for the construction of sentences’ Clark & Clark (1977: 164). A similar view has been expressed by Chafe (1977: 54) in that ‘knowledge is not stored propositionally at all...the basic form of store may consist of individuated events and objects, each with an associated analogic content...until a need to verbalize them makes propositional decisions necessary’.

With Brown and Yule we can say, in the light of these comments, that it is clear that proposition forming can be assumed to be part of the process involved in producing sentences. A proposition may thus be said to be a partial structuring of what one wishes to communicate and, as such, is part of the verbalisation process. In this sense, therefore, a particular sentence cannot be treated as having a single propositional source. It may have resulted from a number of quite different propositions. Bearing this in mind, it is clear that any analysis of the sentences in a text which appeals to the propositions involved in the production of those sentences will necessarily have to appeal also to the aspects of the context in which those sentences were produced. The problem of reconstructing the underlying proposition (s) for a sentence should be quite apparent. It involves reconstructing the proposition and its relationship to other propositions that the producer of the sentence intended the sentence to convey.

The discourse analyst who wishes to present his analysis in propositional terms should realise, therefore, that his analysis represents not a straight translation from sentence meaning into an alternative format, but an interpretation of the speaker’s / writer’s intended meaning in producing the discourse’ (Brown & Yule 1983, p. 115).

A further significant difficulty with this approach lies in the specific terms used to describe the various kinds of inter-propositional relationships that have been identified. With particular reference to the set of logical relations there is a difficulty in attempting to analyse the relations between a particular pair of propositions using the semantically complex notion of ‘reason’, in addition to the other semantically complex notions which constitute the so-called ‘logical’ set. To discuss one semantically complex notion, for instance, as in the case of ‘reason’, ‘purpose’, ‘consequence’ or any other of the labels allied with SSA theory, is to remain open to the charge of obscurity and circularity of definition. The challenge therefore, is to find a means by which the semantic relationships under review can be described in the simplest of terms in a way that avoids both obscurity and circularity.

2.6 Proposed solution to this dilemma

While I acknowledge that the Semantic Structural Analysis approach to the study of texts has some useful features (in the sense that it attempts to describe in detail, via a system of bilateral relations, the types of semantic relationships existing between a given set of propositions within a text and how these relationships are encoded grammatically), the results of such an investigation are hampered by
the lack of clear and precise (and so universally applicable) definitions.

The recognition of this problem is certainly not new in linguistics; in fact, it was recognised long ago, as early as the time of Aristotle (Wierzbicka 1980, p. 12):

One of the most important principles of semantic analysis was stated by Aristotle, 2500 years ago. It says that explications must differ from ad hoc paraphrases by their directionality, that is by their systematic orientation towards reducing words which are semantically more complex and obscure to other words which are relatively more simple and clear.

Indeed, the SSA approach to semantic analysis falls prey to this concern when one considers the terminology used to described the set of bilateral relations between propositions. Consider, for example, two propositions whose relation is described in terms of the semantically complex ‘RESULT–reason’ classification or ‘RESULT–means’ classification. Further to this observation and in connection with the cross-linguistic comparability of grammatical constructions Croft (1990, p. 11, quoted in Wierzbicka 1996, p. 408) quotes Greenberg’s (1996a, p. 74) statement: ‘I fully realise that in identifying such phenomena in languages of differing structure, one is basically employing semantic criteria’. He goes on to say:

These brief remarks summarize the essential problems and a general solution. The essential problem is that languages vary in their structure to a great extent; indeed, that is what typology (and, more generally, linguistics) aims to study and explain. But the variation in structure makes it difficult if not impossible to use structural criteria, or only structural criteria, to identify grammatical categories across languages.

Wierzbicka states that not only is Croft in agreement with Greenberg’s conclusion that ultimately the solution to the problem is a semantic one, but she is also. What Wierzbicka goes on to do, however, is propose what she describes as a ‘concrete methodological solution: anchoring typology in lexico-grammatical universals (that is, in effect, semantic primes)’. Wierzbicka elaborates on this point claiming that the difficulty presented in relation to the central problem of cross-linguistic comparison of grammars (and by association how grammar encodes meaning) can be solved.

The proposed solution involves the process of discovering the prototypical meaning around which a particular grammatical construction is centred and identifying the meanings of grammatical categories in terms of universal semantic primes and, in particular, by identifying recurring semantic prototypes in such terms. For our purposes, that would entail using Natural Semantic Metalanguage (NSM) theory as a way of identifying and describing the set of logical relations—the prototypical meaning around which logical types are centred—and about the way grammar is used to encode meaning associated with these types. (For the most comprehensive recent account of the NSM theory see Wierzbicka 1996, who is the main proponent of the theory.)

### 2.7 Natural Semantic Metalanguage theory overview

The reductive paraphrase or Natural Semantic Metalanguage (NSM) approach to semantic analysis is based on the principles of simplicity and clarity. In this system, the meaning of a semantically complex expression (whether it be a word or a grammatical construction) is described using an explanatory (reductive) paraphrase or ‘explication’ composed in the simplest possible terms. These simplest of terms comprise the set of proposed ‘semantic primitives’, a set of universal (or near universal) lexical items that are resistant to further definition. This irreducible semantic core of any given language exists within and as a subset of that language and it is drawn from entirely natural language. As such, a full rendering of the semantic metalanguage must therefore include both its lexicon and its syntax.

By using this set of universal semantic primes, the NSM approach effectively negates the use of or dependence upon either highly technical or semantically complex terms or, as in some approaches, on an abstract metalanguage (cf. Jackendoff 1990) as in a conceptualist approach. Jackendoff, as a proponent of the conceptualist approach to semantics, holds the view that ‘conceptual’ primitives (his preference) are not secured in the meanings of ordinary words at all; rather they are found among the innate concepts which include a set of ‘conceptual categories’ labelled ‘semantic parts of speech’. NSM also avoids dependence on logical formalisms characteristic of other approaches to semantic analysis (see, for example, Allwood, Andersson & Dahl 1977; Bach 1989; Cann 1993).
In the case of a Semantic Structural Analysis approach to the relations between propositions, the application of the NSM theory provides an efficient tool for talking about the relations in a way transparent to other analysts and in so doing avoids the claim of non-testability or an inevitable subjectivity. The term *universal* is used as in the above context in relation to the posited set of semantic primes in the sense that each of the elements has an equivalent in all languages; that this should be so has been well demonstrated in cross-linguistic studies (see, in particular, Goddard & Wierzbicka (eds) 1994).

It is beyond the scope of this work to discuss in any detail each of the 55 posited primitives, or to enter into a discussion of the validity of the claim that equivalents to each one exist in all languages. (For a detailed study on these matters, see Wierzbicka 1996. For a discussion which focuses specifically on a cross-linguistic study of the equivalents of the semantic primes see Goddard & Wierzbicka (eds) 1994.). Table 6 (adapted from the primes listed in Wierzbicka 1996) provides the current list of all 55 posited semantic primes.

<table>
<thead>
<tr>
<th>TABLE 6: PROPOSED SEMANTIC PRIMES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Substantives:</strong></td>
</tr>
</tbody>
</table>
| I, YOU, SOMEONE, SOMETHING/THING, PEOPLE/PERSO
| **Determiners:**                 |
| THIS, THE SAME, OTHER/ELSE       |
| **Quantifiers:**                 |
| ONE, TWO, ALL, MANY/MUCH, SOME    |
| **Mental Predicates:**           |
| WANT, FEEL, THINK, KNOW, SEE, HEAR|
| **Speech:**                      |
| SAY, WORD                        |
| **Actions, events, movement:**   |
| DO, HAPPEN, MOVE                 |
| **Existence and life:**          |
| THERE IS, LIVE                   |
| **Descriptors:**                 |
| BIG, SMALL                       |
| **Evaluators:**                  |
| GOOD, BAD                        |
| **Time:**                        |
| WHEN/TIME, NOW, AFTER, BEFORE, A LONG TIME, SHORT TIME |
| **Space:**                       |
| WHERE/PLACE, HERE, ABOVE, BELOW; FAR, NEAR, SIDE, INSIDE |
| **Logical concepts:**            |
| NOT, MAYBE, IF, CAN, BECAUSE, IF...WOULD |
| **Intensifier, augmentor:**      |
| VERY, MORE                       |
| **Taxonomy, partonomy:**         |
| KIND OF, PART OF                 |
| **Similarity:**                  |
| LIKE                             |

It has been proposed (Goddard 1997a, p. 1) that the entire list of semantic primes (currently standing at 55) posited in the NSM theory can be regularly found as components of a grammaticalised meaning; that is, all can be identified as semantic components of grammatical categories in the world’s languages. In fact, Wierzbicka (1988, 1996) contends that within the proposed NSM framework ‘all aspects of grammar’ can be analysed within the framework of the reductive paraphrase approach (this includes all the possibilities of combinations, valency options associated with participant roles and possibilities of complementation). Precisely how and the extent to which the NSM approach can be applied to grammatical meaning remains a matter of ongoing research (for example, Wierzbicka 1998; Goddard 1997a).

Regarding the claim of the theory that the semantic primes have an inherent ‘universal syntax’ (as noted by Goddard 1997a, p. 8–9) it is noted that the grammaticalisation of certain semantic components is less likely to be the subject of debate than others. This applies to the BECAUSE, DO, HAPPEN, IF, and IF...WOULD type constructions. This set includes those referred to by Larson (1984) as ‘logical’ types, and with respect to these he asserts that there seems a strong basis for agreement concerning the frequent grammaticalisation of the prime BECAUSE (as in the case of causative constructions). It also seems likely that general agreement is possible concerning the recurrent grammaticalisation of the primes DO (in agentive case systems), HAPPEN (in those systems using inchoatives and/or passive constructions) and BAD and GOOD (in adversative and benefactive constructions). In addition to this, there are a number of what have been called ‘diagnostic’ syntactic constructions.

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8 See also Wierzbicka (1996, pp. 186–191) for a discussion on the universality of ‘because’ and ‘if’.
constructions with which a specific group of semantic primes (such as IF, and WOULD...IF) are characteristically associated, as in the case of conditional, existential and counterfactual constructions respectively. It should be noted that an attempt is not being made here to propose any kind of distinct category for the aforementioned constructions as separate from IF type sentences and in this vein Wierzbicka (1998) states:

...it should be added that in some recent NSM work (cf. Wierzbicka 1996, 1997) it was proposed that universal grammar includes also "counterfactuals", as a category distinct from IF-sentences and semantically undecomposable. This claim has now proved to be—in all probability—incorrect (Goddard & Tong forthcoming; Hasada 1997) and it is hereby withdrawn.

Those grammatical phenomena which may be considered to be of more interest generally but not specifically to this present study, on the basis that evidence for their occurrence is somewhat less transparent, can (again, according to Goddard 1997a) be conveniently grouped together into three broad categories: nominals and specifiers (including indefinites and interrogatives, gender and classifier systems, pronouns, number or ‘multiplicity’ marking, reflexives and reciprocals, partitives, diminutives, augmentatives and superlatives, and ‘semblative’ derivation); time and space (including; tense, locational deixis, the category of so-called ‘associated motion’ and directionals); and predicative constructions (including; evidentials, experiencer constructions, quotational complements, delocutive verbs, syntactic reduplication, modality and possibility).

As noted above, the basic syntactic unit associated with the reductive paraphrase approach is comparable to the clause (in a similar way that the proposition within the Semantic Structural Analysis theory corresponds roughly to the clause). The clause itself combines a ‘substantive phrase’, understood as, essentially, a word or group of words which are able to be substituted for the ‘minimum substantive part’ (i.e. for the words SOMETHING, SOMEONE, PEOPLE, I and YOU) with any one of a number of ‘predicates’ or a ‘predicate phrase’ which additionally may combine with some other elements determined by the nature of the predicate. A ‘predicate phrase’ consists, essentially, of a word or group of words which can be substituted minimally for the ‘minimum predicate part’ (i.e. for words like MOVE, DIE, HAPPENED, LAUGHED). In turn a ‘minimum substantive part’ consisting minimally of a single substantive may optionally combine a substantive with other elements (e.g. quantifiers, determiners, and attributives), in this way forming a grammatical unit analogous to a noun phrase. Examples of this include THIS PERSON, THE SAME THING, TWO PEOPLE, MANY THINGS, SOMETHING SMALL, SOMEONE BAD. It is also possible to combine more complex substantives, for example THESE TWO THINGS, THE SAME TWO PEOPLE. However, even at this stage it is apparent (at least in English) that not all such combinations are possible. That is, *THESE MANY PEOPLE and *THE SAME SOME THINGS are clearly not permissible. There is a diverse range of elements which may function as predicates and they may be grouped according to the way they combine with other elements. Simple canonical clause combinations are exemplified as follows:

SOMEONE DID SOMETHING AT THIS TIME
I SAW/SAID/HEARD/THOUGHT SOMETHING AT THIS TIME
I WANT SOMETHING
I KNOW (THAT) YOU DID SOMETHING GOOD
PEOPLE THINK (THAT) THIS IS BAD

It should be clarified here that equivalents of the proposed set of semantic primes in languages other than English need not always be discrete lexical items, but may, alternatively, be affixes or fixed phrases (for a wide variation of language examples see especially Goddard & Wierzbicka (eds), 1994), nor are they required to be morphologically simple. Additionally, in many instances numerous common terms, be they separate words or affixes, are subject to polysemy, and the posited semantic primes are not immune in this regard. Polysemy should not however be understood as presenting a ‘riddle’ without solution (see Wierzbicka 1996, p. 244 who cites Zgusta 1971, p. 73). Rather, as Wierzbicka (1996, p. 244) claims, when undertaking semantic analysis based on a finite set of irreducible universals and on the principle of reductive paraphrase, ‘meanings re-emerge as discrete, determinate entities, and the ‘riddle of polysemy’ ceases to seem insoluble’.

As a general rule, all types of clause can combine with the so-called ‘clause operator’ primes NOT (negation) and MAYBE (possibility) as well as with the so-called ‘time-adjuncts’ such as AT THIS TIME. In fact, at least some predicates may be considered time-dependant predicates in the sense that
some kind of time-adjunct is required (e.g. HAPPEN, MOVE, DO, SAY, HEAR, SEE). There are
some predicates which may be considered as ‘personal predicates’ (e.g. THINK, KNOW, SEE,
HEAR, WANT, FEEL, SAY) because that they combine readily with personal substantives (I, YOU,
SOMEONE, PEOPLE). Further to this, all of them are capable of taking a substantive complement.
One exceptional case is that of the existential primitive THERE IS, which can form a proposition
without there being a substantive subject. It is also quite possible for the evaluators GOOD and BAD
to function in certain contexts as predicates (e.g. THIS IS BAD). Locational primitives are also quite
capable of functioning as predicates.

Encoded in the systems of tense marking are all the temporal primitives, and those elements
comprising the set of spatial primes are found encoded in the systems of locational deixis. The
primitive associated with movement can be found grammaticalised in the system of the so-called
category of ‘associated motion’ as well as in some directionals.

The grouping of mental predicates is routinely found as semantic components of evidential marking.
The semantic prime WANT is also required to account for the grammaticalisation of ‘volition’ in a
variety of grammar systems.

From the above overview it is quite clear the reductive paraphrase approach can be applied to a very
significant extent to grammatical meaning, so much so that Goddard’s (1997a, p. 36) investigation
allows him to assert that every element of the NSM metalanguage ‘can be found in grammatically
encoded meanings’. The particular concern of this paper is to adequately account for the set
comprising the so-called ‘logical relations’, those which group together as ‘inter-clausal linkers’ (as
Wierzbicka (1996) calls them), how these are encoded in Arrernte and what structural form they take.

Turning now to the two prominent types which are grouped as ‘logical concepts’, the following proto-
typical scenario is posited for what are being termed ‘BECAUSE clauses’:

Something (X) happened
because something else (Y) happened

The following prototypical scenario is posited for IF clauses:

If something (X) happens
something else (Y) will happen

In chapters 3 and 4, the expression and semantic structure of inter-propositional logical relations in
Arrernte is examined in detail.
In this chapter I begin by looking at the relationships between propositions in Arrernte, specifically confining the discussion to logical types. Seven distinct logical types have been distinguished according to the Semantic Structural Analysis approach set out above. I look at each of the seven types, defining the distinguishing characteristics of each, and, in so doing, explain what Larson (1984) means by the terms used to describe the different types. Throughout this chapter, the discussion of the types is complemented by a wide range of examples of the various logical types as expressed in Arrernte. I show how each of these can be analysed and expressed as a reductive paraphrase and then demonstrate how they can be grouped into two core semantic structural categories, representing BECAUSE-types and IF-types. In so doing I will be explaining the main features and varieties of expression of the types under discussion.

3.1 Types according to the Semantic Structural Analysis theory

Some of the factors which help identify the semantic relations between clauses, and hence propositions, are conjunctions, connective affixes and clitics, conjuncts (connective adverbs), lack of any such clause connector (as in the case of juxtaposition), order of clauses and agreement of tense. In fact, many of these grammatical devices are used to express more than one inter-propositional relation. With specific reference to logical relations, which have been variously called inferential, argumentation, implicational and cause-effect relations (or simply BECAUSE sentences), they are all bilateral relations, involving just two parts. They are support relations in the sense spoken of above, in that one part is semantically central and the other part semantically supports it. Generally speaking the semantically central clause would be equated with the main clause and the supporting clause would typically correspond to the subordinate clause structure.

The relations categorised as logical are, according to Larson (1989, p. 305), ‘nonchronological support–HEAD relations’. They are called logical relations since the notion of logical implication or cause–EFFECT is always involved in them. While they may be classified as nonchronological in the sense that effect usually follows cause in temporal sequence, there is, in some instances, an implicit chronological component. The basis for the nonchronological labelling is that a time element, while sometimes implicit, is rarely expressed overtly.

Under each of the following sub-headings, the basic set of ‘logical relations’ (which as a group may be considered the ‘primes’) is illustrated and expressed in Arrernte using the labelling system proposed by Beekman, Callow and Kopsec (1981) and Larson (1984). In each instance, an explanation is offered of what Larson is understood to mean by the terms. For every one of the pairs exemplified below, capital letters are used for one of the pair of relations. The capitalised relation is that which has ‘natural prominence’ and is the so-called HEAD of the propositional cluster. For example, according to Larson’s analysis the RESULT is generally more prominent than the reason. Obviously this does not preclude the possibility that the other of the two propositions is the more prominent; if this were the case then it could easily be marked as such, typically by means of the grammar of the language.

The term prominence is used here primarily in relation to signalling a semantic relation. Every semantic unit has so-called ‘natural prominence’: that is, in an EVENT proposition the EVENT concept is the central constituent and the other concepts relate to it. Therefore, the EVENT concept is the naturally prominent constituent, unless, of course, some other element is made more prominent. A constituent picked out in this way would then, by means of one or another surface-structure device, carry ‘marked prominence’.

Larson (1984, p. 407, following Callow 1974) distinguishes three types of prominence: thematic, focus and emphasis. Thematic prominence is concerned with the information deemed prominent because it contributes to the progression or argument of the text. Focus is distinguished from thematic prominence in that focus brings to the attention of the hearer some featured part of the discourse in a way that says, ‘This is of special importance!’ It is not uncommon in Arrernte for particular participants to be marked in this way as a means of drawing attention to their action as opposed to another’s action. Emphatic prominence, according to Larson’s way of using the term, is used to draw attention to some part of the narrative that the speaker thinks will be surprising or unexpected to the hearer. The intention here has simply been to draw attention to the way in which Larson (1984) uses...
the term ‘prominence’ as a way of signalling a semantic relation. We will return to the matter of prominence in the detailed discussion of each of these types.

It is noted here that while the descriptive label applied to each of the bilateral relations is written in a particular order (for example RESULT–reason, MEANS–purpose), there is no particular claim being asserted (at least at this point in the discussion) in relation to the specific order in which the propositions occur. Obviously, the order in which the propositions occur is highly significant in determining the structural patterns of logical relations, and these concerns are discussed in some detail below. However, in giving examples of each of the types in the sections below, I have followed Larson’s conventions as displayed in Table 5 above. In fact, the particular order of the semantic relationship (e.g. RESULT–reason) between a pair of linked propositions as expressed in the example sentences provided for each pair of propositional relationships may differ from the order stated in the heading. The matter of the order in which each proposition occurs is taken up again in the next chapter (§ 4.1.1).

3.1.1 RESULT–Reason

RESULT–Reason is the relationship in which the reason proposition answers the question ‘Why this result?’ Accordingly, this relation is frequently expressed in English by words such as because, so and therefore. In many cases the grammatical structure matches the propositional structure. However, there are instances in which ‘skewing’ occurs, for example in English Mary was discouraged by the great amount of work. According to Larson’s (1984, p. 307) explanation, ‘[t]he sentence represents the RESULT Mary was discouraged and the reason, Mary had a lot of work to do.’ In this instance however, the preposition by is being employed in a secondary function to mark the RESULT–reason relation. Whereas, typically, by is used to signal means, so skewing is occurring. The following is an Arrernte example of RESULT–reason.

(1) RESULT

Itne mutekaye akngartiwe-me-le apety-alpe-ke,
3pl:A motorcar change-NPP-SS come-back-PC
reason
akurne-rle irre-ke-nge.
bad-FOC INCH-PC-DS
‘They turned their motorcar around and came back because it was giving trouble.’ [Appendix 1, ref. tx 20]

3.1.2 RESULT–Means

In the RESULT–means relation the proposition which has the role of means answers the question ‘How did this result come about?’ In English, this relation is frequently expressed using words like by or through. An English example is He passed the exam by studying six hours every night. The RESULT (presumably intended) is he passed the exam and the ‘by’ proposition, he studied six hours every night, would be analysed as having the role of means; that is, it is the means by which the RESULT is achieved. Means, then, always carries this component of intention or voluntariness, whereas reason does not.

(2) RESULT

Anwerne akngerre-ke akalty-irre-ke
1pl:S big-DAT knowledgeable-INCH-PC
means
[school]-eke irpe-me-le.
school-DAT enter-NPP-SS
‘We learned a lot while we were going to school.’
[Arltungawerne Alpeke ref. 35/36]

3.1.3 MEANS–Purpose

In the MEANS–purpose relation the proposition which has the role of purpose answers the question ‘What was done in order to achieve this purpose?’ It is clear here that again there is deliberate intention, in that a deliberate MEANS was employed in order to bring about a particular purpose. The fundamental distinction between RESULT–means and MEANS–purpose is simply that the RESULT was actually brought about but the purpose need not necessarily have been fulfilled. In English, the MEANS–purpose relation is frequently signalled using the conjunctions in order to and so that. There are also occasions when the infinitive is used. Larson (1984, p. 308) provides the following example:
RESULT–means: By studying hard, he passed the exam.
MEANS–purpose: In order to pass the exam, he studied hard (but he didn’t pass).

Example (3) illustrates this relationship as expressed in Arrernte:

(3) MEANS [Arltunga]-werne alpe-ke
Arltunga-ALL go back-PC

purpose [school]-eke irupe-tyeke.
school-DAT enter-PURP

‘(We) went back to Arltunga to go to/enter school.’ [Arltungawerne Alpeke ref. 1/2]

To help provide a means for showing the distinctions between the above three relations, Larson (1984, p. 309), has provided the following table (adapted from Beekman, Callow & Kopesec 1981, p. 102).

TABLE 7: CONTRAST IN RELATIONS

<table>
<thead>
<tr>
<th>Cause-Effect</th>
<th>Intention</th>
<th>Effect:</th>
<th>Cause answers the question:</th>
</tr>
</thead>
<tbody>
<tr>
<td>REASON–RESULT</td>
<td>no</td>
<td>actual</td>
<td>Why this result?</td>
</tr>
<tr>
<td>MEANS–RESULT</td>
<td>yes</td>
<td>potential</td>
<td>How did this result come about?</td>
</tr>
<tr>
<td>MEANS–PURPOSE</td>
<td></td>
<td></td>
<td>What action was undertaken to achieve the intended result?</td>
</tr>
</tbody>
</table>

It is of interest to note here that in their discussion of adverbial clauses, Thompson and Longacre (1985, p. 185) specifically in relation to ‘purpose and reason’ clauses, point out that in fact ‘[m]any languages use the same morphology for purpose and reason clauses’. The terms they use, ‘unrealized’ and ‘realized’, to explain the semantic basis for this phenomena parallel the ‘actual’ and ‘potential’ terms offered by Larson as in the above Table with respect to the difference between ‘reason’ and ‘purpose’ clauses. According to Thompson and Longacre (1985, p. 185) in discussing this phenomenon (and with reference to a specific example from Ngizim, a Chadic language):

The semantic explanation for the fact that one morpheme can serve these two functions is that both purpose and reason clauses can be seen as providing explanations for the occurrence of a given state or action (...). They differ in that purpose clauses express a motivating event which must be unrealized at the time of the main event, while reason clauses express a motivating event which may be realized at the time of the main clause event. (Italics in the original)

3.1.4 Concession–CONTRAEXPECTATION

In the concession–CONTRAEXPECTATION9 relation the key element is that of ‘unexpectedness’. According to Larson’s schema, there are three elements to this relation: 1) a cause (i.e. the concession element), 2) an expected effect, and 3) an unexpected result (the CONTRAEXPECTATION element). In English, only two of the elements are typically made explicit in the grammar. English frequently makes use of words like although, even though, even if, and in spite of to signal this kind of relation. The following example illustrates this type of relation:

(4) concession
Me-l-ikwe-le alhe-tye-kwenye-ke ile-ke,
mother-ERG-3KinPOSS-ERG go-NMZR-NomNEG-DAT tell-pc,

CONTRAEXPECTATION
perre re lhe-ke.
THOUGH 3sg:S go-pc

‘His mother told him not to go, but he went anyhow.’
(example from Wilkins 1989, p. 372)

The particle perre ‘THOUGH’ has been translated here using the English ‘but’. The meaning being conveyed is understood as ‘in spite of being told he went anyhow’.

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9I have used the term CONTRAEXPECTATION here, as opposed to COUNTEREXPECTATION, to reflect the usage favoured by both Beekman, Callow & Kopesec (1981) and Larson (1984). I am unaware of a semantic difference between the two terms.
3.1.5 CONCLUSION–Grounds

CONCLUSION–Grounds is a relationship in which grounds propositions answer the question “What fact is this conclusion based on?” In English the relationship between grounds and CONCLUSION can be stated using words like therefore, I conclude that or one concludes that between the two propositions. For example, The car is gone so Bill must be out consists of two propositions: the grounds The car is gone and the CONCLUSION Bill must be out. The relationship could be restated as The car is gone, therefore, I conclude that Bill must be out. The CONCLUSION–Grounds relation in English typically employs the words so and must be. The next two examples illustrate this type:

(5) CONCLUSION–Grounds

**Grounds**

Ampe akweke yanhe merne-ke
child small that(MID) veg.food-DAT

atheke-anthurre-irre-me,
in a hurry-INTENS-INCH-NPP

**Conclusion**

angayakwe apeke.
hungry if/maybe

‘That little child is in a great hurry for food, s/he must be hungry.’

(6) Tyerrtye ampwe nhakwe akwete anthurre-arle

person old that(DEM) still INTENS-FOC

alerne-lhe-me arne irretetye ikwerenhe-le,
lean on-REFL-NPP thing walking stick 3sg:POSS-LOC

rlkerte apeke-arle awelhe-me.
sick maybe-if-FOC feel-NPP

‘That old woman has been standing there leaning on her walking stick for quite a while, she must be feeling sick.’

3.1.6 EXHORTATION–Grounds

The EXHORTATION–Grounds relation, while quite similar to the CONCLUSION–Grounds relation, differs in the respect that in CONCLUSION–Grounds the CONCLUSION proposition is a statement whereas in EXHORTATION–Grounds the EXHORTATION is always a command. This difference may be exemplified in English in the following pair:

**CONCLUSION–Grounds:**
The office is tidy, therefore, someone must have cleaned it.

**EXHORTATION–Grounds:**
The office is tidy so keep it that way.

In English the words typically used to mark the EXHORTATION–Grounds kind of relation are so and therefore. In Arrernte, this type of relation may be illustrated using the following example:

(7) Grounds

**Grounds**

Re urinpe uterne iperre, re apurrke,
3sg:S hot sun AFTER 3sg:S tired

**EXHORTATION**

imp-Ø-aye!
leave-IMP-EMPH

‘He’s hot from the sun, he’s tired, leave him!’ [Angepe 95/96]

3.1.7 Condition–Consequence

As already mentioned, the condition–Consequence relation is, according to Larson’s approach, also a cause–Effect type of relation. However, the cause in this relation, that is, the condition, is either hypothetical or at least has some element of uncertainty present. Barnwell (1980, pp. 183–4) has pointed to a subdivision in this relation between contrary-to-fact and potential fact. Both types, however, are signalled in English by use of the word if. A prototypical example would be, If that had happened, then this would have happened.

The difference between the two posited types can be stated by saying that in a contrary-to-fact condition–Consequence relation, the condition is either hypothetical or imagined and, as such, will not, did not or is not expected to actually transpire. The condition is being described as something
which might have happened but in reality it did not in fact occur nor for that matter is it expected to occur. In this type of condition–CONSEQUENCE relation one expects to find the past, in which case they refer to things that might have happened but did not. Alternatively, the future tense is used, in which case they refer to EVENTS which are not expected to happen. An English example of this type would be *If she had not missed the boat, she would be here now.*

In contrast, in the second kind of condition–CONSEQUENCE relation, that is, the potential fact type, it is also unknown whether the condition will be fulfilled and result in the CONSEQUENCE or not; since it has not happened yet, it remains simply potential fact. An English example of this type is *If you get there early, you will get a seat.* With this type of relation the propositions are in either present or future tense.

The condition–CONSEQUENCE set below comprises (8)a plain (if...then), (8)b temporal, (8)c potential/ hypothetical, counterfactual. Beekman, Callow and Kopesec (1981, p. 104) also use the term *contrafactual* without any apparent distinction in meaning between the two terms.

(8) a. condition

...tyerrtye-le apeke akngerre anthurre arlkwe-me
...person-ERG if/maybe big INTENS eat-NPP

CONSEQUENCE

arrakerte utyene irre-me.
mouth sore INCH-NPP

‘...If you eat lots of it (you) get a sore mouth.’

(8) b. condition

Tyerrtye nhenge aparlpe apeke irre-me
person REMEMB lost if/maybe INCH-NPP

kwaty-arlke ane-tyakenhe ampere ikwere,
water-also sit/be-VNEG camp 3sg:DAT

mutekaye apeke-arlke ultake-lhe-ke-nge, uterne akngerre,
motorcar if/maybe-FOC break-REFL-PC-DS hot big

‘If a person gets lost at a place where there’s no water, if maybe the car breaks down, and its very hot,’

CONSEQUENCE

kele tyerrtye nhenhe angkethakwe anthurre
OK person this hungry INTENS

Anteme irre-me-le, arerte-arerte irre-me-le,
then INCH-NPP-SS silly-silly INCH-npp-SS

kele ahirre-ahirre anteme re aye-tyleke
OK imagining then 3sg:A hear-PURP

tharte-irre-me arrpenhe areye angke-rr-relenge.
start-INCH-npp other plural talk-RECIP-DS

‘then the person gets very thirsty, then they start losing their mind, and start to hear people talking.’

(8) c. condition

Tyerrtye apeke uthne-me apmwe arriperre nhenhe re,
person maybe/if bite-NPP snake (spec) DEM 3sg:A

CONSEQUENCE

tyerrtye re ilwe-me apeke...
person 3sg:S die-NPP maybe/if

‘If somebody is bitten by the arriperre (type) snake, they can die...’

3.2 Implicit relations and constituents

Larson (1984, p. 315) also notes with respect to the above relations that all the information is included in the semantic structure. This is not the case, however, with the grammar, where some information may be left implicit or, in some instances, it may not be encoded at all. An instance of this occurs when either the ‘participants’ or the ‘event’ are left implicit in either the clause slot or the sentence slot. An illustration of this type of behaviour is found when the passive form is used (as it might be in English), in which case the ‘agent’ is not always specified in the clause. At higher levels of the hierarchy, constituents of semantic structure may not be expressed in the grammatical form. Or conversely, the relations themselves may be left implicit.
3.3 Logical relation types expressed using NSM

Larson (1984) uses the terms ‘cause–effect’ and ‘reason’ in relation to what might be called reason-type clauses. However, it has been argued elsewhere (see Wierzbicka 1998) that there is stronger justification for using the terms ‘BECAUSE clauses’ or ‘BECAUSE sentences’ with respect to the bi-clausal nature of the relations, rather than ‘reason-clauses’, on the basis that the notion of ‘reason’ is more complex than that of ‘because’ (combining, roughly speaking, BECAUSE and THINK) and because it is BECAUSE, not ‘reason’, which is a lexical universal’. In this light, the term ‘BECAUSE clauses’ (or ‘BECAUSE sentences’) is used throughout the remainder of this work in relation to those relations Larson calls ‘cause–effect’ and ‘reason’ clausal relations.

Taking each of the seven logical types identified by Larson, a semantic explication is proposed for each in terms of NSM semantic primes, focussing only on explicating the relationships between the propositions, not on the detailed semantic content of clauses or lexemes. Following this, an attempt is made to see if the seven SSA types can be captured using NSM syntax and grouped as either ‘BECAUSE sentences’ or ‘IF sentences’. According to NSM theory, the primes BECAUSE and IF function as inter-clausal linkers.10

The prototypical context in which the prime BECAUSE occurs may be represented as a sentence-like arrangement of NSM elements in which BECAUSE links the two propositions:

Something (X) happened
because something else (Y) happened

The prototypical context in which the prime IF occurs may also be represented as a sentence-like arrangement of NSM elements in which IF links the two propositions:

If something (X) happens
something else (Y) will happen

In this proposed explication, (Y) can stand for any proposition. It needs to be mentioned here that ‘will’, as it appears in the above paraphrase, occurs essentially because tense is assumed to be obligatory in English and is represented when referring to an event in the future as ‘will’. At issue is the fact that temporal elements in the NSM metalanguage include: NOW, BEFORE, AFTER, but not *WILL. ‘Will’ could be handled by an expression like ‘AFTER NOW’; however, suffice it to say, at this point, that an expression like ‘AFTER NOW’ appears to be frequently grammaticalised into tense systems as ‘will’.

There is a third, special type of sentence that is also considered below (under the heading condition–CONSEQUENCE), which is called IF...WOULD. This is (in at least some languages) a more specialised type of conditional referring specifically to situations where the condition is uninstanitiated, that is, where the condition (X) has not been met and hence the CONSEQUENCE (Y) has not occurred. The prototypical context in which IF...WOULD occurs may also be represented as a sentence-like arrangement of NSM elements in which both IF and WOULD link the two propositions (the inclusion of ‘had’ and ‘have’ which are not included in the list of posited NSM primes is discussed below):

If something (X) had happened
something else (Y) would have happened

For each of Larson’s (1984) logical relation types, a paraphrase using NSM syntax will be proposed, attempting to represent the inter-propositional relations discussed in the previous section (§ 3.1), with reference to specific Arrernte examples. This will place us in a position to assess how these semantic paraphrases are related to the prototypical BECAUSE and IF sentences. A number of the example sentences appearing in the discussion above on the various SSA types are purposefully repeated here for the sake of comparison.

10 The prime BECAUSE, can also function as a clause adjunct, as Wierzbicka (1996, p. 137) notes. Functioning in this way BECAUSE occurs frequently in phrases such as, ‘because of this’. This distinction is not considered, at this point in the discussion, to be significant in the sense that it would alter in any substantial way the paraphrase being proposed for the prototypical context of the prime BECAUSE.
RESULT–reason

For the example of this type, given in § 3.1.1 above and repeated here for both convenience and comparison, the RESULT and reason propositions will be represented in a paraphrase using NSM primes.

(9) RESULT  Itne mutekaye akngartiwe-me-le apety-alpe-ke,
3pl:A motorcar change -NPP-SS come-return-PC
reason  akurne-arle irre-ke-nge.
bad-FOC INCH-PC-DS
‘They turned their motorcar around and came back because it was giving trouble.’

The RESULT proposition (‘they turned their car around’) can be represented in the form of a NSM proposition ‘X happened’. The proposition ‘they turned their car around’ could also be represented in NSM as ‘X did something’, but for the present purpose this will be treated as included within the proposition type ‘X happened’, which can encompass types of results other than someone’s action (such as ‘their motorcar was noisy’). The reason proposition (‘because it was giving trouble’), can be represented as: ‘BECAUSE Y happened’. This yields the following reductive paraphrase for the type referred to as RESULT–reason:

RESULT something (X) happened
reason because something else (Y) happened

It should be immediately obvious that the proposed reductive paraphrase which explicates the SSA RESULT–reason type of inter-propositional relation is identical to the prototypical BECAUSE paraphrase. The implication here is that the REASON–RESULT type of relation is precisely the one that is closest to the prototypical BECAUSE inter-clausal relation as expressed in NSM syntax. It is when the other ‘reason’ types of inter-propositional relations are examined that differences emerge, and these differences in turn call for proposing other special types of BECAUSE relations.

While it has already been mentioned above that the RESULT proposition represented using NSM syntax as ‘something (X) happened’ can encompass the alternative NSM proposition ‘someone (X) did something’, further variations can also be included here without compromising the proposed general form which accounts for RESULT–reason types of inter-propositional relations. There appear to be instances where some additional component is required to adequately account for the variation in the types of predicates present in RESULT–reason relations. In other words, there are occasions when, in order for the reductive paraphrase to account for the surface structure of the example under consideration, there appears to be a requirement to specify that something else happens between the reason and the RESULT. An example of this type of variation is given in (10), where the reason and RESULT propositions are represented using NSM syntax.

(10) RESULT  Iikelhe-tvakenhe warrke-werne alhe-tyeke
feel good about something-VNEG work-ALL go-VPURP
‘I don’t feel like going to work (today)’
reason  urinpe nthurre-nge.
hot INTENS-ABL
‘because it’s so hot.’

The RESULT proposition (‘I don’t feel like going to work (today)’) can be represented using NSM syntax as the proposition: ‘someone (X) didn’t feel like doing something (Y)’. (It may, in fact, with more research, prove perfectly adequate to represent the RESULT proposition more simply in NSM syntax as ‘someone (X) felt something (Y)’). The RESULT proposition (‘I don’t feel like going to work (today)’) is induced by something else happening which is made explicit in the reason proposition ‘because it’s so hot’. The reason proposition can be represented in the same way as above as ‘BECAUSE something (Y) happened’. Between the RESULT proposition and the reason proposition, there appears to be an underlying third proposition, which can be represented as ‘someone (X) thought about something’. In other words, something happened (it was so hot), and this caused some emotional response: ‘someone (X) didn’t feel like doing something (Y)’. This happened, not because X wanted to feel this’ but because something happened. I don’t believe at this stage that the possibility of a third underlying proposition must necessarily be represented in the proposed reductive paraphrase. The following represents this slight variation in a RESULT–reason relation:

RESULT someone (X) didn’t feel like doing something (Z)
reason BECAUSE something else (Y) happened
RESULT–Means

An example of this type is given in (11), where the RESULT and means propositions are represented in a reductive paraphrase using NSM syntax.

(11) RESULT Anwerne akngerre-ke akalty-irre-ke
     1pl:S big-DAT knowledgeable-INCH-PC
means [school]-eke irrpe-me-le.
     school-DAT enter-NPP-SS

‘We learned a lot while we were going to school.’ [Arltungawerne Alpeke. ref. 35/36]

With this particular type of relation, it is preferable to discuss the means proposition (‘while we were going to school’) before the RESULT proposition (‘We learned a lot’) on the basis that the BECAUSE proposition is an outcome directly related to the action associated with the means proposition. So the means proposition, which incorporates a temporal element ‘while we were going to school’, can be represented in the form of a NSM proposition ‘at some time someone (X) did something (Z)’. The RESULT proposition (‘we learned a lot’) can be represented as ‘because of this, Y happened’. There is an implicit notion here that Y would not have happened if X had not done Z. There is no requirement here to specify a temporal element in the RESULT proposition because, although it is quite possible that the RESULT came about while X was doing something, it is not demanded by it, and the paraphrase leaves open the possibility that at some other time the RESULT occurred. This then yields the following reductive paraphrase and accounts for the type referred to as RESULT–means or as it is represented in the surface structure order means–RESULT:

means at some time someone (X) did something (Z)
RESULT because of this, something else (Y) happened

There are times when it may appear preferable to analyse means–RESULT as a WHEN-type sentence, in which case it could be paraphrased along the following lines:

WHEN Z happened, Y happened =
*means at some time something (Z) happened
RESULT at the same time something else (Y) happened

What mitigates against analysing the means–RESULT relation in this way, as a WHEN-sentence, is the underlying notion in the result clause that Y would not have happened if someone had not done something (X) at some time. The means proposition implies the presence of an agent and ‘at some time something (Z) happened’ does not encompass this. In other words, it is BECAUSE someone (X) did something at some time that something else (Y) happened; if this person had not done this thing (X) something else (Y) would not have happened. Therefore, we can analyse means–RESULT types of sentences as BECAUSE sentences.

MEANS–Purpose

MEANS–purpose relations represent a particularly complex type of BECAUSE-relation and for that reason they are discussed in a separate section (see § 4.1.2). For the present purpose an example of this type is given in (12), and the MEANS and purpose propositions will be explicited using NSM primes. Suffice to say, at this stage, that the anchoring of purposive clauses in the NSM language has to be done in terms of a ‘semantic molecule’ (i.e. a semantically complex expression, see below in § 4.1.2), rather than in terms of a single universal concept (like WHEN or IF). (For a discussion of the concerns raised here see Wierzbicka 1998.)

(12) MEANS [Arltunga]-werne alpe-ke
     Arltunga-ALL go back-PC
purpose [school]-eke irrpe-tyeke.
     school-DAT enter-PURP

‘(We) went back to Arltunga to go to/enter school.’ [Arltungawerne Alpeke . ref. 1/2]

The MEANS proposition (‘(we) went back to school’), can be represented in the form of a NSM proposition ‘someone (X) did something’. The purpose proposition (‘to go to school’), while encompassing a semantically complex notion, may still be considered a BECAUSE-type proposition, albeit a special type of BECAUSE proposition, and can be represented as ‘BECAUSE this person
thought, ‘I want to do W; if I do Z, I can do W’. The following reductive paraphrase can account for the type referred to as MEANS–purpose:

\[
\begin{align*}
\text{MEANS} & \quad \text{someone (X) did something (Z)} \\
\text{purpose} & \quad \text{because this person thought:} \\
& \quad \text{‘I want to do W,} \\
& \quad \text{if I do Z, I can do W’}
\end{align*}
\]

Concession–CONTRAEXPECTATION

Example (13) is representative of the type categorised as concession–CONTRAEXPECTATION, and the respective propositions are paraphrased below using NSM primes.

(13) concession

\[
\begin{align*}
\text{Me-l-ikwe-le} & \quad \text{alhe-tye-kwenye-ke} & \quad \text{ile-ke} & \quad \text{perre,} \\
\text{mother-ERG-3KinPOSS-ERG} & \quad \text{go-NMZR-NomNEG-DAT} & \quad \text{tell-PC} & \quad \text{THOUGH} \\
\text{CONTRAEXPECTATION} & \quad \text{re} & \quad \text{the-ke.} \\
3sg:S & \quad \text{go-PC} \\
\text{‘Even though his mother told him not to go, he went anyhow.’}
\end{align*}
\]

The concession proposition (‘even though his mother told him not to go’) can be represented using in the form of a NSM proposition ‘someone (X) did something (Y); at this time this person thought, “If I do Y, Z will happen”.’ The inclusion of the temporal primitive ‘at this time’ as a component of the concession proposition makes explicit the notion that, at the time X did Y, the expectation was that Z would happen. The proposition ‘even though his mother told him not to go’ could also be represented in NSM as ‘someone (X) said something; at this time this person thought, “If I say Y, Z will happen”,’ but for the present purpose this second proposition will be treated as included within the first proposition: ‘someone (X) did something; at this time this person thought, “If I do Y, Z will happen”;’ which can adequately encompass both ‘say’ and ‘do’ expressions.

The CONTRAEXPECTATION proposition (‘he went anyhow’) can be represented as ‘Z did not happen; something else (W) happened.’ In this way, the CONTRAEXPECTATION proposition makes explicit the fact that the expected outcome of the event expressed in the concession proposition did not happen but, contrary to expectation, something else happened. This gives rise to the following reductive paraphrase for the type referred to as concession–CONTRAEXPECTATION which may be classified generally as representing an IF-type sentence:

\[
\begin{align*}
\text{concession} & \quad \text{someone (X) did something (Y),} \\
& \quad \text{at this time this person thought:} \\
& \quad \text{‘If I do Y, Z will happen.’} \\
\text{CONTRAEXPECTATION} & \quad \text{Z did not happen} \\
& \quad \text{something else (W) happened}
\end{align*}
\]

I am including here a second concession–CONTRAEXPECTATION example for discussion and interest because, initially, there appeared little justification for considering it as being encompassed within this type. In the corpus of text material surveyed for this study, examples of concession–CONTRAEXPECTATION types are rare and in the case of the example (14) there were some underlying concerns regarding its suitability as an unambiguous instance of this type. The concerns arose primarily because of the absence of any overt IF-type word. However, when the semantic structure of the sentence is analysed, the proposed IF-type sentence NSM paraphrase can be seen to adequately account for the relation between the propositions. The concession and CONTRAEXPECTATION propositions are explicated below in the light of the proposed paraphrase using NSM primes.

(14) concession

\[
\begin{align*}
\text{Re} & \quad \text{urreye} & \quad \text{ikwere} & \quad \text{unte-ke} & \quad \text{arne} \\
3sg:S & \quad \text{boy} & \quad 3sg:DAT & \quad \text{run-pc} & \quad \text{stick} \\
\text{trye-nhe-trye-nhe} & \quad \text{ikwerenhe-kerte,} \\
\text{dig-REDUP-dig-REDUP} & \quad \text{3sg:POSS-PROP} \\
\text{‘She ran after the boy with her digging stick (expecting to kill him)’}
\end{align*}
\]
CONTRAEXPECTATION

kenhe re-nhe artwe re irrtyarte-le
BUT 3sg-ACC man 3sg:DEF spear-INSTR
atanthe-reng-arle antim-arle.
spear-DS-RELCL right here-RELCL

but the man speared her too.’ [Ayeye Altyerrengentyele 156/157]

The concession proposition (‘she ran after the boy with her digging stick’) can be represented by the proposed form of the NSM proposition ‘someone (X) did something (Y); this person thought, “if I do Y, Z will happen” ’. The context of this proposition, within the total discourse of which it is a part, clearly involves the thought that the woman’s intention and expectation was that her action would result in her killing the boy (see the interlinearised text of Ayeye Altyerrengentyele ref. 138–143 as it appears in Appendix 6). The CONTRAEXPECTATION proposition (‘but the man speared her too’) can be rendered as ‘Z did not happen; something else (W) happened’. Clearly the outcome here was contrary to X’s (in this instance, the woman’s) expectation. In other words, person X did not know W would happen. Therefore, the proposed reductive paraphrase can be seen as an adequate semantic explication for example (14).

CONCLUSION–Grounds

Note that in the example given below the grounds proposition precedes the CONCLUSION. The grounds and CONCLUSION propositions are represented following the example in a paraphrase using NSM primes.

(15) grounds

Ampe akweke yanhe merne-ke atheke anthurre irre-me,
child small that(DEM) food-DAT in a hurry INTENS INCH-NPP

CONCLUSION

angayakwe apeke.
hungry maybe

‘That little child is in a great hurry for food. He must be hungry!’

One of the interesting features of this type of inter-propositional relation is that there is, in a sense, an embedding of two reason–RESULT BECAUSE-type relations with an overlap, in that event X plays a part in each proposition. In this way there is quite a close relation between this type of BECAUSE sentence and the posited prototypical BECAUSE sentence. The grounds proposition (‘that little child is in a great hurry for food’) can be rendered using the following form of a NSM proposition: ‘this person (Y) thought this, because something (X) happened’. In this way attention is drawn to the fact that the grounds provide the reason for the CONCLUSION proposition and it captures the fact that the grounds proposition is based on some kind of mental process. The CONCLUSION proposition (‘he must be hungry’) can be represented using the following NSM propositional form: ‘someone (Y) thought, “something (X) happened because something else (Z) happened” ’.

The way in which this type differs from the RESULT–reason types is that included in the paraphrase is the element that after event X happened, and because it happened, someone thought about it and reached a conclusion based on why event X happened. Intrinsic to this type of relation is that there is a speaker Y who is present, although in this particular example Y is assumed to be present pragmatically but not syntactically. Therefore the CONCLUSION proposition could also be represented in NSM as ‘someone (Y) said, “X happened because something else happened” ’. However, for the present purpose, this variant rendering will be subsumed under the first representation of the CONCLUSION proposition where ‘thought’ is used. The type referred to as CONCLUSION–grounds can be represented then using the following reductive paraphrase:

CONCLUSION someone (Y) thought:

‘something (X) happened because something else (Z) happened.’

grounds this person (Y) thought this
because something (X) happened

I have left the ‘because’ in the grounds proposition paraphrase even though it is not explicit in the surface structure of the example sentence. I am unsure, at this point in time, how to best represent in a NSM proposition a feature which may considered an underlying feature. Further research is required to determine if the present representation is the most productive way to represent the analysis.
EXHORTATION–Grounds

An example of this is given below and is followed by a representation of the EXHORTATION and grounds propositions in a paraphrase using NSM primes.

(16) EXHORTATION

  Kwatyetyampiteyanhe-ke thel-Ø-aye
  water tin that(MID)-DAT pour-IMP-EMPH

grounds

  ayenge angkethakwe anthurre-arle awe-lhe-me-nge
  1sg:NOM thirsty INTENS-FOC feel-REFL-NPP-DS

‘Pour some water into that tin over there because I'm feeling really thirsty.’

The EXHORTATION proposition (‘pour some water into that tin over there’) can be represented in the form of a NSM proposition: ‘someone (Y) says something like this: “I want someone to do something (Z)”.’ The inclusion of ‘something like this’ draws attention to the possibility that Y could say something other than ‘I want someone to do something’. An alternative NSM representation could be ‘someone says to someone else, “Do this”,’ but for the present purpose the proposition ‘I want someone to do something’ can adequately encompass both variants. The grounds proposition (‘because I’m feeling thirsty’) can be represented as ‘this person said this, because X happened’. It can be seen here that the EXHORTATION–grounds relation is quite similar to the CONCLUSION–grounds relation. The point of difference is that the EXHORTATION proposition comprises an event proposition, whereas the CONCLUSION proposition comprises a state proposition, as they have been described above (§ 2.1). A further distinction between these two types is that grounds is frequently (though not necessarily in that it can be inferred by the hearer) made explicit.

The following reductive paraphrase can therefore account for the type referred to as EXHORTATION–grounds:

EXHORTATION  someone (Y) says something like this:

  ‘I want someone (W) to do something (Z).’

grounds  this person (Y) said this

  because something (X) happened

The EXHORTATION–grounds type is related to the prototypical BECAUSE-type in the sense that Y happened (EXHORTATION) because X happened (grounds). The point of difference is that as a result of X happening, someone specifically tells someone else to do something.

Condition–CONSEQUENCE

It must be stated with reference to representing condition–CONSEQUENCE as a reductive paraphrase using NSM primes that two kinds of ‘conditionals’ are being proposed, one referenced as simply ‘conditionals’, to account for those bi-clausal sentence types referring to situations of genuine possibility, and the other called ‘counterfactuals’, to account for those bi-clausal sentence types referring to an outcome seen as either imagined or as an unrealisable possibility (see Wierzbicka 1997, p. 47). Both, in fact, still can be considered as ‘conditionals’ in the broad sense and therefore belonging to the category of IF-type sentences. It is the potential for outcome to be realised or not realised, whichever may be the case, which can be seen as determining the particular IF-sentence sub-category each bi-clausal relation belongs to.

It should also be noted that prototypically IF sentences are not necessarily ‘conditionals’ in the strict sense (as noted by Wierzbicka 1998) that they specify a condition without which something will not happen. For instance, in the English statement, ‘if you do this, people will say good things about you’, it is still perfectly within the bounds of possibility that people will say good things about you even if the ‘condition’ is not fulfilled, and therefore the sentence is still an IF sentence and not necessarily a ‘conditional’ sentence.

I firstly consider those IF sentences that may be called simply ‘conditionals’, those which correspond precisely with the prototypical IF-type sentence given above. This simple IF-type sentence accounts for both types in the distinction drawn by Beekman, Callow and Kopesec (1981) between ‘potential-fact-particular’ and ‘potential-fact-general’ types. An example of a simple ‘conditional’ is given in (17) and this is followed by the condition and CONSEQUENCE propositions represented in a
paraphrase expressed using NSM primes (this first example corresponds to the ‘potential-fact-general’
type).

(17) **condition**

...tyerryme-le apeke akngerre nthurre arlkwe-me,
...person-ERG maybe/if big INTENS eat-NPP

CONSEQUENCE

arrakerte utyene irre-me.
mouth sore INCH-NPP

‘...if a person eats lots of them (bush currants), he/she gets a sore mouth.’

The condition proposition (‘if a person eats lots of them (bush currants)’) can be represented using
the form of a NSM proposition: ‘if X happens’. In this proposition X can be representative of any event
concept, and as proposed it represents the condition upon which the CONSEQUENCE proposition is
dependent. The CONSEQUENCE proposition (‘he/she gets a sore mouth’) can be rendered using
NSM primes as the proposition ‘something else will happen’. This yields the following reductive
paraphrase for the type referred to as **condition–CONSEQUENCE**:

**condition**

If something (X) happens

CONSEQUENCE

something else (Y) will happen

This second example corresponds to the ‘potential-fact-particular’ type. Note that in this example it is
the CONSEQUENCE proposition that precedes the condition proposition:

(18) CONSEQUENCE

The lyete ngenhe akakatwe-me unto [warle]
1sg:ERG today 2sg:ACC knock in-NPP 2sg:S wall

yanhe-nge anpere itnye-nhe-tyeke,
DEM(MID)-ABL through fall-DO.PAST-VPURP

condition

unto atyenge ante ahe akngerre tnake-lhe-me.
2sg:S 1sg:DAT this way angry big boast-REFL-NPP

‘I’ll knock you through that wall soon and you’ll fall right through, if you keep being rude (as
in boasting about yourself) to me.’

This kind of conditional can also be considered simply as a ‘conditional’ in that the CONSEQUENCE
proposition (‘I’ll knock you through that wall soon and you’ll fall right through’) and the condition
proposition (if you keep being rude (as in boasting about yourself) to me’) can be represented using
precisely the same NSM propositions as posited above.

One further matter to mention here is that further research into the most productive way to utilise
NSM as a means of capturing all the relevant components in this kind of paraphrase of conditionals
may prove to establish the need to include a final component in the CONSEQUENCE proposition
like, ‘I don’t say something (Y) will happen’, in this way making explicit that Y need not necessarily
come about, but leaving open the possibility that it could.

An example of the second type of conditional—the counterfactual—is given in (19). Again, the labels
**condition** and CONSEQUENCE are used to distinguish the propositions, but instances of this type are
analysed as an IF...WOULD-type of sentence. The relationship of IF as a semantic primitive to
counterfactual (IF...WOULD) conditionals has been discussed by Wierzbicka (1996, 1997) and
research on these issues in a number of languages is continuing. For the present purpose,
counterfactuals are considered separately from general IF sentences, which we have grouped above as
simply ‘conditionals’, because, based on the analysis of the Arrernte examples, the two types of IF
sentence yield significantly different reductive paraphrases. (Note that these types account for
Larson’s (1984) ‘contrary-to-fact’ (her term) relations.) The condition and CONSEQUENCE
propositions of the counterfactual type exemplified here is represented in a paraphrase using NSM
primes following the example.
The condition proposition (‘if you had come yesterday’) can be represented in the form of a NSM proposition: ‘if something (Y) had happened’. It is acknowledged here that, strictly speaking, this proposition is not comprised entirely of the posited semantic primes; ‘had’ is not one of the primes. However, without more detailed research on the representation of this IF...WOULD-sentence, it appears that ‘had’ is required to signal the fact that there is a temporal element to the relation. A further observation is that intrinsic to this type of relation is the notion of negation, on which counterfactuals depend, precisely because they refer to things that did not happen. This provides the reasoning for the inclusion of ‘had’, which by implication signals the fact that the condition was not fulfilled. Further research may show that the notion of negation needs to be overtly expressed somewhere in the reductive paraphrase itself.

The CONSEQUENCE proposition (‘then you certainly would have seen her’) can be rendered in the form of a NSM proposition: ‘something else would have happened’. Attention again is drawn to the inclusion of ‘have’, which is not posited as one of the universal primes. The basis for its inclusion here is to account for the underlying notion of negation because something else (Y) did not happen. This explication then yields the following reductive paraphrase for those types referred to as counterfactual condition–CONSEQUENCE relations:

condition
If something (Y) had happened
CONSEQUENCE something else (Z) would have happened

With respect to the polysemy of the prime IF, and the difficulties in distinguishing between ‘if’ and ‘maybe’, it is possible in Arrernte to show quite clearly (as has been done by Harkins and Wilkins 1994) the difference in meaning between apeke ‘if’ and apeke ‘maybe’. In a simple clause, where a single proposition is presented, the lexeme apeke means ‘maybe’ or ‘perhaps’, but in the context of bi-clausal relation, where a dependent clause is present, apeke means ‘if’. The following two examples from Harkins and Wilkins (1994, p. 298) show this contrast in meaning:

(20) Ingwenthe peke kwatye urnte-me
    tomorrow maybe water fall-NPP
    ‘It could rain tomorrow.’ (‘Maybe it will rain tomorrow.’)
    (The bracketed translation is not in the original)

(21) Kwatye peke urnte-me ayenge petye-tyekenhe
    water maybe fall-NPP 1sg:NOM come-VNEG
    ‘If it rains I won’t come.’

3.4 Conclusions

I have argued above that each of Larson’s seven logical inter-propositional relation types can be expressed precisely in reductive paraphrase using NSM primes. The proposed reductive paraphrases are reproduced here as they appear above, and grouped as either BECAUSE sentence or IF-type sentences. Each group is followed by a summary statement drawing attention to the points of comparison which distinguish one type from the others.

BECAUSE-types

RESULT something (X) happened
reason BECAUSE something else (Y) happened
means at some time someone (X) did something (Z)
RESULT because of this,
    something else (Y) happened
MEANS  someone (X) did something (Z)  
    purpose  because this person thought:  
    ‘I want to do W,  
     if I do Z, I can do W’  

CONCLUSION someone (Y) thought:  
    ‘something (X) happened because something else (Z) happened.’  

grounds  this person (Y) thought like this  
because something (X) happened  

EXHORTATION someone (Y) says something like this:  
    ‘I want someone (W) to do something (Z).’  

grounds  this person (Y) said this  
because something (X) happened  

The reductive paraphrase representing the RESULT–reason type of relation is identical to the proposed prototypical context in which the prime BECAUSE appears. The means–RESULT paraphrase is distinguished from the RESULT–reason BECAUSE sentence by capturing the fact that it is because someone did something that the RESULT happened and not simply because something happened. The context in which the prime BECAUSE appears in the MEANS–purpose paraphrase is that of volition—someone wanting to do something. The CONCLUSION–grounds paraphrase is distinguished by the fact that it involves someone thinking about the fact that something happened because something else happened, and this person draws a conclusion. BECAUSE appears in the context of the grounds–EXHORTATION type relation where someone is telling someone else to do something because something happened. All five types specified can be grouped as representing a core class of BECAUSE-types. All can be seen to relate to prototypical context proposed for BECAUSE; that is, something happened BECAUSE something else happened.

IF-types

conditionals
    condition  If something (X) happens  
    CONSEQUENCE  something else (Y) will happen  
    concession  someone (X) did something (Y),  
this person thought:  
    ‘If I do Y, Z will happen.’  
    CONTRAEXPECTATION  Z did not happen  
    something else (W) happened  

counterfactual conditionals
    condition  If something (X) had happened  
    CONSEQUENCE  something else (Y) would have happened  

IF-sentence conditionals are distinguished largely on the basis of the outcome to the IF proposition. The condition–CONSEQUENCE paraphrase provides an identical context for the prime IF as that of the proposed prototypical context. The event in the IF proposition has not yet happened and the outcome therefore is a potential outcome. The concession–CONTRAEXPECTATION IF sentence is distinguished on the basis that the event in the IF proposition has already happened and the outcome is contrary to the expectation. Counterfactual IF sentences are distinguished from the other IF sentences on the basis that neither the events of the IF proposition nor the event of the WOULD proposition actually occurred.

The significant contribution of the Semantic Structural Analysis approach has been to point to the wide range of possible inter-propositional relations encoding some kind of logical relation that must be taken into account when analysing the expression and representation of logical types, in this case, in Arrernte.
Chapter 4: Marking of Logical Relations in Arrernte sentences

Having established that each of the seven logical relation types posited by Larson (1984) can be clearly represented using NSM syntax and can be distinguished as belonging to either a core group of BECAUSE sentences, or a core group of IF sentences, the task now remains to show the ways the different logical types are marked in Arrernte. This is done on the basis of the two-way distinction between a core class of BECAUSE sentences and a core class of IF sentences. This distinction takes into account that ‘purpose’ sentences and indeed a number of others can be seen as special types of BECAUSE sentence, albeit, at times, relatively complex types. In the same way, ‘conditionals’ and ‘counterfactuals’ can both be seen as special types of IF sentences.

To accomplish the task set out above, this chapter
- identifies recurrent patterns of marking of logical relations,
- compares those features relevant to both natural and marked prominence,
- examines the different features of same and different subject purpose sentences,
- provides details of the range of devices in Arrernte used to indicate a BECAUSE-relation,
- examines the relevant features of switch-reference marked inter-clausal relations, and
- looks at juxtaposed clauses understood as encoding a BECAUSE-relation.

4.1 Salient features of the semantic structure of BECAUSE sentences

The following tables (Table 8a, Table 8b) are provided as a means of showing some of the main distinguishing features of the 77 BECAUSE-type sentences listed in Appendix 1. For the sake of clarity the table is divided into two parts. The first part focuses on a wide range of BECAUSE-type sentences, the second part (Purposive BECAUSE-type sentences) focuses specifically on those special types of BECAUSE sentences encoding a purpose relation. Examples in Appendix 1 (from which the information in Tables 8a and 8b was drawn) come from a range of sources, including published texts, examples from my own corpus of texts, the Eastern and Central Arrernte to English Dictionary (1994) and from a range of other published papers. The examples were selected to demonstrate the range and scope of logical relations and their representation in Arrernte.

By way of introduction to the range of BECAUSE-type sentences appearing in Appendix 1 and represented in the Tables below, attention is drawn to the following select examples, which include at least one of the five variant types comprising the core group of BECAUSE sentences (numbers correspond to the reference numbers associated with each example sentence in Appendix 1): RESULT–reason (see ref. nos 1 & 2), RESULT–means (see ref. nos 57 & 65—note: 57 is a complex construction which includes a RESULT–reason construction in the ‘means’ proposition), MEANS–purpose (see ref. nos 14 & 65 (note: ref. 14 is also a complex construction in that the MEANS–purpose bi-clausal construction is followed by a second BECAUSE proposition), grounds–CONCLUSION (see ref. no. 6), and grounds–EXHORTATION (see ref. no. 12).

The methodology employed in putting together Tables 8a and 8b was to take each example sentence listed in Appendix 1 and, on the basis of the division between the HEAD proposition and the support proposition, analyse those features which were expected to prove relevant for drawing conclusions about the semantic structure of the various logical relation types. The particular features focussed upon were 1) whether the HEAD clause was transitive or intransitive, 2) the identity of the participants in both the HEAD and the support clause and whether they were the same or different in both propositions, 3) the specific tense and aspect markers associated with each proposition and 4) the presence or absence of overt markers. The following example is provided to demonstrate the application of this methodology and to show the way the information is displayed in the table.

Example no. 1 from Appendix 1 and appearing as no. 1 in Table 8a.

(1) Tyerrte ahe-akngerre-le ahele are-me
people angry-very-ERG angrily see-NPP
merne ikwerenhe-arle ingkerreke anyelknge-le
food 3sg:POSS-FOC all steal-LOC(ADV)
arlkwe-rrirre-ke-nge
eat-PL-PC-DS

‘That angry person is looking around angrily because some people stole his food and ate it.’
In this BECAUSE sentence example the HEAD proposition (‘That angry person is looking around angrily’), in this case representing the RESULT proposition, contains a transitive verb; the participant of this proposition is 3rd person singular and the verb is marked as NPP. In the support proposition (‘because some people stole his food and ate it.’), representing the BECAUSE (reason) relation, the participant is 3rd person plural and the verb is marked as PC as well as being switch-reference marked to show that the participant of the support proposition is different from that of the HEAD proposition. And finally, an element in the support proposition is overtly marked with a Focus marker. This pattern of analysis is applied to all those bi-clausal BECAUSE-type sentences listed in Appendix 1.

There is a specific group of bi-clausal purpose sentences separated off into Table 8b. The reason for this is purely pragmatic. Purpose sentences are singled out for a separate discussion (see § 4.1.2) and for ease of reference a particular group of purpose clauses is brought together so that the reader can readily compare the features which are discussed in relation to this type of BECAUSE sentences. There are a number of purposive sentences in Table 8a also. Other relevant features pertaining to the analysis represented in the tables are discussed following the tables.

### TABLE 8A: GENERAL BECAUSE-SENTENCE MARKING PATTERNS

<table>
<thead>
<tr>
<th>no.</th>
<th>trans/ intrans</th>
<th>person/ tense/aspect</th>
<th>support clause</th>
<th>overt</th>
</tr>
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<td>1</td>
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<td>NPP</td>
<td>3pl PC.DS</td>
<td>-arle</td>
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<td>trans 3sg</td>
<td>NPP</td>
<td>3pl PC.DS</td>
<td>-arle</td>
</tr>
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<td>PERM/REFL.PC</td>
<td>2sg (DS)IMP.EMPH</td>
<td>-arle</td>
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<td>3sg NPP.DS</td>
<td>-arle</td>
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<td>3sg NPP.DS</td>
<td>-arle</td>
</tr>
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<td>NPP</td>
<td>3pl NPP.DS</td>
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<td>7</td>
<td>intrans reciprocal NPP</td>
<td>reciprocal RPAST</td>
<td>-iperre</td>
<td></td>
</tr>
<tr>
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<td>NPP</td>
<td>3sg NPP.DS</td>
<td>-arle</td>
</tr>
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<td>3sg PC-</td>
<td>-arle, iperre</td>
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<td>3sg NPP.SS, REFL.PC-iperreke</td>
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<td>-arle, iperre</td>
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<td>-</td>
<td>2sg NPP</td>
<td>-arle</td>
</tr>
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<td>-arle</td>
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<td>2sg PC, DS</td>
<td>-arle, kwele</td>
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<td>trans</td>
<td>3sg</td>
<td>DS, PC</td>
<td>3dl</td>
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</table>

* Note that in the two sentences marked *, the supporting clause precedes the main clause.

** TABLE 8B: BECAUSE-SENTENCE MARKING PATTERNS ENCODING A PURPOSE RELATION. **
Explanatory notes:

The left side shows features associated with the HEAD-clause, while the right shows features associated with the semantically supporting clause. On the left, the ‘trans/intrans’ label specifies whether the main clause is transitive or intransitive, the ‘person’ column specifies the person and number of the referent in the S/A role and the ‘tense/aspect’ column specifies the inflection marked on the verb in the HEAD-clause.

On the right, the label ‘person’ specifies the person and number of the referent in the support clause, ‘tense/aspect’ specifies the inflection carried on the grammatically subordinate verb of the support (dependent) clause, and the column headed ‘overt’ provides an opportunity to refer to any specific clitic or particle associated with the semantic structure of the support clause. Blank boxes indicate that there is nothing overtly specified in the clause. Brackets indicate an underlying feature which is considered relevant to the semantic structure of the bi-clausal relation.

### 4.1.1 Natural versus marked prominence

One of the features of Larson’s approach to the analysis of the relationship between propositions is the aforementioned idea of ‘natural prominence’ (see § 2.1) and coupled with this concept is the term ‘support’ relation. Larson (1984, p. 275) uses the term ‘subordinate’ in connection with a description of grammatical structures but when discussing the relation between ‘communication units’ in the semantic structure she uses the term ‘support’ relation. In doing so, the intention is to draw attention to the fact that it is semantic relations and not grammatical ones that are in focus. As such, semantic units that are related by ‘support’ relations will be frequently signalled by means of ‘subordinate’ grammatical constructions. For example, in the because-type sentence signalling reason–RESULT, the RESULT clause is seen as having ‘natural prominence’ and, as such, is the HEAD of the propositional cluster and the reason clause is seen as the ‘support’ relation. This contrasts with those semantic units categorised as ‘addition’ relations, which one would expect to be frequently signalled by ‘coordinate’ grammatical relations. These ‘addition’ type of relations are not the focus of this work.

If we look at the first 65 BECAUSE-sentence examples in Appendix 1 (examples 66–77 are also BECAUSE-type sentences, but all specifically purposive clauses, considered separately, see § 4.1.2), some interesting and relevant features emerge with respect to the idea of ‘natural prominence’ and ‘support’ relations. Of these 65 examples, 41 are overtly marked with a focal constituent in the supporting clause, that is in the ‘because’ clause (the grammatically subordinate clause) of the bi-clausal relation. Consider the following examples where the FOCUS marker -arle is presented in bold typeface:

(1) Tyerrtye ahe-akngerre-le ahele are-me, people angry-very-ERG angrily see-NPP
merne ikwenhne-arle ingkerreke anyelknge-le food 3sg:POSS-FOC all steal-LOC(ADV)
arlkwe-rrirre-ke-nge eat-PL-PC-DS

‘That angry person is looking around angrily because some people stole his food and ate it.’
ampe akweke arrewelhewe-lhile-me,
child small rocking -CAUS-NPP

akwete-arle arnme-nge...
still-FOC cry-NPP-DS...

‘She’s rocking the baby because it’s still crying...’

kwatye tyampite yanhe-ke thel-Ø-aye,
water tin that(MID)-DAT pour-IMP-EMPH

ayenge angkethakwe anthurre-arle awe-lhe-me-nge
1sg:NOM thirsty INTENS-FOC feel-REFL-NPP-DS

‘Pour some water into that tin over there because I’m feeling really thirsty.’

Note: All examples are BECAUSE sentences where the support proposition follows the HEAD proposition number. According to Larson’s (1984) schema, (1) and (2) would be categorised as RESULT–reason and (3) would be categorised as grounds–EXHORTATION.

I have already shown that the idea of ‘natural prominence’ according to Larson (1984, p. 306) corresponds with the HEAD of the propositional cluster and, this being the case, it is ‘normally more prominent’. While Larson acknowledges that languages may differ in this respect and that if there was an instance where the other proposition (that is the BECAUSE proposition) was more prominent then it could be marked that way. What emerges in the study of Arrernte BECAUSE sentences is that there is a high proportion of bi-clausal BECAUSE sentences that specifically mark focus on the grammatically subordinate clause.

One of the three related functions identified for the clitic -arle (in some instances, the form may be simply -rle) is that it marks the focal constituent of the clause. The second function is -arle ‘relative’, where it is used in the formation of a relative clause, in which case it may cliticise to the first constituent of a modifying clause or it may attach itself to the end of the verb (for a full discussion of relative clauses and their realisation see Wilkins 1989, pp. 414–431). The third function is -arle ‘that’. In this case -arle, when cliticised to the first element of a subordinate clause, marks a that-complement clause for particular verbs of cognition, saying/telling and perception. One noteworthy feature of -arle ‘that’ clauses is that -arle cliticises only to the first element of the subordinate clause and not to any other element, and the complement clause always follows continguously the verb to which it is subordinate.

With respect to its function as a focus marker, -arle marks that element in an utterance, other than a verb, which has focal prominence. One of the common functions it has when used in this way is to bring into particular focus one element which is being put forward as distinct from and in contrast to another given element. Bearing this in mind, it is important to observe that approximately 62% of the BECAUSE sentences surveyed have at least one element in the ‘support’ clause marked with the focal constituent -arle. When this fact is considered in the light of Larson’s (1984) comments about ‘natural prominence’ and ‘marked prominence’ it is clear that while the main clause has ‘natural prominence’ in the sense that it is the HEAD clause in a bi-clausal HEAD-support relation, what the speaker intends to convey to the hearer is that it is the ‘support’ clause that is the intended focal point of the utterance. In other words, the proposition that constitutes the ‘because’ part of the utterance is given prominence in contradistinction to the outcome (that is, what happened in response to some other prior event). Using Larson’s (1984) terminology, in a high proportion of cases the reason or grounds proposition has marked prominence in contradistinction to the result proposition (as in examples (1) and (2) above) or as in the case of the proposition signalling the grounds (as in example in (3) above).

In this regard, Young (1994, pp. 39) has made some astute observations with respect to the Chinese notion of causality and how it differs from the English notion of causality.

The notion of causality that attends the Chinese because...so... construction is importantly different from English usage and intent. In English, causality identifies a specific dominant factor—agency. By contrast, Chinese emphasize surrounding circumstances and contingent conditions and accommodation to them. In other words the former is concerned with establishing an isolatable cause for a given event while the latter attempts to take into account a field of conditions that sponsor a given event.
Young goes on point out how Chinese can minimise individual prominence by readily dispensing in discourse with pronominals such as ‘I’, ‘you’, ‘we’, ‘they’ in cases where the referent is understood, and in so doing promote bonds instead of boundaries.

While there a no shortage of available linguistic devices available in Arrernte (see § 4.2) for expressing causation (that is those encoding a BECAUSE relation), with respect to Aboriginal approaches generally to expressing causation, Eades (1983, chap. 5, quoted in Harkins 1984, p. 129) has identified what she describes as

important cultural differences between Aboriginal and non-Aboriginal approaches to giving and seeking reasons for actions...Cultural values of personal autonomy and interior privacy discourage probing into individuals’ reasons for actions. There is also a cultural expectation that legitimate participants in a conversation share relevant background knowledge of the subject under discussion, enabling them to decode utterances that rely on such knowledge.

A second noteworthy feature that emerges in relation to the use of -arle ‘focal constituent’ in the BECAUSE sentences surveyed is that, of the 41 examples in which at least one element in the ‘support’ clause is marked with -arle, 35 of the verbs are marked with a different subject marker. That is, in 35 of the bi-clausal BECAUSE sentences the subjects of the two clauses in question are different. One further significant observation to note at this point is that in nearly all the examples surveyed it is the clause expressing the BECAUSE-relation that is presented following the event to which it refers and upon which it is dependent. This points to a significant conclusion in relation to the semantic structure of logical types as they are expressed in the context of inter-propositional relations; that is, structurally, the typical pattern is for the BECAUSE clause to follow the clause upon which it is dependent.

4.1.2 Same and different subject purpose clauses

This section is included here because purposives represent a relatively complex type of BECAUSE sentence and therefore require some detailed treatment apart from the more generalised types of BECAUSE sentences.

Thompson and Longacre (1985) in their work on adverbial clauses have identified three distinct types of subordinate clauses. Of particular interest to the discussion here is their identification of a specific group of ‘adverbial clauses’, that is, those which function as modifiers of either verb phrases or entire propositions and which are not substitutable for a single word. One such type of adverbial clause that fits this pattern is that which encodes purpose as the semantic relationship between the main and subordinate clauses. In examining the structure and syntax of those special type of BECAUSE sentences which encode purpose in Arrernte (see examples 67-77 in Appendix 1), some interesting features emerge when contrasting same-subject purpose clauses and different-subject purpose clauses.

The claim by Thompson and Longacre (1985) that propositions encoding a purposive semantic relation are complex constructions in that they are not substitutable for a single word is borne out in the representation of the purposive scenario using NSM syntax. Their expression can only be analysed in terms of ‘semantic molecules’ (that is, a complex combination of NSM elements) rather than directly in terms of ‘semantic atoms’ (that is individual primes). In this light, Goddard (1991, quoted in Wierzbicka 1996, p. 206) has argued that this is the case with the notion of BECAUSE in Australian Aboriginal languages, which is regularly included (as is the case in Arrernte) in ‘semantic molecules’ encoded in various purposive constructions. Goddard (1991, p. 44) writes:

Prime facie, I submit, the meaning of these constructions involves the notion of because, in combination with the complex notion of someone wanting something to happen... The purposive constructions, in other words, provide a compact means for articulating causal connections within a particularly broad domain—that having to do with people’s motives or reasons for doing things. In P/Y society, I would argue, people tend to be more interested in each other’s reasons for doing things than in other kinds of causal links. Most talk about reasons for actions takes place in the idiom of the purposive, which services the main needs in respect of the expression of causality.

Turning now to an analysis of the expression of purposives in Arrernte, one relevant feature which must be stated at the outset is that, unlike the morphology associated with many of the grammatical devices used for encoding a BECAUSE relation, and unlike some other Australian languages (see
pursposive clauses in Arrernte never take any switch-reference marking. Instead, zero anaphora is the means by which the tracking of referents between the HEAD clause and the supporting purposive clause is handled.

In same-subject clauses where the semantic relationship is that of purpose, it is quite possible to use the dependent verb inflection -tyenhenge ‘SUBSQ (subsequently)’, indicating action that happens subsequent to the action of the main verb, and not to utilise the common verbal purpose marker-tyeke as one might expect. Consider the following examples:

(4)  ...anwerne kwatye antywe-tyeke-amparre ine-tyenhenge...
   1pl:A water drink-VPURP-FIRST get-SUBSQ
   ‘...we want to get some drinking water first...’

(5)  Ampe yanhe atherre-le kwatye altiywe-me ahelhe-ke
   child that(DEM) two-ERG water pour-out-NPP earth-DAT
     ahelhe terte atyete-ile-me-le ratherre arrkene-irre-tyenhenge
     earth mud soft-CAUS-NPP-SS 3dl:S fun-INCH-SUBSQ
     merne-ngen-merne mpware-me-le
     food-ABL-food make/do-NPP-SS
   ‘Those two kids are pouring water out onto the ground and making it damp so that they can play making little pretend cakes.’

(6)  Anwerne-arl arwerte-ipenhe arne arlpentye akngerre
   1pl:A-FOC spinifex-after stick long big
   arunthe ake-me-le
   many cut-NPP-SS
     irrtyarte-ngirrtyarte arrkene-irre-tyenhenge
     spear-ABL-spear fun-INCH-SUBSQ
   ‘We're getting a mob of really long bits of spinifex so that we can play toy spears.’

While -tyenhenge may occur in a different-subject bi-causal purpose sentence, it is not used in the clause which expresses the purpose for which the action of the main verb is done. When -tyenhenge is used in this way in the main clause there is an assumption that the initial action upon which the subsequent action is based need not be made explicit, as in the following example:

(7)  Kere aherre ampwerrke renhatherre-nhe anyente
   meat kangaroo whole 3dl-ACC one
   anthe-tyenhenge
   give-SUBSQ
     ikwre-atherre re-atherre-arrpe akalke-hile-re-tyeke.
     3dl:DAT-two 3dl-two:A-own separate-CAUS-DUAL-VPURP
   ‘We'll give them one whole kangaroo (which we had already killed) for them to share.’

By way of contrast, in those purpose clauses utilising the purposive marker -tyeke ‘VPURP (verbal purpose)’ and specifically in cases where the dependent clause is functioning as an adjunct, there does not appear to be any restriction governing the co-referentiality of the subjects of both clauses. The notable exception to this is in cases where the purposive is used in a complement purposive clause. Wilkins (1989, p. 237) makes reference to the particular verbs (such as ile- ‘to tell someone to do something’ and uterne- ‘to force someone or something to do something’) which take a purposive complement, and in these instances there is a requirement that ‘the O of the main clause must be coreferential with the S/A of the purposive clause. In this case, the subject (i.e. S/A) of the purposive clause is obligatorily absent’. However, in those instances where -tyeke is utilised in adjunct clauses where no such restriction is clearly in evidence, there appears a marked tendency, at least in those sentences surveyed, to utilise -tyeke in bi-clausal sentences where the subjects are different, as in the following examples:
Merne alangkwe akwerrke mape urreke-ke
food bush banana young many later-DAT
alwarrrerne-ke
come back and get later-PC
akngere ulkere irre-tyeke impe-me-le...
big TYPE INCH-VPURP leave-NPP-SS
‘We found some young wild bananas and left them to get bigger...’

The nhenhe-ke atherre imerne-me apmere
1sg:ERG this(DEM)-DAT two show-NPP place/camp
anwerne-kenhe nhenhe re-nhe
1pl-POSS this(DEM) 3sg-ACC
ratherre-le are-tyeke-arle ahentye-ane-me-nge
3dl-ERG see-VPURP-RELCL want-sit/be-NPP-DS
‘I’m showing our country to these two because they wanted to see it.’

4.2 Devices used to indicate a BECAUSE-type relation
Arrernte, in fact, has at its disposal a rich variety of linguistic devices to express the reasons for things happening or occurring. In the sections that follow, a number of these devices are examined, giving some indication of the scope of the variety available and how these devices serve to express the logical relation types discussed above.

4.2.1 -iperre/-ipenhe ‘after’
In the following examples, -iperre/-ipenhe ‘after’ can be understood as signalling a causal function in that it is used to represent a BECAUSE relation. The bi-clausal relation may be categorised as RESULT–reason (note the use of the focal constituent -arle in the ‘support’ clause.).

Akngwelye akweke yanhe atnerte ulhelke anthurre
dog small that(MID) stomach full INTENS
akwetethe re-nhe-arle arlkwe-me iperre...
always 3s-ACC-FOC eat-NPP after
‘The little dog has a really full stomach because it eats all the time...’

Artwe nhakwe re-arpparle aletye ake-lhe-ke
man there(DIST) 3sg-own-RELCL mourning scar cut-REFL-PC
iperre uyarne anthurre itirre-me,
after unable INTENS think-NPP
iperse anthurre ile-lhe-me-le ake-lhe-ke iperre-ke
deep INTENS CAUS-REFL-NPP-SS cut-REFL-PC after-DAT
‘That bloke over there who has cut himself in mourning is really in agony (because) it is a very deep cut (lit. after he cut himself causing a deep cut).’ [Appendix 1, tx 10]

4.2.2 -ke ‘dative’
In example (12), the dative -ke is used as benefactive marker, in the sense of indicating the reason or the purpose for doing something for the benefit of someone else. According to Larson’s (1984) labelling system this type of BECAUSE sentence may be categorised as MEANS–purpose (note again, the use of the focal constituent -arle in the ‘support’ clause).

Ayenge meeting nhenhe-werne apetve-rne atyeye
1sg:NOM meeting this(DEM)-ALL come-RPAST younger sister
attyinhe-ke angke-tyeke...
1sg:POSS-DAT speak-VPURP
‘I’ve come to this meeting to talk for my younger sister...’
4.2.3 -warte ‘since’

In examples (13) and (14), the clitic -warte ‘since’ is used to signal a BECAUSE-relation in the sense of indicating why a situation is the way it is. When used in this way there is also the implication that the addressee should already be acquainted with the reason. Wilkins (1989, p. 348) has offered the following approximate explication of -warte: ‘what else would you expect since, as you would know, X is the case’ (italics in the original).

(13) Kele nhenge irrkwe-ntyekwe-warte arrpenhe uyarne
OK. REMEMB hold on to-RECIP-NMLZR-SINCE other unable
mwernte-irre-tyarte, refuse-INCH-HPAST
kenhe arrpenhe-le re-nhe tyarre-ntyekwe-tyarte.
BUT other-ERG 3sg-ACC drag-take-HPAST
‘Since they were Siamese twins (lit. held on together) he couldn’t refuse, and the other one would drag him around.’

(14) Irretye-le ayenge lhe-me, ngkwerne kurne-kurne-warte.
walking stick-INST 1sg:NOM go-NPP bone bad-SINCE
‘I get around using a walking stick, because of my bad leg (as you should know).’ [Wilkins 1989, p.173]

4.2.4 alakenhe ikwerenge ‘that’s why’

Another expression, almost formulaic in character, which is used to signal a BECAUSE relation is the phrase alakenhe ikwerenge, ‘that’s why’, as in ‘that’s the reason why’, or ‘because of this’.

(15) alakenhe ikwere-nge
like so 3sg:DAT-ABL
‘that’s why’

Alternatives to this standard expression include suffixing to ikwerenge either -iperre (temporal, ‘that’s why after this’), as in alakenhe ikwerenge-iperre, or -ntyele (spatial), as in alakenhe ikwerengentyele. Typical uses of this expression are illustrated in the following two examples.

(16) Kere re-nhe atne mpwanke ite-rlenge atne ate-me-le
meat 3sg-ACC guts whole cook-DS guts burst-NPP-SS
akurne ile-ntyekwe akngerre.
Bad CAUS-NMLZR big
Alakenhe ikwere-nge kere nhenhe itne-nhe-nhe
like this 3sg:DAT-ABL meat this(DEM) 3pl-ACC-ACC
atne ine-ntyekwe akngerre-kamparre uvreke ite-tyenhe-le.
guts get-NMZR big-FIRST later cook-FUT-SS
‘If you cook the animal complete with the guts, they burst and spoil the meat. That’s why you take the guts out before you cook it.’

(17) Kwatyre akantyere arrerne-lhe-me rlke-le werneme
water storm clouds build up-REFL-NPP wind-ERG blow
urlpmernte ate-me,
dust rise up-NPP
alakenhe ikwere-nge-ntyele,
like this 3sg:DAT-ABL-MOAWAY dust sky-LOC
inte-me akwete-ulkere.
lie-NPP still-TYPE
‘The rain clouds come up, the wind starts blowing, and the dust comes up and that’s why (because of this) the dust hangs in the air.’

In the following example (18) from a story by Thomas Stevens (1985), attention is drawn to the use of alakenhe ikwerenge ‘that’s why’ in the support proposition, which is used to signal a clear BECAUSE
relation. The context in which this story was told was that the author set out with a group of young people to explain how various sacred sites had been desecrated or destroyed, and to explain why it was important that he has taken photos of the relevant sites.

(18) [Road] nhenge mpware-tyeke [Stuart Arm]-ele, road REMEMB make-VPURP Stuart Arms-LOC

nhenge ampe nhenge yanhe pmerrke REMEMB child REMEMB that(DEM) young man
tne-ril-ane-m-arteke nhenge itepe-l-ante stand-CONT+BE-NPP-SEMBL REMEMB side-LOC-ONLY

therre alakenhe. two like so

Kenhe alakenhe ikwere-nge the BUT like so 3sg:DAT-ABL 1sg:ERG

[photo]-em-ine-ke arrantherre are-tyeke, Ntyarlke photo-?-get-PC 2pl:A see-VPURP Ntyarlke

re-awerne intertne-rlenge... 3sg(DEF)-poor(thing) lie down-DS

‘(We told them) to make the road go around both sides, and leave this tree standing there, like the ‘young man’ dreaming tree near the Stuart Arms there. That’s why I took this picture for you all to see the poor Ntyarlke lying down there.’

4.2.5 -nge ‘ablative’

The particular element that has been identified (see Harkins & Wilkins 1994, p. 298) as being the most suitable equivalent of the semantic prime BECAUSE is the ablative case marker -nge. In addition to being used to indicate cause, and reason for something happening, this versatile suffix can have a variety of other functions, including a spatial (‘away from’) function, a temporal (‘after’) function, and a means (‘by’) function (see Wilkins 1989, pp. 185–187 for a description of these and other functions of the ablative marker -nge).

The primary reasons, according to Harkins and Wilkins, that -nge was selected as essentially equivalent to BECAUSE were, firstly, that it is the most suitable form to utilise in unalloyed reason contexts, as in examples (19) and (20) and, secondly, it appears that those alternative means of conveying the sense of BECAUSE mentioned above are definable in terms of -nge.

(19) M-angkwe unte are-tyeke lhe-tyek-aye mother-2KinPOSS(O) 2sg:S see-VPURP go-VPURP-EMPH

rlkerte kngerre-nge re. sick big-ABL 3sg:S

‘You should go and visit your mother because she’s very sick.’ [Harkins & Wilkins 1994, p. 299]

(20) Tyenge anewe ilwe-ke 1sg:DAT spouse die-PC

ngkwencode-nge ware. 2sg:DAT-ABL ONLY

‘My husband is dead because of you.’ [Ayeye Altverrengentyele, cl. 140]

In these examples the evidence signals an unequivocal BECAUSE usage. In the case of (19), the speaker is clearly not admonishing the addressee to ‘go away from’ (spatial) or ‘after’ (temporal) ‘his mother’s illness’ but ‘because of’ it. In the same way in (20) the speaker is obviously not suggesting that her ‘husband is dead’ (having just been speared) as a result of the addressee having ‘gone away from (spatial) you’ or ‘after (temporal) you’, but ‘because of you’ and what ‘you’ did.

This last example (20) is particularly interesting for the reason that -nge functioning as ‘because’ is not specifically linking two events. In discussing this kind of phenomenon, Wierzbicka (1996, p. 138) has noted:
From a logical point of view, one would expect that BECAUSE always links events, and therefore that it has to connect a clause with another clause or with a clause substitute (a “substantive”—THIS or perhaps SOMETHING—referring to the content of another clause). In natural language, however, the role of BECAUSE does not seem to be similarly restricted, and phrases such as “because of me” or “because of you” may in fact be universally available. If they are, then there is perhaps no need to regard them as elliptical or polysemous.

Example (20), provides a clear instance of the occurrence in natural language of the phrase ‘because of you’, in a context where it is used to signal a logical relation and yet, there is no ‘substantive’ present in the BECAUSE part of the expression. In this particular instance, when ‘because of you’ is considered within its context in the overall text, the content to which it refers is ‘because of what you have done’. The ‘what you have done’ is left implicit.

4.2.6 Switch reference

I have already referred to the high proportion of the BECAUSE-example sentences listed in Appendix 1, where it is evident that the system of switch-reference is in use. It should therefore come as no surprise that switch-reference is readily used to express a BECAUSE relation in bi-clausal sentences. The following examples are two of many.

(21) artwe ampwe nhakwe ahel-ire-me,
    Man old there(DIST) angry-INCH-NPP
    re-nhe-arle ampe urreyre mape-le ingwe-le
    3s-ACC FOC child boy many-ERG night-LOC(ADV)
apwerte-le we-ke-ngle
    rock-INSTR hit-PC-DS

‘That old man there is really angry because some young boys threw stones at him last night.’

(22) Tyerrtye yanhe ngkwenge-ketye ularele
    people that(MID) 2sg:DAT-AVER deliberately
    irrimke-me nge-nhe-arle akwele re are-ke
    suspicious-NPP 2s-ACC FOC QUOT 3sg:A see-PC
    urreyre arrpenhe uthene arrwanty-irre-rlenge
    boy other CONJ kiss-INCH-DS

‘That person is deliberately keeping his distance from you (intending to get back at you) because he reckons he saw you and another man kissing.’

Wilkins (1989, p. 458-459) makes the claim, with respect to the marking of non-identity of referents of the subjects of two clauses in Mapntwe Arrernte, that ‘[o]n “negativised” verbs the form is -ngle “different subject (ablative)”...while on non-negative verbs it is -rlenge “different subject (DS)” or -rleke “different subject”’. In his discussion on the functions of the ablative marker -ngle, and with reference to the topic of switch-reference, Wilkins (1989, p. 187) also makes the claim that the ‘ablative form marks a different subject “reason” clause when suffixed to a negativised verb...[i.e. X do (sic) something because Y didn’t do something]’.

However, when these claims are examined in the light of many of the examples listed Appendix 1, they do not hold entirely true. While it is the case that only the -ngle form of the switch-reference marker is suffixed to ‘negativised’ verbs, the use of the form -ngle is not restricted to ‘negativised’ verbs; contrary to Wilkins’ claims, it may occur as readily on non-negative verbs. In fact, -ngle ‘different-subject’ marker may occur suffixed to at least five of the six absolute tenses: the non-past-progressive -me as in (23), the past-completive -ke as in (24), the recent-past-rne as in (25), the habitual-past-tyarte as in (26), and the future -tyenhe as in (27). The one exception is the past-progressive -tyame/-tyeme. There is, however, no obvious reason why one would not expect to find the past-progressive -tyame/-tyeme marked with the different subject marker -ngle in a ‘support’ clause; it is simply the case that no examples were found in texts and example sentences examined.

In each of the following examples, -ngle ‘different-subject’ is used not only as a means of marking a different subject but specifically so in the context of a BECAUSE sentence. (Despite the polysemous nature of -ngle it seems highly improbable that it is being used simply as an ablative when in all instances below it appears in the context of a bi-clausal sentence where the S of the main clause and
the S of the semantically supportive clause are different.) The reader’s attention is drawn to the elements in bold typeface. In each example the particular finite tense inflection is highlighted in bold, and each tense inflection is followed by -nge marking ‘different subject’, which is also in bold.

(23) Kele arelhe ampwe yanhe atherre alpe-tyeke
OK woman old that(MID) two return-VPURP
ahentye-ane-me, irrernte-arle-irre-me-nge
want-sit/be-NPP cool-FOC-INCH-NPP-DS
‘OK, those two old women want to go home now because it's getting cold.’

(24) Itne mutekaye akngartiwe-me-le apety-alpe-ke,
3pl:A motorcar change-NPP-SS come-return-PC
akurne-arle irre-ke-nge
bad-FOC INCH-PC-DS
‘They turned their motorcar around and came back because it was giving trouble.’

(25) Ampe anhe erne-ke rrare-me,
child that(MID) food-DAT miss out-NPP
arrpenhe nhakwe-le areye-arle merne ingkerreke
other that(DEM)-ERG PL-FOC food all
arlkwe-rlte+alhe-rne-enge
eat-do(PL)+go-RPAST-DS
‘That child missed out on the food because those others ate all the food just before they left.’

(26) Artwe nhenge the apmere Alkwerte-ke are-ke
man REMEMB 1sg:ERG place/camp Alcoota-DAT see-PC
apmere arrule ulkere-arle alwirre-ke anewe
place/camp long.time TYPE-FOC run away-PC spouse
ikwerenhe-l-arle akwetethe ikwere
3sg:POSS-ERG-FOC always 3sg:DAT
ingkerte-tingkerte-irre-me-le ahe angke-tyarte-nce
jealous-jealous-INCH-NPP-SS aggressive say-HPAST-DS
marle arrpenhe areye-ke anewe arlke ile-me-le
girl other PI-DAT spouse TOO CAUS-NPP-SS
‘I saw that man out at Alcoota that ran away a while ago because his wife used to get very jealous of him and used to accuse him of having lovers.’

(27) Arelhe yanhe-le atherre antyame
woman that(MID)-ERG two blanket
alparre-ile-me-le antyame-iwe-me,
flatten out-CAUS-NPP-SS blanket-throw-NPP
lyete-arle akwele mane akngerre-ke
today-FOC QUOT money big-DAT
arrkene-irre-rrirre-tenhe-ncge
fun-INC-PL-FUT-DS
‘Those two women are spreading out a blanket and straightening it out because people are going to be playing (cards) for a lot of money today.’

4.2.7 Juxtaposition

One particular device used to express a BECAUSE semantic relation in a bi-clausal sentence is the juxtaposition of the HEAD and support clauses. When clauses are juxtaposed in this way, and where a BECAUSE-relation is evident, there is no overt grammatical device used to signal such a relation. Yet, in these instances, a BECAUSE interpretation is clearly acceptable in the sense that the supporting proposition provides the ‘reason’ for the assertion in the main clause. A further observation regarding these examples is that the particular clause which specifies the BECAUSE part of the sentence uniformly follows the clause it modifies.
(28) Ampe akweke yanhe rlkerte
baby small that(MID) sick
artep-arle akwetethe nentye-nentye-ke
back-FOC always thumping sound-thumping sound-DAT
unte atwe-me
2sg:A hit/kill-NPP
‘That little child is sick (because) you are always thumping him on the back. (lit. hitting so as
to make a thumping sound)’ [Appendix 1, tx 13]

(29) Merne atyankerne arlkwe-ntye akngerre kwenye
veg.food mistletoe(type) eat-NMLZR big NOMNEG
alenye-ke ikerrke-iwelhe-ntye akngerre
tongue-DAT stick to-feel-NMLZR big
‘You don't chew on the fruit of the mistletoe (because) they stick to your tongue.’ [Appendix
1, tx 16]

(30) Inngerre tyerrtye ingkerreke-le alhe ane-me
face person all-LOC nose sit/be-NPP
alhe nhenhe re impene anthurre
nose DEM:P 3sg:DEF special INTENS
ntyerne-ntye akngerre ntyerrknge itnye-ntye
to smell-NMLZR big sneeze sneeze-NMLZR
akngerre-arlke
big-TOO
‘Everybody’s face has got a nose, the nose is very special (because) you can smell with it and
also sneeze.’ [Appendix 1, tx 36]

4.3 Molecules

Thus far the attention on BECAUSE relations has focussed primarily on the semantic structure of bi-
clausal relations and the grammatical means used to signal these relations; these have been discussed
under the general heading of ‘primes’. There are additionally in Eastern Arrernte a number of
‘molecules’ that can be used to signal a BECAUSE meaning. At least one straightforward way to
illustrate this is to take each of the following five ‘molecules’ and insert them in a frame which
responds to a generalised question. The term ‘molecules’ is used here in the sense that the form of
certain BECAUSE-relations can only be analysed in terms of a complex combination of NSM
elements—‘semantic molecules’—rather than directly in terms of ‘semantic atoms’, that is individual
primes (as already mentioned above in § 4.1.2).

The generalised question frame can be explicated as ‘Why is this person (X) doing this thing (Y)?’. The
Arrernte form of the interrogative ‘why’ is based on iwenhe ‘what’+CASE; in this way iwenhe
take the full set of cases applicable to common nouns (for a discussion on ‘why’ question forming
in Arrernte see Ferber & Breen 1984). In each example only the iwenhe+CASE word is given and a
representative response appropriate to the use of the specific case marker in question is given. The
response may be roughly explicated as ‘person X is doing this thing (Y) because...’. The reason for
explicating the ‘why’ question here is that there is an underlying assumption of a logical relation
between the event proposition, represented in the question itself, and some other related causal event.
Underlying the question ‘Why is this person (X) doing this thing (Y)?’ (it could just as easily be
paraphrased as, ‘Why did this person (X) do this thing (Y)’?) is an assumption of a logical relation
between the question and some other related causal event. Note that ‘Y’ may refer to any event
concept.

4.3.1 iwenhe+nge (Ablative)
The form iwenhe+nage may be translated into English as ‘Why?’ or ‘What from?’ as in example (31):

(31) Iwenhe-nge....?
what-ABL
‘Why (e.g. is she rubbing her eyes)?’
In this instance the basic semantic structural frame can be roughly paraphrased as:
Why is this person (X) doing this thing (Y)?
Because something happened.

4.3.2 *iwenhe*+ke (Dative)

The form *iwenhe*-ke can be translated into English as either ‘Why?’ or ‘What for?’ There are two
distinct meanings assigned to the use of the dative. In one instance, the dative can function as a
purposive as in (32), in which case-*ke* indicates the conscious reason for an action being performed; as
such it characteristically marks an adjunct which explicates the purpose for an action being performed.

(32) *Iwenhe*-ke…?
what-DAT
‘Why (e.g. is she crying)’?
*Kwatyke*.
water-DAT
‘For water.’ (‘Because s/he wants a drink of water.’)

For the purposive, the basic semantic structural frame is paraphrased as:
Why is this person (X) doing this thing (Y)?
because X thought something like this:
‘I want something (Z)
if I do Y, I can do Z.’ (e.g. drink water)

Note that there is no requirement that the Y is the same person who does Z. The above paraphrase
could readily encompass the proposition ‘if I do Y, someone else will do Z (e.g. get me a drink of
water).

Example (33) also shows this purposive use of the dative in a BECAUSE-type clause where the
relation is one encoding EXHORTATION–grounds.

(33) *Amp-aye!* *Kwaty* *in-Ø-aye* *tea*-ke.
child-EMPH water get-IMP-EMPH tea-DAT
‘Hey (my) child! Get some water for tea.’ (The implication: ‘so I can make some tea.’)

The dative -*ke* may, in other instances, function as a benefactive, as in (34).

(34) *Iwenhe*-ke…?
what-DAT
‘Why…?’
*Atvey-ikwe*-ke.
younger brother/sister-3KinPOSS-DAT
‘For his younger brother/sister.’ (‘Because his younger brother/sister wants him to.’)

For the benefactive (see also § 4.2.2) the basic semantic structural frame, in this instance, in response
to a question, can be paraphrased as follows:
Why is this person (X) doing this thing (Y)?
Because X thought something like this:
‘I want to do something (Y) for someone else (W)
if I do Y, it will be good/bad for W.’

4.3.3 *iwenhe*+iperre/*ipenhe* (After)

The form *iwenhe*-iperre\(^{11}\) is not readily translated into English, other than simply as ‘Why?’ There is

\(^{11}\) Ferber and Breen (1984, p. 15) draw a semantic distinction between the forms *iwenhe* iperre and *iwenhe* ipenhe whereas Wilkins (1989, p. 205–206) argues against such a distinction on both semantic grounds and morphological grounds claiming, firstly, that he has found no basis for determining ‘a semantic split across any of
the functions in which these forms participate’. Secondly, Wilkins argues against the claim that these forms have
independent morphological status, claiming instead that they, like all other case forms, are bound suffixes.

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an underlying meaning here which can be roughly paraphrased along the lines of ‘What caused this to happen?’ as in the following example:

(35)  
Iwenhe-iperre...?  
why-AFTER  
why...?
Kere akenge-arle arlkwe-ke-iperre  
meat bad-FOC eat-PC-AFTER
‘After eating bad meat.’ (‘Because s/he ate some bad meat.’)

For this form the basic semantic structural frame can be paraphrased as:
Why is this person (X) doing this thing (Y)?  
Because something else (W) happened  
because of this, after this, X is doing Y.

4.3.4 iwenhe-ketye (Aversive)

The form iwenhe-ketye is translated into English typically as simply ‘Why?’ but with an understanding of ‘for fear of what?’ or ‘because of what?’ The type of relation utilising -ketye may be alternatively called ‘negative purpose’ or ‘negative reason’.

(36)  
Iwenhe-ketye...?  
why-AVER  
‘Why...?  
Apmwe-ketye.  
snake-AVER  
‘For fear of a snake.’ (‘Because a snake might bite me/you.’)

In this case, the basic semantic structural frame can be paraphrased as follows:
Why did this person (X) do this thing (Y)?  
Because X (had) thought something like this:
‘I don’t want this other thing (W) to happen  
I know (think) this other thing is bad for me (someone else).’

I have chosen to illustrate the BECAUSE functions of each these above ‘molecules’ thus far by means of looking at the response to a particular kind of question. However, in every instance, the BECAUSE functions of these ‘molecules’ could have been illustrated using a different kind of scenario, that is, a scenario which is not framed as a question. For example, take the above paraphrase which explicates a prototypical scenario for a special type of BECAUSE sentence, one fitting the REASON–RESULT frame, which relates to the use of the aversive molecule -ketye.

(37)  
Tyerrtye nhakwe-le ameke-are-me-le  
person that(DEM)-ERG keep away from someone-see-NPP-SS  
ware atwe-me,  
ONLY hit-NPP  
arrpenhe yanhe atherre-ketye.  
other that(MID) two-AVER  
‘That person is holding off hitting him because those other two blokes are here.’

The paraphrase could then be adapted easily to read as follows:
At some time someone (X) did something (Y)?  
Because X (had) thought something like this:
‘I don’t want this other thing (W) to happen  
I know (think) this other thing is bad for me (someone else).’

Alternatively, taking the reductive paraphrase proposed for the BECAUSE sentence corresponding to Larson’s (1984) grounds–EXHORTATION relation and modifying it slightly (in most instances of this type of BECAUSE sentence, one would expect to find the HEAD proposition preceding the ‘support’ proposition, as in example (37)). The following example illustrates negative EXHORTATION:
Inteye-ke irrpe-tyal-aye
cave-DAT enter-VNEGIMP-EMPH
‘Don’t go into the cave,
ingwe nthurre-ketye!
dark INTENS-AVER
because it’s too dark!’

This yields the following paraphrase which can be used to explicate a scenario in which -ketye is the element in the ‘support’ proposition giving rise to a BECAUSE interpretation, in this instance a negative exhortation:

EXHORTATION at sometime someone (X) says something to someone (W) like this:
‘I don’t want you (W) to do this thing (Y).
grounds BECAUSE something (Z) happened.
after this, because of this, this person (X) thought something like this:
‘I don’t want W to do Y,
because I think (know) Y is bad for this person (W)’

One of the interesting features about the occurrence of the inflectional suffix -ketye is that it is one of only two inflections in Arrernte\[12\] that can attach to either verbal or nominal stems. While it is true that a number of other suffixes and clitics do attach to both nominals and fully formed verbs, -ketye is the only one of two inflectional suffixes to attach to the verb stem without any other intervening morphology, although, interestingly, -ketye can occur following other morphology (39). Notice also in the next example (39), the ‘support’ precedes the HEAD, in this instance the admonition to ‘look out’, it is then followed by a second ‘support’ clause which spells out the potential result. The relation may be paraphrased roughly as ‘Because something (X) is happening, do this (Y) now, because X is happening I think something else (Z) will happen, Z is bad’.

(39) Apere yanhe ke-lhe-me-ketye alaye;
gum tree that(MID) break off-REFL-NPP-AVER look out
arrekantherre-arieke akertne-ke inye-me-ketye.
2pl:ACC-CONNECT on top-DAT fall-NPP-AVER
‘Look out! That gum tree is breaking; it might fall on top of all of you.’

4.3.5 *iwenhe-aperte* (MATTER—something bad has happened because of this)

The form *iwenhe-aperte* is translated into English typically using the expression ‘What’s the matter?’ or ‘What happened?’ The underlying assumption here is that something happened and the person asking the question wants to know ‘What has happened to cause this other thing to happen?’ An example of this type is given below in (40) and this will be followed by a reductive paraphrase:

(40) *Iwenhe-aperte?*
what-MATTER
‘What’s the matter?’ (or ‘What caused this to happen?’)

*Ngkwarlke-aperte.*
grog-MATTER
‘From grog.’ (‘Because s/he drank too much grog.’)

The basic semantic structural frame for ‘what happened?’ can be paraphrased as follows:

What happened? =
I know something (Z) happened
I think this happened
because something else happened.
I don’t know about this other thing
I want to know about this other thing
I think this other thing is bad for someone.

\[12\] Wilkins (1989, p. 240) makes the claim that -ketye is the only suffix to attach to both nominals and verb roots, in the case of the latter without any other intervening morphology. However, the clitic -eye ‘is it?’ may also attach to both nominals and verb roots without any other intervening morphology, as in *Mwerre-eye* (good-is it) ‘Is that good?’ and *Re apeke mpwareye?* (3sg:A, maybe, make/do-is it) ‘Could s/he make it?’
4.3.6  \textit{-arrkngele} (Indirect reason for anger)

Another ‘molecule’ used to represent the reason for something happening, as in the paraphrase ‘something (X) happened BECAUSE something else (Y) happened’, is the clitic \textit{-arrkngele} ‘indirect reason for anger’. In this case however there is the additional component that may be stated as ‘Y happened because something else bad happened’. The reason for using the term ‘indirect’ is specifically to draw attention to the fact that the referent of the NP in question is only indirectly the cause or reason of the aggressive feelings or actions of the protagonists in the main clause, who typically would not know that they caused a problem. This marker is criticised to dative-marked nominal phrases.

(41) \textit{Ampe} urreye alhe alhwe akngerre-ke atwe-re-me.  
\textit{Iwenhe} ikwere-arrkngele mwarre urreke-arle  
\textit{arrkene-irre-ke iperre.}

‘Those two boys gave each other bloody noses. I don’t know why (implied—and I’m angry about it) because they were playing happily together before.’

The semantic structure of this special type of BECAUSE sentence, that is, one which would utilise \textit{-arrkngele}, may be represented using the following paraphrase:

\begin{itemize}
  \item \textbf{RESULT} something (X) happened
  \item \textbf{reason} because something else (Y) happened
  \item after this, because of this, someone (Z) might think:
  \begin{itemize}
    \item ‘Y happened because something else bad happened’
  \end{itemize}
\end{itemize}

Notice in the above paraphrase, that the proposition ‘something (X) happened, could just as easily encompass the following variant: ‘someone (W) did something (X)’. ‘Something (X) happened’ is assumed to encompass this variant.

This same clitic \textit{-arrkngele} may also be used in a BECAUSE sentence based on an EXHORTATION–grounds relation as in the following:

(42) \textit{Kwaty} itere nhakwe thayete marte-tyeke alh-Ø-aye,  
\textit{mperekere-arle kwatyke-ke-arrkngele angke-me-nge.}

‘Go and switch that water off over on the other side, because some whitefellas are grumbling something about the water.’

Notice also in both (41) and (42) the focal constituent -\textit{arle} is criticised to an element in the BECAUSE clause in the bi-clausal relation, thus bringing into marked prominence the semantic ‘support’ clause in the semantic relation, while ‘natural prominence’ is afforded to the HEAD clause in the relation.

4.3.7  \textit{-ille/-lhile} (Causative)

The suffix \textit{-ille}, or the alternate \textit{-lhile}, is used in Arrernte to derive a causative verb from a nominal and, as such, it frequently appears in BECAUSE-type sentences, typically in those encoding a purpose–MEANS relation. Note that either variant, \textit{-ille} or \textit{-lhile}, may be used to form transitive verbs from nominals, whereas only the variant \textit{-lhile} may be used to causativise an intransitive verb stem. The following example illustrates this type:

(43) \textit{Ahelhe} atyete-ille-me-le  
\textit{tnye-tyeke arne ngkerne-tyenhe-le.}

‘You’ve got to break up the soil so that you can put the plants in.’
The semantic structure of this special type of BECAUSE sentence can be explicated using the following paraphrase:

**MEANS** someone (X) did something (Z) because this person thought:

‘I want to do W,
if I do Z, I can do W’

Alternatively, a BECAUSE sentence utilising -ile ‘causative’ may encode a **grounds–EXHORTATION** relation as in example (44):

(44) Anewe ikwerenhe-werne alpe-tyeke
spouse 3sg:POSS-ALL return-VPURP
re-nhe ingkerte-lhile-me-le atwe-kye...
3sg-ACC jealous-CAUS-NPP-SS hit-AVER

‘He should go home to his wife so she won’t get jealous and beat him up.’

The implication here is, ‘he should go home because if he doesn’t, he will cause her to get angry with him and she will beat him up’.

The semantic structure of this type of example can be captured using the following reductive paraphrase:

**EXHORTATION** someone (X) says something like this:

‘I want someone to do something (Z).’

grounds this person (X) said this because X thought:

‘maybe something (W) bad will happen
I don’t want this thing (Z) to happen’

The causative -ile may also be used to encode another kind of BECAUSE-clause relation referred to by Larson (1984) as **means–RESULT**.

(45) Re ntheke-ntheke anthurre-ile-lhe-ke
3sg:S shabby INTENS-CAUS-REFL
antywe-ntywe-le.
drink-NMLZR-ERG

‘He’s made himself really shabby by drinking.’

### 4.4 Salient features of the semantic structure of IF sentences

Table 9 gives an overview of some of the salient features of the IF sentences listed in Appendix 2, which were drawn from a range of sources, including published texts, examples from my own corpus of texts, the Eastern and Central Arrernte to English Dictionary (1994) and from a range of other published papers. The examples were selected to demonstrate the range and scope of logical IF-type relations and their representation in Arrernte.

The methodology employed in putting together Table 9 was similar to that used in Tables 8a and 8b above. That is, take each example sentence listed in Appendix 2 and, on the basis of the division between the HEAD proposition and the support proposition, analyse those features which were expected to prove relevant for drawing conclusions about the semantic structure of the various IF-type sentences. The particular features focussed upon were

- whether the HEAD clause was transitive or intransitive,
- the identity of the participants in both the HEAD and the support clause and
- whether they were the same or different in both propositions.

In this particular case I also sought to identify the presence of the clitic apeke ‘if’, because this was crucially important in determining the nature of the sentence relation (see below). Additionally, I focussed on the specific tense and aspect markers associated with each proposition and, the presence or absence of any other overt markers. Brackets are used to indicate implicit information.

The following example is provided to demonstrate the application of this methodology and to show the way the information is displayed in the table.
Example is no. 4 from Appendix 2, appearing as no. 4 in Table 9.

*Akapertere* apeke tyerryte atmingke-ngare atwe-me
head if people many-ORD hit/kill-NPP

*tyerryte* aretre ire-me
people mad INCH-NPP

‘If a person gets hit on the head too many times they can go mad.’

In this example, the HEAD proposition is represented by a transitive clause and the participant (agent) is 3rd person singular but is not overtly referred to in the text, whereas the affected participant is referenced. This proposition is overtly marked with the *apeke* ‘if’ and the verb is inflected as NPP. In the support proposition the participant being referenced is the same as the affected. There is no further occurrence of *apeke* ‘if’ and the verb in this second proposition is also inflected as NPP.

**TABLE 9: SALIENT FEATURES OF IF SENTENCES**

<table>
<thead>
<tr>
<th>no.</th>
<th>trans/ intrans</th>
<th>person ± ‘if’</th>
<th>tense/aspect</th>
<th>person</th>
<th>overt</th>
<th>tense/ aspect</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>trans</td>
<td>3sg apeke</td>
<td>NPP</td>
<td>3sg:A(SS)</td>
<td>-</td>
<td>NPP</td>
</tr>
<tr>
<td>2</td>
<td>trans</td>
<td>1sg:ERG, 2sg:S</td>
<td>NPP, DO.PAST, VPURP</td>
<td>2sg:S (DS)</td>
<td>-</td>
<td>REFL.NPP</td>
</tr>
<tr>
<td>3</td>
<td>trans</td>
<td>2sg:DAT apeke</td>
<td>VPURP</td>
<td>2sg:S (DS)</td>
<td>apeke</td>
<td>NPP</td>
</tr>
<tr>
<td>4</td>
<td>trans</td>
<td>(3sg) apeke</td>
<td>NPP</td>
<td>3sg:S (DS)</td>
<td>-</td>
<td>NPP</td>
</tr>
<tr>
<td>5</td>
<td>intrans</td>
<td>2sg:S apeke</td>
<td>NPP.DS</td>
<td>(SS)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>6</td>
<td>intrans</td>
<td>3sg:S apeke</td>
<td>NPP.DS</td>
<td>(DS)</td>
<td>-ketye</td>
<td>NPP, NPP.SS, NPP.SS, NPP.AVER</td>
</tr>
<tr>
<td>7</td>
<td>trans</td>
<td>3sg:ACC NPP</td>
<td>NPP.SS, NPP</td>
<td>(SS)</td>
<td>apeke</td>
<td>NPP</td>
</tr>
<tr>
<td>8</td>
<td>trans</td>
<td>1sg:ERG-FOC PC</td>
<td>2sg:S (DS)</td>
<td>apeke-arle</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>trans</td>
<td>-, apeke</td>
<td>NPP</td>
<td>1sg:NO(SS)</td>
<td>-</td>
<td>SUBSQ</td>
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<td>10</td>
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<td>PC</td>
<td>2sg:A(SS)</td>
<td>3sg:ACC</td>
<td></td>
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<tr>
<td>11</td>
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<td>3sg:A SUBSQ</td>
<td>2sg:POSS apeke-arle apekele-arle apeke</td>
<td>VPURP FUT</td>
<td></td>
<td></td>
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<tr>
<td>12</td>
<td>trans</td>
<td>-, 3pl:ACC apeke</td>
<td>PC, VPURP</td>
<td>3pl:S(SS)</td>
<td>apeke</td>
<td>NPP.DS</td>
</tr>
<tr>
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<td>trans</td>
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<td>3sg:S(SS) apeke</td>
<td>NPP</td>
<td></td>
<td></td>
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<tr>
<td>14</td>
<td>trans</td>
<td>(2sg:A) VPURP</td>
<td>3sg:A(DS) apeke</td>
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<td></td>
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<td>15</td>
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<td>(3sg:S) apeke (or)</td>
<td>PC.RELCL PC.iperre</td>
<td>(3sg:S) SS apeke</td>
<td>NPP</td>
<td></td>
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<tr>
<td>16</td>
<td>intrans</td>
<td>(3sg:S) apeke, apeke-arle</td>
<td>NPP, VNEG, PC,DS, NPP.SS</td>
<td>3sg:S(SS)</td>
<td>-</td>
<td>VPURP, NPP, RECIP.DS</td>
</tr>
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<td>17</td>
<td>trans</td>
<td>3pl:A DS</td>
<td>(3sg:A)-ERG</td>
<td>-</td>
<td>HYPO</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>intrans</td>
<td>(3sg:S) apeke</td>
<td>Gevet</td>
<td>3sg:ACC, 3sg:A(DS)</td>
<td>-</td>
<td>DS.RELCL</td>
</tr>
<tr>
<td>19</td>
<td>intrans</td>
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<td>NPP</td>
<td>1sg:NOM(DS)</td>
<td>-</td>
<td>VNEG</td>
</tr>
<tr>
<td>20</td>
<td>trans</td>
<td>3pl:A PC</td>
<td>(1pl:A)(SS)</td>
<td>-</td>
<td>HYPO</td>
<td></td>
</tr>
<tr>
<td>no. trans/ intrans</td>
<td>person ± ‘if’</td>
<td>tense/aspect</td>
<td>support</td>
<td>overt</td>
<td>tense/ aspect</td>
<td></td>
</tr>
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<td>---------</td>
<td>-------</td>
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<td></td>
</tr>
<tr>
<td>21 trans</td>
<td>(2sg:A)</td>
<td>NPP.SS, IMP.EMPH</td>
<td>(2sg:A)</td>
<td>-</td>
<td>SUBSQ</td>
<td></td>
</tr>
</tbody>
</table>

**Explanatory notes** (these notes are essentially the same as those provided for Tables 8a and 8b; they are repeated here for ease of reference):

The left side shows features associated with the HEAD-clause, while the right shows features associated with the semantically supporting clause. On the left, the ‘trans/intrans’ label specifies whether the main clause is transitive or intransitive, the ‘person ± ‘i’’ column specifies the person and number of the referent in the S/A role and indicates the presence of the conditional lexeme _apeke_ ‘if’. The ‘tense/aspect’ column specifies the inflection marked on the verb in the HEAD-clause.

On the right, the label ‘person’ specifies the person and number of the referent in the support clause, ‘tense/aspect’ specifies the inflection carried on the grammatically subordinate verb of the support (dependent) clause, and the column headed ‘overt’ provides an opportunity to refer to any specific clitic or particle associated with the semantic structure of the support clause. Blank boxes indicate that there is nothing overtly specified in the clause. Brackets indicate an underlying feature which is considered relevant to the semantic structure of the bi-clausal relation.

I have already stated (§ 3.3), with reference to IF sentences and the polysemy of the primary exponent of the semantic universal IF _apeke_, that in a simple clause—where a single proposition is presented—the lexeme _apeke_ means ‘maybe’ or ‘perhaps’, whereas in the context of bi-clausal relation (the focus of interest here)—where a dependent or ‘support’ clause is present—_apeke_ means ‘if’.

Looking at the details in Table 9 above it is immediately obvious that of the 21 bi-clausal (or multi-clausal) sentences examined, 15 have a clause overtly marked with the propositional particle _apeke_ and may therefore be assumed to be encoding an IF-relation. The remaining 6 clauses can also be classified as IF sentences but they do not contain the particle _apeke_ ‘if’. It should also be noted here, with reference to the polysemy of _apeke_ ‘if, maybe’ that it can additionally be used to convey a contrast between a given number of states or events (as in example 12 from Table 9 above) and thus be glossed as ‘or’ or, in the case of example (16), as ‘(or) if’.

Before proceeding with an examination of some of the details expressed in Table (9), it is pertinent to look briefly at some claims made by Bain (1992) with respect to conditionals which take a contrary view to the one expressed above, which states that IF sentences can be clearly distinguished from WHEN sentences. Bain (1992, pp. 86–92) discusses the construction of conditionals in Pitjantjatjara, commenting on simple conditionals, counterfactual (she uses the term ‘contrary-to-fact’) conditionals and conditionals in statements of habit and custom. When discussing causality she makes the statement that ‘Aboriginal understanding of sacred affairs, specifically causality, is characterised by concepts and categories of thought that are no more than one step removed from reality’ (Bain 1992, p. 79). She goes on to discuss what she claims is an absence of any hypothetical conditional sentence in Pitjantjatjara, stating (1992, p. 87), ‘The hypothetical conditional sentence is not found in Pitjantjatjara. In Pitjantjatjara one cannot put forward a purely hypothetical condition, something that is merely possible, or a supposition. In practice, when Westerners attempt to do so, the Aboriginal person receives the idea as a fact’. Bain also makes the claim with respect to Pitjantjatjara that no distinction is drawn between ‘if’ and ‘when’.

In arguing against such a view with respect to Aboriginal languages, McConvell (1991, p. 15) states, ‘Lack of formal distinction between _if_ and _when_ in Aboriginal languages, in contrast to English, is supposedly linked to absence of hypothetical conditional statements in Aboriginal discourse’. McConvell (1991, p. 16) resolutely rejects such claims arguing that indeed Aboriginal languages do have both the lexical and grammatical means to mark ‘conditionality’, and he asserts that even if the words for ‘if’ and ‘when’ have an identical form, they may never-the-less appear in different frames,
thus establishing the contrast. Wierzbicka has also argued against Bain, characterising her claim as ‘disturbing’ and suggests the solution lies in the need to ‘state explicitly...that one is not asserting the condition’ (1996, p. 189), as could be accomplished according to the following reductive paraphrase:

\[
\text{I don’t know whether X will happen if it happens, then Y}
\]

In his discussion on conditionals and their realisation in Mparntwe Arrernte, Wilkins (1989, p. 234), specifically with reference to the inflectional suffix-\textit{mere} ‘hypothetical’, draws a distinction in the non-past between conditionals with ‘projected’ or ‘hypothesised’ consequences and those with definite consequences. With respect to the former case the following example is offered:

\begin{equation}
\text{(46) Dam itne mpware-rlenge, kwatye-le atake-mere.}
\end{equation}

\[
\text{dam 3pl:A make/do-DS water-ERG destroy-HYPO}
\]

‘When they build the dam, then the water could (hypothetically) destroy it (and put us all in danger).’ [Wilkins 1989, p. 234]

He goes on to say that in the latter case, ‘the consequent clause has the structure of a declarative main clause with the main verb taking a non-past tense.’ What he is contending here is that, if the tenses -\textit{me} ‘non-past progressive’ or -\textit{tyenhe} ‘non-past completive’ replaced -\textit{mere} ‘hypothetical’ as in example (46), the consequent clause would then mean that the dam is definitely going to break if they build it. The following paraphrase is suggested for an explication of the suffix -\textit{mere} and it represents a simplification of the definition offered by Wilkins (1989, p. 234):

\[
\text{-mere = something (Y) has not happened it could happen}
\]

\[
\text{I can’t/don’t say: ‘It will happen.’}
\]

Returning to further analysis of the results displayed in Table 9 above, and looking specifically at the bi-clausal sentences marked with the inflectional suffix -\textit{mere} (see Appendix 1 example sentences 10, 17 and 20), it can be observed that -\textit{mere} occurs in a clause following either a declarative clause ordinarily containing the particle -\textit{apeke} ‘maybe, if’ (as in 10) or a temporal adverbial switch-reference clause (as in 17). Concerning the semantic structure of these ‘hypothetical’ sentences, the initial clause establishes the conditions that might happen, or could have happened, and the following -\textit{mere} ‘hypothetical’-marked clause postulates what could happen, or what could have happened if the conditions put forward in the initial clause had happened. Regarding the outcome, no claim is being made that what could happen necessarily will happen. In this way -\textit{mere} is used to convey counterfactuals (as in example 10), as noted by Wilkins (1989, p. 234). In the case of example sentence 20 (a hypothetical conditional, not a counter-factual) the expected switch-reference marked verb is reduced to a simple ‘proprievte’-marked NP and there is no explicit mention of the referent in the -\textit{mere} ‘hypothetical’ inflected clause.

In the extended example (47) from \textit{Ayeye Altyerrengentyele} ‘A Dreamtime Story’ text [ref. 22–25], which concludes with a hypothetical conditional, once again the expected switch reference-marked clause which establishes the condition is reduced to a simple dative-marked NP, which is understood as ‘I don’t know if you could do this thing for me’. In this example, where some context has been provided, the referents of the -\textit{mere} ‘hypothetical’ inflected clause are obligatorily stated.

\begin{equation}
\text{(47) Yenge ane-tyarte ampe-kerte}
\end{equation}

\[
\text{1sg:NOM sit/be-HPAST child PROP}
\]

‘I’ve been living here with just the child

\[
\text{kere arrwe arlkwe-tyekenhe,}
\]

\[
\text{meat(CLASS) rock wallaby eat-VNEG}
\]

\[
\text{and never had any wallaby to eat,}
\]

\[\text{13 It is of interest to compare what has been said here with what Hasada (1997) has said in relation to conditionals and counterfactuals Japanese bi-clausal sentences. The claim is made that ‘in actual speech, many bi-clausal Japanese sentences are compatible with an even wider range of interpretations— temporal, conditional, hypothetical conditional, or counterfactual. In practice, it seems that native Japanese speakers are often not concerned with overtly marking these distinctions’ (1997, p. 286). The implication drawn from this is that frequently the ‘speaker’s attitude toward the factuality or likelihood of the situation is left open’.} \]
When the above example is examined in the light of the reductive paraphrase proposed for hypothetical conditionals:

I don’t know whether X will happen
if it happens, then Y

Then, it can be easily seen that the proposed explication adequately accounts for the Arrernte conditional at this point. The hypothetical conditional expressed here could be rephrased as:

I don’t know whether you will kill some kangaroo for me
if you do, then we will have some to eat (and be very glad).

It is noteworthy to mention at this point that, while Arrernte has the grammatical means available to convey counterfactuals in the corpus of texts and example sentences surveyed in the course of researching this paper, bi-clausal IF sentences of this specific type containing-mer are quite rare. It is also of interest to note that while it has been argued that Arrernte has at its disposal the means to distinguish hypothetical and counterfactual conditionals, Thompson and Longacre (1985, p. 195) make the claim that at least some of the world’s languages do not make a distinction between these two types. Thompson and Longacre (1985) are however, restricting their comments to the distinction between hypothetical and counterfactual conditionals; they are not suggesting a lack of distinction between counterfactuals and conditionals generally. The case for considering the concept of IF as a semantic primitive as distinct from the counterfactual IF...WOULD, which is also postulated as a semantic primitive, has been argued elsewhere by Wierzbicka (1996, 1997).

A further observation concerning the semantic structure of the more generalised IF sentences, those classified as ‘plain’ or ‘temporal’ condition–CONSEQUENCE sentences (see § 3.3), is that while there doesn’t appear to be any stringent ordering of the two propositions in the relation, there is a tendency for the clause conveying the IF meaning, that is the condition, to precede the clause expressing the consequence. In other words, the more common pattern to emerge is that the consequent proposition follows its antecedent. In the case of the 14 sentences which may be classified as ‘plain’ or ‘temporal’ IF sentences, 8 of the 14 present the condition preceding its consequent.

Another way in which an IF sentence may be formed is through the use of the dependent verb inflection-tyenhenge ‘subsequent’. See examples (48)/(ref. 9), (49)/(ref. 11) and (50)/(ref. 21) from Appendix 2 (Appendix 2 numbers are given in square brackets);-tyenhenge ‘subsequent’ may be used either in conjunction with apeke ‘if’, as in (48) and (49), or without it apeke ‘if’, as in (50). In this latter instance, a conditional interpretation is perfectly consistent with the primary use of tyenhenge (but certainly not demanded of it). That is, it indicates an event whose fulfilment is conditional upon the event in the clause upon which it depends happening and, temporally subsequent to it. The elements in focus here are in bold typeface to draw attention to their occurrence:

(48) *Ntange ularte-arle arlkwe-me iperre apeke*
edible seed exclusively-FOC eat-NPP after if
*atnerte anhelke ayenge awelhe-tyenhenge*
stomach satisfied 1sg:NOM feel-tyenhenge

‘I’ll probably feel full in the stomach if I eat just seeds.’ [Appendix 2, ref 9]
In terms of tracking arguments between the two clauses in a bi-clausal IF sentences, if the identity of the referents of both clauses are shared then tracking them may be accomplished by either pronominals or zero anaphora. However, in those instances where the arguments of the clauses in question are different, then the change of subject is obligatorily marked using an NP, typically, some pronominal reference.

A common way to express a negative conditional is through the use of the clitic-\textit{kwenye ‘nominal negator’. In this case-}\textit{kwenye ‘nominal negator’} is used in a way that resembles the English ‘unless’. Consider the following example in which the expected consequence of not doing something or of something not happening precedes the condition upon which the assumption is based:

\begin{align*}
\text{Ngkwerne-ngkwerne irre-me,} \\
\text{bone-bone INCH-NOMNEG sit/be-NPP-SS} \\
\text{merne arlkwe-ntyte akngerre-kwenye ane-me-le.} \\
\text{veg.food eat-NMLZR big-NOMNEG sit/be-NPP-SS} \\
\text{‘You get bony if you don’t eat.’}
\end{align*}

The final IF-type sentence to be commented on here is that which may be described using Athanasiadou and Dirven’s (1997) typing of conditionals as ‘pragmatic conditionals’, that is, those that entail their antecedent or their consequent. Athanasiadou and Dirven (1997, p. 62) draw attention to the point of commonality in all conditionals, that is, ‘the mutual dependency between the two propositions in the subclause and in the main clause of conditional sentences’. In the case of ‘pragmatic conditionals’ this mutual dependency is not as clearly evident as it is in other kinds of conditionals. For this group of conditionals, according to their definition, the speaker is giving out an ‘implied, metapragmatic signal’, which is in turn providing information for the addressee about a solution to a perceived problem. A solution to this problem is provided by the information given in the main clause. ‘Pragmatic conditionals’ are defined by Athanasiadou and Dirven (1997, p. 63) in the following way: ‘If there is a need x, let me give you information y, so that you can arrive at solution z’. The following two examples may be categorised as ‘pragmatic conditionals’:

\begin{align*}
\text{The-arle ite-ke unto angayakwe apeke-arle} \\
\text{1sg:ERG-FOC cook-pc 2sg:S hungry if-FOC} \\
\text{‘I’ve cooked it if you’re hungry.’}
\end{align*}

\begin{align*}
\text{Ngkwenge-werne apeke mane yerne-tyeke,} \\
\text{2sg:DAT-ALL if money send-VPURP} \\
\text{unte apeke ahentye-ane-me.} \\
\text{2sg:S if want-sit/be-NPP} \\
\text{‘Your money can be sent to you, if you want.’}
\end{align*}

4.5 Conclusions

There are several important conclusions that have emerged in the analysis presented in this chapter in relation to the expression and structure of logical types in Eastern Arrernte. Firstly, in the study of
Arrernte BECAUSE sentences there is a high proportion of bi-clausal BECAUSE sentences that specifically mark focus on the grammatically subordinate clause. When this fact is considered in the light of Larson’s (1984) comments about ‘natural prominence’ and ‘marked prominence’, it is clear that while the main clause has ‘natural prominence’, in the sense that it is the HEAD clause in a bi-clausal HEAD-support relation, and typically appears in the initial position in the bi-clausal relation, what the speaker intends to convey to the hearer, by means of including a focal constituent, is that it is the ‘support’ clause that is the focal point of the utterance. In other words, the proposition that constitutes the ‘because’ part of the utterance is given prominence in contradistinction to the outcome. Why something happened is thus deemed more prominent than what happened.

A further significant conclusion to emerge in relation to the semantic structure of logical types as they are expressed in the context of inter-propositional relations structurally is that the common structural pattern is for the BECAUSE-clause to follow the clause upon which it is dependent.

I have also shown that Arrernte has at its disposal a rich variety of linguistic devices to express the reasons for things happening or occurring. The particular element that has been identified (as Harkins and Wilkins 1984, p.298, have already noted) as being the most suitable equivalent of the semantic prime BECAUSE is the ablative case marker-

Regarding IF-type bi-clausal relations, while there doesn’t appear to be any stringent ordering of the two propositions in the relation, there is a tendency for the clause conveying the IF meaning, that is the condition, to precede the clause expressing the consequence. In other words, the pattern to emerge is that the consequent proposition typically follows its antecedent. We have also noted that Arrernte can make a clear distinction between ‘if’ and ‘maybe’ clauses. Also, Arrernte makes a two-way distinction in the core class of IF-type sentences: those termed simply ‘conditionals’ and, those termed ‘counterfactuals’.

Throughout this chapter I have clearly demonstrated that logical types of inter-propositional relations can be categorised on the basis of a two-way distinction between a core class of BECAUSE-type sentences and core class of IF-type sentences. By providing a reductive paraphrase for each logical type filling the two core-classes identified, I have established a means by which another analyst may verify the findings and enter into a cross-linguistic comparison of types in a way that the Semantic Structural analysis approach to the analysis of these types was found to be lacking.

I also mention here that the analysis represented in the tables above (8 and 9), in relation to all the features present in the examples listed in Appendices 1 and 2, has been necessarily selective, as have been the observations concerning what is presented in the tables. Space does not permit a full analysis of all the relevant features and how they might influence the structure of semantic relations. For instance, the interplay between particular kinds of grammatical expression and semantic structure, the relation between the order of certain syntactic constituents and the ordering of certain logical propositions, the full significance of the presence or absence of overt markers and the specific constituents they mark. These and other questions remain the topic of further research.
Chapter 5: Logical Relations at Discourse Level

One of the underlying questions raised at the outset of this study concerned the type of reasoning process which might be shown to be evident in Arrernte discourse: inductive or deductive. Thus far, the primary focus of attention has been at the level of inter-propositional relations, specifically the semantic structure of logical relations as expressed in bi-clausal sentences. It is beyond the scope of this paper to undertake an exhaustive account of the semantic structure of Arrernte discourse; neither will I be attempting a thorough appraisal of the syntax of Arrernte discourse. To render an adequate account of the structure of semantic relations at discourse level, it would be necessary to give consideration to the interplay of all the various types of ‘addition’ and ‘support’ relations (i.e. the grammatically coordinate and subordinate structures) identified by Larson (1984) in her chart of ‘communication relations’, at both the semantic and the syntactic levels. Rather, the focus of this chapter will be quite narrow and, necessarily, of a summary nature. The wider challenge, toward which this chapter is a preliminary step, is succinctly stated by Polanyi and Scha (1983, p. 261):

A discourse grammar must characterize the surface structure in a way which accounts for the significant semantic properties of the text. Specifically, we should be able to describe how the meaning of an entire discourse unit is built up out of the meanings of its elementary constituents—which may be ‘clauses’ or other discourse units...Every clause uttered is a structural constituent of a discourse unit which may consist of one or more clauses. Every discourse unit is correlated with a semantic frame which is the context for the interpretation of its constituent clauses.

I have already stated (§ 2.1) that a discourse may be assumed to consist of semantic units and these units are arranged in a hierarchical system. Further to this, it was said that each semantic unit is characterised by a set of meaning features. These meaning features or components unite at various levels of the discourse/semantic hierarchy. We have already looked at the features characterising the combination propositions into propositional clusters or, as they have been called, bi-clausal sentences. The concern now is to provide a brief overview of the semantic structure associated with the grouping of propositional clusters into what Larson (1984) has called semantic paragraphs and how these units unite to form larger units of the discourse. By seeing the way smaller semantic units unite to form larger semantic units, we will be able to give some indication of the reasoning process that emerges relevant to the focus on narrative genre. The discussion at this point is necessarily limited to features associated with the realisation of BECAUSE-type and IF-type relations.

5.1 Cohesion in narrative discourse

The purpose of narrative discourse is to recount events, usually in the past. The thread that weaves the discourse together is the recounting of a series of events which are most commonly actions. The agent of the events is usually third person or first person; that is, the narrator tells about things which happened either to someone else or to him/herself. The presence of participant, time and location strings are involved in determining groupings (i.e. semantic and propositional clustering) and for giving cohesion to the narrative. The two texts under consideration here are both narrative. In the first instance, Arltunga-werne Alpeke ‘Returning to Arltunga’, the agent of events is first person and the story recounts a childhood memory of the time the individual was taken back to Arltunga so that she could attend school. The second and longer text, Ayeye Altyerrengentyele ‘A Dreamtime Story’, is, as the title suggests, a ‘Dreamtime’ narrative; in this case the agent of events is third person. Additionally, this text includes a small amount of dialogue. Both texts are found in the published volume of Arrernte short stories Arrernte Ayeye (Henderson (ed.) 1986).

Some pertinent questions in relation to the study of discourse, particularly with reference to cohesion and the markers and various constituents used to signal cohesion, have been raised by Schiffrin (1987), who queries the scope of particular markers and their ability to mark relationships at different discourse levels and the range and level at which they operate within a discourse. For the purposes of analysing Arrernte narrative the focus is, at least initially, centred on semantic relations, what basis there is for determining the kinds of relations identified and what markers can be identified which give an indication of coherence. The grammatical relations have not received the same attention.

The points of grammar that have caught my attention in this limited study are phoric reference, anaphora in particular, understood as a coreferential link between some element in a text and a prior
element in the same text—in this light pronouns have a cohesive function in discourse as well as contributing to participant orientation. Related to anaphora is *ellipsis*, understood as the ultimate in economy; when used properly, the missing information can be infallibly supplied, so there is both redundancy and cohesion (Pickering 1980, p. 31). Pickering also notes the danger of confusing ellipsis, which is a strictly grammatical matter, with implicit or implied information.

There are various ways that the structure of a discourse can signal cohesion. The most obvious ways are through grammatical agreement, phoric reference (anaphoric, cataphoric or exophoric), semantic relations (what Pickering (1980, p. 33) calls ‘conjunction’), lexical association and given information (i.e. information that the writer/speaker treats as already available to the reader/hearer). The idea of given information comes from Halliday’s (1967 and 1968) ‘given/new’ dichotomy.

However, with reference to cohesion as a semantic relation, to say that two sentences cohere by virtue of their relation in meaning is not very precise. Practically any two sentences might be shown to have something to do with one another as far as their meaning is concerned. However, there is one specific kind of meaning relation that is critical for the creation of texture: that in which one element is interpreted by reference to one another. What cohesion has to do with it is the way in which the meaning of the elements is interpreted. Where the interpretation of any item of the discourse requires making reference to some other item in the discourse, there is cohesion (e.g. ‘he said so’ is intelligible but unable to be interpreted semantically) (Halliday & Hasan 1976, p. 26).

5.2 Observations on the semantic structure of Arrernte narrative

In the interests of clarity and ease of observing and discussing the particular features of interest in the two narrative texts examined here, the texts have been annotated using two different systems. In the first instance, the Arrernte texts have been annotated using the system of interlinear glossing and morpheme analysis used elsewhere throughout this paper. The interlinearised text has been divided into separate units mainly on the basis of sentence boundaries. In the second system of analysis, only the English gloss has been provided, with the texts having been analysed on the basis of their propositional structure. Using this system, the various kinds of inter-relations have been labelled according to the semantic structural analysis system advocated by Larson (1984) and according to the principles laid out above (§ 2.2) specified as a standard format for representing propositions. The reason for presenting the analysis of the two texts in this way is to draw attention to a number of different features. An attempt to combine the range of interests in a single representation appeared to demand too much of only one representation. The English propositional display focuses, in particular, on the structure of semantic relations at various levels in the discourse.

Having discussed at length the way in which Larson’s labelling system can be clarified using NSM syntax (see Chapter 3), and having defined each of the set of logical relations using NSM syntax, I have made no attempt here to apply the NSM approach to the total labelling system of all the various types of semantic relationships throughout the texts; to do so remains the subject of further research.

An initial generalised observation concerning the analysis, specifying and labelling of the semantic relationships associated with each different level in the semantic hierarchical structure is that the higher one goes in the semantic hierarchy the more critical the issue of context and inter-dependency between propositions and groups of propositions becomes. In regard to the relations between propositions in a discourse van Dijk (1997a, p. 9) reinforces this point:

> As is the case for all other levels of discourse analysis, here we find the discursive relativity principle: propositions are influenced by previous propositions in text or talk. Indeed, one need not be a discourse linguist to know that the meaning of a sentence depends on what has been said (meant) before.

*Arltunga-werne Alpeke ‘Returning to Arltunga’ semantic structure*

The English propositionalised translation of *Arltungawerne Alpeke* ‘Returning to Arltunga’ is a narrative text, shown in Appendix 3, which comprises 42 propositions. Eight levels of grouping propositions together have been used to express the structure of semantic relationships and label them.
The intention here is to draw attention only to those semantic relations identified as specifying a ‘logical relation’, understood as representing either a BECAUSE-relation or an IF-relation, and to draw from these observations some preliminary conclusions regarding the process of reasoning evident in the structure.

In Table 10, attention is focussed on tracking referents and the tense/aspect markers associated with each proposition. These two features were selected because a change of participant reference and the incidence of particular tense/aspect markers were considered significant markers in determining relevant features of the semantic structure of the text. Table 10 corresponds to the interlinearised text in Appendix 4.

<table>
<thead>
<tr>
<th>CI</th>
<th>Referent</th>
<th>Tense/aspect</th>
<th>CI</th>
<th>Referent</th>
<th>Tense/aspect</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>(1pl:S)</td>
<td>pc</td>
<td>19</td>
<td>1sg:NOM</td>
<td>npp</td>
</tr>
<tr>
<td>2</td>
<td>vpurp</td>
<td></td>
<td>20</td>
<td>vpurp</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>1sg:Poss.ERG, 1pl.ACC</td>
<td>pc</td>
<td>21</td>
<td>pc-SS, fut</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>vpurp, vpurp</td>
<td></td>
<td>22</td>
<td>1sg:NOM</td>
<td>DS</td>
</tr>
<tr>
<td>5</td>
<td>1sg:NOM</td>
<td>npp-SS</td>
<td>23</td>
<td>pc</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>pc</td>
<td></td>
<td>24</td>
<td>1sg:NOM</td>
<td>npp-SS, pc</td>
</tr>
<tr>
<td>7</td>
<td>~/DS</td>
<td></td>
<td>25</td>
<td>1sg:NOM</td>
<td>VNEG, vpurp</td>
</tr>
<tr>
<td>8</td>
<td>1pl:S</td>
<td>vpurp</td>
<td>26</td>
<td>pc</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>vpurp</td>
<td></td>
<td>27</td>
<td>HPAST</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>1sg:NOM</td>
<td>refl.pc</td>
<td>28</td>
<td>1pl:S</td>
<td>pe</td>
</tr>
<tr>
<td>11</td>
<td>pc-relcl</td>
<td></td>
<td>29</td>
<td>npp-SS</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>npp-SS, vpurp</td>
<td></td>
<td>30</td>
<td>3pl:Poss</td>
<td>npp-SS</td>
</tr>
<tr>
<td>13</td>
<td>1sg:NOM</td>
<td>pc</td>
<td>31</td>
<td>1pl:S</td>
<td>pe</td>
</tr>
<tr>
<td>14</td>
<td>1pl:S</td>
<td>vpurp, npp</td>
<td>32</td>
<td>npp-SS</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>(3sg:S) 1sg:Poss</td>
<td>pc</td>
<td>33</td>
<td>npp-SS</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>2pl:S</td>
<td>npp-SS</td>
<td>34</td>
<td>1sg:NOM</td>
<td>pc</td>
</tr>
<tr>
<td>17</td>
<td>vpurp, vpurp</td>
<td></td>
<td>35</td>
<td>3sg:S</td>
<td>pc-DS</td>
</tr>
<tr>
<td>18</td>
<td>1sg:DAT</td>
<td>npp-SS</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In this section, I refer to both the English propositionalised version of this text as it appears in Appendix 3 and the interlinearised version of the this same text as it appears in Appendix 4. The first set of unbracketed numbers refers to the reference numbers in the English propositionalised text. The second set of number (those contained in brackets) refers to the text reference numbers in the interlinearised version of this text. The particular focus of attention in the analysis presented here is the semantic structure of both BECAUSE-type and IF-type relations.

At the first structural level, an inter-clausal level, five relations have been labelled as representing a BECAUSE-type relation, specifically, the relation between propositions 1 (1) and 2 (2), 15 (13) and 16 (14), 35 (28) and 36 (29), 38 (31) and 39 (32), and 40 (34) and 41 (35). In every one of these five BECAUSE-type relations identified, the semantically supporting clause (i.e. the BECAUSE clause) follows the HEAD clause.

At the second structural level, generalised as a sentence level (which includes both bi-clausal and multi-clausal relations), a further five relations have been identified as representing a BECAUSE-type relation. The specific groupings of propositions are; 3–5 (3–4), 6–8 (5–6), 12–14 (10–12), 18–20 (16–18) and 29–32 (24–25).

The varying structures represented by the grouping of these BECAUSE-type relations show different ordering possibilities. For 3–5 (3–4), 12–14 (10–12) and 29–32 (24–25), the specific constructions

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14 Although the grouping of various semantic units into a hierarchical structure, as used in the analysis of both texts, includes one more level than the levels suggested above (§ 2.1), this need not present a challenge to the findings specified in relation to levels. Rather it confirms, as specified, that the number of levels is not rigidly fixed or agreed upon and that for the analysis of certain texts it is perfectly appropriate to add another level, if this is seen to aid the analysis of the types of semantic relations identified.
encoding the BECAUSE-type relation follow their respective HEADs. For 6–8 (5–6) and 18–20 (16–18), the propositions encoding the BECAUSE-type relation precede their HEADs.

In the case of propositions 6–8 (5–6), where the BECAUSE proposition precedes the RESULT proposition, the actual BECAUSE proposition is left implicit and only made explicit in the following propositions, 9–11. There is also a change of pronominal reference following proposition 5 (‘so that we could learn’), from first person plural, to first person singular in proposition 6 (‘When I first heard’), and with the change of subject reference the new participant is given prominence and introduced in the first clause of the relation.

In propositions 18–20 (16–18), where the proposition analysed as encoding the BECAUSE-type relation precedes the MEANS, there is also a change of subject. On this occasion from first person plural in the preceding proposition 17 (‘about why we had to go to school’) to third person singular in proposition 18 (‘My grandfather said this’). Again, the new participant is given prominence in the ordering of clauses. There is also, in this second instance, a degree of skewing evident between the syntactic level and the semantic level. The particular grammatical device used to encode the ‘means’ proposition in 19 (17) (‘you have to go and live Arltunga’) is in fact the purposive (marked -tyeke ‘VPURP’). Whereas 18 (16) (‘in order that you can learn’) is understood semantically as the ‘purpose’, but marked as non-past-progressive, it is in fact 19 (17) (‘you have to go and live at Arltunga’), which functions semantically as the MEANS by which this purpose is to be accomplished.

(1) (15) Tyemeye atyenhe alakenhe angke-ke,
MoFa 1sg:POSS like this say-PC
(16) ‘Arrantherre akaltye-irre-me-le
2pl:S knowledge-INCH-NPP-SS
(17) [Arltunga]-le ahe-tyeke alhe-tyeke...
Arltunga-LOC sit/be-VPURP go-VPURP
‘My grandfather said this, (in order that) you can learn, you have to go and live at Arltunga...’ 17, 18, 19

_Ayeye Altyerrengentyele_ ‘Dreamtime Story’ semantic structure

The English propositionalised translation of the _Ayeye Altyerrengentyele_ ‘Dreamtime Story’ text contains 169 propositions as is represented in Appendix 5. As in the _Arltungawerne Alpeke_ text, eight levels of semantic structure have been identified and these have been labelled using the Semantic Structural Analysis theory approach. The intention here is the same as that specified in relation to Table 10, specifically, to draw attention only to those semantic relations identified as specifying a ‘logical relation’, understood as representing either a BECAUSE-type relation or an IF-type relation, and to draw from these observations some preliminary conclusions regarding the process of reasoning evident in the structure.

Tables 11a and 11b represent an analysis of the salient points in relation to pronominal referents, and tense/aspect markers carried by the verbs in each clause. The table is divided into two parts, simply for the sake of convenience. The information contained in the table refers to the interlinearised version of the text as it appears in Appendix 6 and the ‘CI’ numbers refer to the ‘c’ reference numbers in this version of the text. In this table, attention was focussed on tracking referents and the tense/aspect markers associated with each proposition. These two features were selected because a change of participant reference and the incidence of particular tense/aspect marker were considered significant markers in determining relevant features of the semantic structure of the text. The features highlighted in Tables 11a and 11b correspond to the interlinearised text in Appendix 6.

**Table 11a: Ayeye Altyerrengentyele ‘Dreamtime Story’ Part 1,**
Clause Analysis (Clauses 1–83)

<table>
<thead>
<tr>
<th>Cl</th>
<th>Referent</th>
<th>Tense/aspect</th>
<th>Cl</th>
<th>Referent</th>
<th>Tense/aspect</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>PC</td>
<td></td>
<td>43</td>
<td>3sgS(DEF)</td>
<td>PC</td>
</tr>
<tr>
<td>2</td>
<td>3plS</td>
<td>HPAST</td>
<td>44</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>HPAST</td>
<td></td>
<td>45</td>
<td>3plS, 2sgDAT-ABL</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>HPAST</td>
<td></td>
<td>46</td>
<td>IMP.EMPH</td>
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</tr>
</tbody>
</table>
### Table 11B. Ayeye Altyerrengentyele ‘Dreamtime Story’: Part 2, Clause Analysis (Clauses 84–153)

<table>
<thead>
<tr>
<th>Cl</th>
<th>Referent</th>
<th>Tense-aspect</th>
<th>Cl</th>
<th>Referent</th>
<th>Tense-aspect</th>
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</thead>
<tbody>
<tr>
<td>5</td>
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<td>47</td>
<td>3KinPOSS-ERG</td>
<td>DS</td>
</tr>
<tr>
<td>6</td>
<td>PC</td>
<td></td>
<td>48</td>
<td>3sgS(DEF)</td>
<td>TWD-PC</td>
</tr>
<tr>
<td>7</td>
<td>PC</td>
<td></td>
<td>49</td>
<td>3KinPOSS-ERG, 3sgACC</td>
<td>PC</td>
</tr>
<tr>
<td>8</td>
<td>SUBSQ</td>
<td></td>
<td>50</td>
<td>3sgS</td>
<td>DO+DOWNWARDS-PC</td>
</tr>
<tr>
<td>9</td>
<td>NPP-DS</td>
<td></td>
<td>51</td>
<td>3sgS(DEF)</td>
<td>TWD-NPP-SS</td>
</tr>
<tr>
<td>10</td>
<td>3sgS(DEF)</td>
<td>NPP-SS, NPP-SS, VPURP</td>
<td>52</td>
<td>PC</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>3plS</td>
<td></td>
<td>53</td>
<td>3plPOSS-ALL</td>
<td>DO.BACK-NPP-SS</td>
</tr>
<tr>
<td>12</td>
<td>SUBSQ</td>
<td></td>
<td>54</td>
<td>3sgAcc</td>
<td>PC</td>
</tr>
<tr>
<td>13</td>
<td>3sgA(DEF)</td>
<td>SUBSQ</td>
<td>55</td>
<td>3sgA, 2sgDAT</td>
<td>FUT</td>
</tr>
<tr>
<td>14</td>
<td>3sg RELCL</td>
<td>NPP-SS, PC, NPP-SS</td>
<td>56</td>
<td>3dlA, 3sgACC</td>
<td>PC</td>
</tr>
<tr>
<td>15</td>
<td>3sgS(DEF)</td>
<td>NPP-SS, PC</td>
<td>57</td>
<td>VNEG.SS, PC</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>REFL-GO.BACK+DO-PC</td>
<td></td>
<td>58</td>
<td>3sgA</td>
<td>VNEG.SS, PC</td>
</tr>
<tr>
<td>17</td>
<td>NPP-SS, NPP-SS</td>
<td></td>
<td>59</td>
<td>3sgA(DEF)</td>
<td>PC</td>
</tr>
<tr>
<td>18</td>
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<td></td>
<td>60</td>
<td>3sgS</td>
<td>PC, VPURP</td>
</tr>
<tr>
<td>19</td>
<td>PC</td>
<td></td>
<td>61</td>
<td>3sgS</td>
<td>DS</td>
</tr>
<tr>
<td>20</td>
<td>3sgS(DEF)</td>
<td>DO.BACK-PC</td>
<td>62</td>
<td>3sgA</td>
<td>VPURP, HPAST</td>
</tr>
<tr>
<td>21</td>
<td>3sgS(DEF)</td>
<td>PC</td>
<td>63</td>
<td>3sgS</td>
<td>HPAST</td>
</tr>
<tr>
<td>22</td>
<td>1sg NOM</td>
<td>HPAST</td>
<td>64</td>
<td>NPP, NPP</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>VNEG</td>
<td></td>
<td>65</td>
<td>3sgS</td>
<td>VNEG, PC</td>
</tr>
<tr>
<td>24</td>
<td>3plA, 3sgACC</td>
<td></td>
<td>66</td>
<td>3plA, 3sgACC</td>
<td>HPAST</td>
</tr>
<tr>
<td>25</td>
<td>2dlA, 1sgDAT</td>
<td>HYPO</td>
<td>67</td>
<td>PC</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>3sgS(DEF)</td>
<td>PC</td>
<td>68</td>
<td>HPAST</td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>3sgS(DEF)</td>
<td>PC</td>
<td>69</td>
<td>3sgS(DEF)</td>
<td>PC</td>
</tr>
<tr>
<td>28</td>
<td>3sgS</td>
<td>NPP-SS</td>
<td>70</td>
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<td></td>
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<tr>
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<td>3KinPOSS-DAT</td>
<td>PC</td>
<td>71</td>
<td>3sgACC</td>
<td>DS</td>
</tr>
<tr>
<td>30</td>
<td>3sgA, 3sgACC</td>
<td>PC</td>
<td>72</td>
<td>3sgACC</td>
<td>PL-HPAST</td>
</tr>
<tr>
<td>31</td>
<td>CONT+SG-DS</td>
<td></td>
<td>73</td>
<td>PC</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>3sgS</td>
<td>PC</td>
<td>74</td>
<td>PC-RELCL</td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>3sgACC</td>
<td>NPP-SS</td>
<td>75</td>
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<td>FUT-SS</td>
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<td>34</td>
<td>SUBSQ</td>
<td></td>
<td>76</td>
<td>3sgA</td>
<td>PC</td>
</tr>
<tr>
<td>35</td>
<td>1sgA, 3plAcc</td>
<td>NPP</td>
<td>77</td>
<td>3sgS</td>
<td>FUT-SS</td>
</tr>
<tr>
<td>36</td>
<td>3plS</td>
<td>CONT+PL-NPP</td>
<td>78</td>
<td>3sgA</td>
<td>PC</td>
</tr>
<tr>
<td>37</td>
<td>1sgS</td>
<td>NPP, VPURP</td>
<td>79</td>
<td>PC</td>
<td></td>
</tr>
<tr>
<td>38</td>
<td>2sgA, 1sgDAT</td>
<td>DS</td>
<td>80</td>
<td>3sg-COMPL</td>
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</tr>
<tr>
<td>39</td>
<td>1sgS, 3plACC</td>
<td>VNEG, VPURP</td>
<td>81</td>
<td>3sgS</td>
<td>REFL-PC</td>
</tr>
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<td>40</td>
<td>3sgA(DEF)</td>
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<td>82</td>
<td>3sgA</td>
<td>PC</td>
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<tr>
<td>41</td>
<td>3KinPOSS, 3sg ACC PP(-ALL)</td>
<td>PC</td>
<td>83</td>
<td>CONT+SG-DS</td>
<td></td>
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<tr>
<td>42</td>
<td>3sgAcc</td>
<td>VPURP</td>
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</tbody>
</table>
At the first level of inter-propositional relations, 18 can be grouped as expressing a logical relation, of which 16 are BECAUSE-type relations. Of these, there are 7 instances where the 'support' relation precedes the HEAD: 26–27, 44–45, 51–52, 67–68, 73–74, 77–78 and 150–151. There are 9 instances where the 'support' proposition follows the HEAD: 38–39, 50–51, 61–62, 64–65, 106–107, 108–109, 133–134, 138–139 and 153–154. (Note again that the unbracketed numbers refer to the numbers at the beginning of each line in the English propositionalised text, as in Appendix 5, and the bracketed numbers refer to the clause reference numbers in the interlinearised text, as in Appendix 6).

There are two instances of IF-type sentences: 29a–29b (25) and 157–158 (142–143); in both the condition precedes the anticipated outcome. At the second level, which includes sentences with more than two propositions, there are 7 instances of the inter-propositional relations encoding a BECAUSE-relation: 7–9, 10–12, 40–42, 118–121, 122–123, 128–130 and 133–135. At the third level, which includes both multi-clausal relations and relations between two and three sentences, four logical relation types, all BECAUSE-types, have been identified: 10–13, 75–80, 84–90, 110–115. At the fifth level, which includes relations up to the level of paragraphs, three types of relations can be grouped as representing a logical relation: 10–16, 110–125, 163–169.

One noteworthy feature of those three relations analysed as logical at the fifth level of the semantic structure (i.e. within a single paragraph) is that in all three cases—10–16 (10–14), 110–125 (100–114) and 163–169 (148–153)—the onset of the relation is marked by the contrastive particle kenhe ‘BUT’. It is worth noting here that kenhe often translates as the English word 'but'. In each instance where kenhe occurs, the narrator is contrasting what is happening now, in relation to the activity spoken of in the text under consideration, with what has just happened previously and, in each instance, the point of contrast is that what is happening now is in some way different from what was just being spoken of.

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Interestingly, and as one would expect, Wierzbicka (1996) explicates ‘but’ in terms of ‘wanting to say something different about this now’.

One of the more obvious points of observation regarding the expression of logical relations within the narrative texts being considered here is that the significant majority of logical relations are expressed at the level of propositions in a bi-clausal relation. As each higher level in the semantic hierarchy is analysed, the less frequently logical relations are encountered. In both texts, the highest level where logical relations are expressed is within paragraphs and not across paragraph boundaries.

In terms of the reasoning process that emerges with only two texts having been examined it is difficult to draw decisive conclusions. In the case of Ayeye Altyerrengentyele ‘Dreamtime Story’, the text can be divided into two distinct episodes with the denouement of each episode coming at the very end of each episode. The first episode is concluded with the statement ‘This is the way things were in the Dreamtime’. Up to this point, the process of argumentation has been inductive. In the second episode, precisely the same pattern emerges with the denouement being expressed in the final clauses. Again the pattern of argumentation is inductive. This pattern of argumentation is in contrast to that which emerges in the Arltungawerne Alpeke ‘Returning to Arltunga’ text by the same author. In this instance the plot is stated quite clearly at the beginning of the story, and throughout the story, the tendency is to follow a deductive reasoning process, that is, state the thesis and then follow this with the supporting arguments.

5.3 Topics for further research

One topic for further research here concerns the question of whether inductive versus deductive reasoning strategies might be related to genre types, and in relation to this, what philosophical attitudes are associated with them. The question is of interest because both texts are by the same author and yet they reveal different reasoning strategies. This begs the question: Could this be related to the fact that one, Ayeye Altyerrengentyele, is a Dreaming narrative and the other, Arltunga-werne Alpeke, is a narrative focussing on human activities? Perhaps there is a philosophical orientation whereby in relation to Dreaming, people can only observe how things are now and engage in some inductive reasoning about how they came to be this way? One immediate piece of evidence to support this proposal is the high incidence of the quotative particle (sometimes called ‘hearsay’ particle) kwele which indicates the person is not speaking from personal experience of the events being described. Conversely, in narrative that recounts human activities, people are perhaps more confident about formulating a thesis and presenting evidence for it using deductive strategies? This concern has particular implications for the task of Bible translation and certainly opens the way for further investigation.

A further question, touched on at the end of Chapter 4, and emerging from the brief look at some of the salient features of the semantic structure of logical relations, concerns the relation between syntactic structure and semantic structure. The question can be stated as: Does the order of certain headed constituents at the syntactic level have an influence on the ordering of certain headed semantic propositional structures?

Further to this point is the fact that in current generative grammar (government and binding theory), according to Roberts’ (1997, p. 17) observation there is also a parameter relating to constituent order in the phrase structure in a language. It is head-first versus head-last. A language will tend to have the heads on the same side in all phrases. For example, English is considered to be a head-first language; as such, verbs occur before complements and prepositions occur before complements:

- get the ball (the verb (head) is to the left of the NP)
- on the chair (the preposition (head) is to the left of the NP)

Eastern Arrernte, on the other hand, is considered to be a head-last language:

- merne arlkweke ‘food he ate’ (the verb (head) is to the right of the NP)
- atwerrentyele-ureke ‘during the war’ (the postposition (head) is to the right of the NP)

This observation, addressed in a study undertaken by Roberts (1997), where he compared the syntax of discourse structure in both New Testament Greek and Amele, a Papuan language, has to do with the syntax of propositional structures. In examining these, the need arises to investigate whether there is any evidence to suggest that the order of certain propositional relationships in a language (head-first vs head-last) can be correlated with ordering of certain syntactic constituents (also head-first vs head-
last), in particular the verb–object and adposition–NP patterns. If so, is this significant? Of significance here is the fact that as a general rule, in the places where English uses prepositions to express a particular relation between constituents, Arrernte uses a case-marking system.

The relation existing between syntactic structure and semantic structure needs further research and investigation in much greater detail than touched upon here in order to discover an answer to the question raised above: Does, in fact, the order of certain headed constituents at the syntactic level have an influence on the ordering of certain headed semantic propositional structures?
Chapter 6: Conclusions

I began this study by introducing the main concerns and aims that provided the impetus to the analysis of the semantic structure of logical relations in Eastern Arrernte, and why they were considered significant. By analysing the structure and expression of logical types of relations in Arrernte, this study attempts to provide a clear statement that addresses and answers these concerns.

The study began by approaching the analysis of logical relations using the Semantic Structural Analysis approach as set forth by Beckman, Callow and Kopesc (1981), and developed by Larson (1984). This approach proved inadequate of itself to clearly explicate the semantics of logical relations in a way that could be verified and readily understood by another analyst. Natural Semantic Metalanguage theory has been shown to provide a solution to this problem. I have argued that each of the seven logical types of inter-propositional relations distinguished by Larson (1984) can be expressed clearly and precisely in various reductive paraphrases using NSM primes, and grouped as two core-categories: BECAUSE-types, and IF-types.

There are several important conclusions that have emerged in the analysis presented throughout this thesis in relation to the expression and structure of logical types in Eastern Arrernte and these can be summarised as follows: Regarding the semantic structure of logical types as they are expressed in the context of inter-propositional relations, the common structural pattern is for the BECAUSE-clause to follow the clause upon which it is dependent; that is, the BECAUSE clause follows the event to which it refers.15 There is a high proportion of bi-clausal BECAUSE sentences that specifically mark focus on the grammatically subordinate clause. This points to the fact that the support proposition which constitutes the ‘because’ part of the utterance is given prominence, in contradistinction to the outcome. Why something happened is thus deemed more prominent than what happened.

I have shown that Arrernte has at its disposal a rich variety of linguistic devices to express the reasons for things happening or occurring. The particular element which is identified as being the most suitable equivalent of the semantic prime BECAUSE is the ablative case marker-nge. In those instances where no overt BECAUSE-type element is present (as in the case of juxtaposed clauses), the particular clause which encodes the BECAUSE part of the sentence uniformly follows the clause it modifies.

Regarding IF-type bi-clausal relations, it has been shown that, while there doesn’t appear to be any stringent ordering of the two propositions in the relation, there is a tendency for the clause conveying the IF meaning (that is the condition) to precede the clause expressing the consequence; in other words, the pattern to emerge is that the consequent proposition typically follows its antecedent. It has also been shown that Arrernte makes a clear distinction between ‘if’ and ‘maybe’ clauses, as well as showing that a two-way distinction in the core class of IF-type sentences is made: those termed simply ‘conditionals’ and those termed ‘counterfactuals’.

It has been clearly demonstrated that logical types of inter-propositional relations can be categorised on the basis of a two-way distinction between a core class of BECAUSE-type sentences and a core class of IF-type sentences. By providing a reductive paraphrase for each logical type filling the two core-classes identified, I have established a means by which another analyst may verify the findings and enter into a cross-linguistic comparison of types in a way that the Semantic Structural analysis approach to the analysis of these types was found to be lacking.

Regarding the analysis of logical relations at discourse level, and specifically within narrative texts, the significant majority of logical relations are, in fact, expressed at the level of propositions in a bi-clausal relation and much less commonly at higher levels in the semantic hierarchy. As each higher level in the semantic hierarchy is analysed, the less frequently logical relations are encountered. In the texts analysed, the highest level where logical relations are expressed is within paragraphs and not

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15 Interestingly, this conclusion (specifically in relation to the so-called ‘RESULT–reason’ types) is in contrast with that reached by Swartz (unpub.) in his examination of those instances where the English word ‘because’ had been translated into the languages he was working in: Warlpiri and Djambarrpuyngu. Swartz’s particular focus in that paper was on how CONCLUSION-grounds and RESULT–reason bi-clausal sentences were translated into those Aboriginal languages, which he claims have a discrete ‘because’ word. His recommendation was ‘that such constructions be routinely restructured grounds before CONCLUSION and reason before RESULT’. He goes on to say that this restructuring obviates the need to use ‘because’ as a logical link.
beyond this level. Further research may prove that this conclusion needs to be modified. In terms of the reasoning process that emerges through the analysis of the semantic structure of logical relations in Arrernte, at the level of inter-propositional relations, a deductive type of process is prevalent. At the discourse level, both the inductive and the deductive reasoning processes are in evidence. Two narrative texts were examined, representing different genre types, one a Dreaming narrative genre, the other a recount narrative genre. While this points to the need for further research, the preliminary conclusions point to the fact that reasoning strategies might be related to genre types. For a full account of the semantic structure of logical relations in Eastern Arrernte to be rendered, further research remains to be done.
Appendix 1: BECAUSE sentences

That angry person is looking around angrily because some people stole his food and ate it.

That old man there is really angry because some young boys threw stones at him last night.

That little one over there is choking because some food got stuck in her throat. Give her a hit on the back, poor thing.

OK, those two old women want to go home now because it’s getting cold.

That young woman is having bad dreams about herself because that man made it happen. Because he fancies her, but she doesn’t want him, he is going to make her go mad.
That woman can’t breathe properly, because it’s closed in; too many people inside. She always gets asthma.

Those people are happily hugging one another because they are just seeing one another today. This is the first time that they have seen one another for a very long time.

They are hammering some wood into the ground to build some shelter very quickly because there’s rain coming.

The man said bad things because he was a bit mad after drinking; he was silly from drinking and talking wrongly.

That bloke over there who has cut himself in mourning is really in agony (lit. can’t think) (because) it is a very deep cut.

He lost his temper because that woman said he had been drinking.
Pour some water into that tin over there because I’m feeling really thirsty.

That little child is sick because you are always thumping him on the back. (lit. hitting so as to make a thumping sound)

I’m going out over there today looking for goannas because yesterday my sister and her husband got a whole lot of goannas.

They are getting very strict giving out money because some people make out that they have got kids just to get money.

You don’t chew on the fruit of the mistletoe because they stick to your tongue.
He can hardly move his head because he has got a big boil coming up on the back of his head and its making him really sick.

She stood outside and didn’t ask about a job because she reckoned that she was too shy.

They are putting their things down and picking a place to camp for themselves, because they will be here for a while.

When those two heard the bad news, they turned around and came back because they were so upset.
The Police Aide (lit. black policeman) from Santa Teresa told the women drinkers to get out (sent them away) because they were fighting and screaming all night and not letting anyone sleep.

The (arripere) snake is highly poisonous. If somebody is bitten by this snake, they can die, because the doctor can’t do anything.

You have to shoot a duck really quickly, (because) if it hears even a little noise it immediately dives down into the water.

He is still angry with us because (he reckons) we don’t want to know him because he is getting old.

I just hit her without thinking about it, because she was talking about me behind my back.
Those two women are just covered in blood from fighting one another, because a little child crawled away into the fire, the child got his hands burnt just a little, not so badly.

(When you are sick) you don’t dream well because your spirit is gone.

Some people call him ‘train’ because he never stops smoking.

(Because) they fancy those lads, those two are acting like that.

That girl is fluttering her eyes at you (because) she wants to be your girl -friend.

That person is deliberately keeping his distance from you (intending to get back at you) because he reckons he saw you and another man kissing.
My husband is dead just because of you.

I raised my younger brothers and sisters on my own (because) we became orphans a long time ago.

Those two are being sent away from here, because they did something very bad to that old woman.

Everybody’s face has got a nose, the nose is very special (because) you can smell with it and also sneeze.

Tell those kids not to get in because they will drown if they mistakenly think it is shallow and hop in.

The little dog has a really full stomach because it eats all the time; it’s really greedy and doesn’t even realise that its stomach is so swollen.
He owes me money because I gave him some.

He is sad today because he has just heard that his grandmother has passed away.

I feel really queasy in the stomach because I just watched a man eating emu fat and really getting into it as if he was starving; the fat was running out the sides of his mouth.

I don’t feel like going to work today because it’s so hot.

You are telling him off (because) he didn’t give you your money.

That person is holding off hitting him because those other two blokes are here.
She usually always hits him and acts smart to him, but he is protected for a little while because the others are staying with him.

He is just walked straight past you because you didn’t tell him about your younger brother being sick.

They just cut the electricity off (because) someone hadn’t paid the bill.

I’m locking myself in (because) there’s supposedly a mob of men coming here.

That child is near the fire leaning on something that doesn’t seem too strong; you watch him carefully in case he (because he might) falls into the fire.
I’ll clean my house up really well today, (because) my two daughters are coming back from down south tomorrow.

The old people used to tell us not to eat too much the wild banana root, because it makes you skinny.

You wait here while I go and have a look at that smooth rock to see if there’s a rockhole there, (because) we’ve only got a bit of water left.

My good girl, could you get some water in this little can for me, because I’m really thirsty.
You can’t even joke with that man (because) he’ll try and race you off.

Because its mother is sick and going down to Adelaide the child will be born there.

She’s rocking the baby because it’s still crying, quietening it down.

My stomach feels queasy and I feel like vomiting because I got stuck into eating fatty kangaroo meat last night.

Those two women are spreading out a blanket and straightening it out because people are going to be playing (cards) for a lot of money today.
Mangkwe unte aretyeke lhetyekaye, rlkerte kngerrenge re.

You should go and visit your mother because she's very sick.

Artwe nhenge the apmere Alkwerteke areke apmere arrule

I saw that man out at Alcoota that ran away a while ago because his wife used to get very jealous of him and used to accuse him of having lovers.

She stayed there until her husband had disappeared before sending the baby off to go crawling to the waterhole on his own.

Go and switch that water off over on the other side please, because some whitefellas are grumbling something about the water.
The child’s aunt flogged the (child’s) mother and gave her a hiding, they were both covered in blood after fighting over (because of what happened to) the little child.

This little kid wants to stay on here, because he wants to play with these big kids.

We’ll give them one whole kangaroo for them to share.

They dragged a branch behind them to smoothe over (the ground) and wipe out their tracks, so that other people won’t be able to follow them.

We found some young wild bananas and left them to get bigger, to pick when they are full-sized.
I wash her clothes, clean her house, cook her food, and then take her to the shop so that she can do her shopping...

The kids watch so that they can learn how to grind seeds.

We’re getting a mob of really long bits of spinifex so that we can play toy spears.

Those two kids are pouring water out onto the ground to make it damp so that they can play making little pretend cakes...

They went back to the shade where they had left their bag and water, and made a fire so that they could eat their food.
I'm showing our country to these two because they wanted to see it.

...we want to get some drinking water first...

They want to take the old man back out bush...
Appendix 2: IF sentences

\ref 0 tx 1
\nx Ahakeye arelhe uurrperle arlkwentye akngerre,
\nx khu akheyreekere arelhe uurrperle arlkwe-ntyte akngerre
\nx bush currants people black eat NMLZR a lot
\nx tyerrtyele apeke akngerre anthurre arlkweme arrakerte utyene irreme.
\nx tyerrtyele-le apeke akngerre anthurre arlkwe-me arrakerte utyene irerre -me
\nx people -ERG if big INTENS eat -NPP mouth sore INCH-NPP
\xt Aboriginal people eat bush currants; if people eat lots of it you get a sore mouth.

\ref 0 tx 2
\nx The lyete ngenhe akake-atweme unte warle yanhenge anpere
\nx the lyete nge-nhe akake-atwe -me unte warle yanhe -nge anpere
\nx 1sg:ERG today 2sg -ACC head -hit/kill-NPP 2sg:S wall that(MID)-ABL through
\nx itnyenheteyeke, unte atyenge ante ahe akngerre tnake-ke.
\nx itnye-nhe -tyeke unte atyenge ante ahe akngerre tnake-lhe -me
\nx people -ERG if big INTENS eat -NPP mouth sore INCH-NPP
\xt I’ll knock you through that wall soon and you’ll fall right through, if you keep being rude to me.

\ref 0 tx 3
\nx Ngkwenge-werne apeke mane yernetyeke, unte apeke ahentye-aneme.
\nx ngkwenge-werne apeke mane yerne-tyeke unte apeke ahentye-an -me
\nx 2sg:DAT -ALL maybe/if money send -VPURP 2sg:S maybe/if want -sit/be-NPP
\tx Your money can be sent to you, if you want.

\ref 0 tx 4
\nx Akaperte apeke tyerrtye atningke-ngare atweme, tyerrtye arerte irreme.
\nx akaperte apeke tyerrtye atningke-ngare atwe -me tyerrtye arerte irre -me
\nx head if people many -ORD hit/kill-NPP people mad INCH-NPP
\tx If a person gets hit on the head too many times they can go mad.

\ref 0 tx 5
\nx Unte apeke ingke utyene -irremenge,
\nx unte apeke ingke utyene -irre -me -nge
\nx 2sg:S if foot sore INCH-NPP -DS
\nx kwarte-kwarte utyene irrente akngerre antime.
\nx kwarte-kwarte utyene irre -nty -me akngerre antime
\nx 2sg:DAT -ALL maybe/if money send -VPURP 2sg:S maybe/if want -sit/be-NPP
\tx If you get a sore foot, your groin can get sore at the same time.

\ref 0 tx 6
\nx Apwerte arnke yanhe kwatyke itere urlkere anthurrenge kwatyke yanhe
\nx apwerte arnke yanhe kwatyke itere urlkere anthurre -nge kwatyke yanhe
\nx hill steep sides that(MID) water side smooth INTENS-ABL water that(MID)
\nx iperte anthurre rarle ingwemenrite-irrerlarhemenge
\nx iperte anthurre r -arle ingwemenrente-irre -rl +alhe-me -nge
\nx hole INTENS 3sg:S-FOC dark -INCH-DO+GO -NPP-DS
\nx kerryelhemele kwatyke etynemele alhwerkarle-irremeketye
\nx kerryelhemele -le kwatyke-ke etynye-me -le alhwekarle-irre -me -ketye
\nx slip -NPP-SS water -DAT fall -NPP-SS drown -INCH-NPP-AYER
\tx That steep side of the hill where the water lies is very smooth and slippery and the water down below looks very deep and dark; if anyone slips they might drown.

91
If you touch this poisonous fungus and then touch your eyes, it can make you blind.

I've cooked it if you are hungry.

I'll probably feel full in the stomach if I eat just seeds.

If you had come yesterday, then you certainly would have seen her. [Wilkins 1989, p.234]

They have to see if your child needs this extra teaching and if they will learn better from it.

They have been told to either learn an Aboriginal language or to use an interpreter if they are worried about whether CAAMA is saying the right thing in its broadcasts.
You have to shoot (a duck) really quickly because if it hears even a little noise it dives down into the water.

Ashes (are what are left) after a fire has burnt. A fire that’s burnt and gone out some time ago may have cool ashes, or they will be hot if it’s still burning.

If a person gets lost at a place where there’s no water, if maybe the car breaks down, and it’s very hot, then the person gets very thirsty, they start losing their mind, and start to hear people talking.
If it rains tomorrow I won’t come.

They gave us only a small amount of money. When we’ve got enough money we will be able to (hypothetically) build some houses.

Get that shirt and hold it up against yourself and see if it looks all right!
Appendix 3: Propositionalised English Version of *Arltunga-werne Alpeke*

‘RETURNING TO ARLTUNGA’
Veronica Dobson

<table>
<thead>
<tr>
<th></th>
<th>Propositionalised English Version of <em>Arltunga-werne Alpeke</em></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>(We) went back to Arltunga</td>
<td>MEANS contraction</td>
</tr>
<tr>
<td></td>
<td>so that we could go to school.</td>
<td>purpose</td>
</tr>
<tr>
<td>3</td>
<td>Long ago my grandfather took us from Ross River to Arltunga</td>
<td>MEANS AMPLIFICATION introduction</td>
</tr>
<tr>
<td></td>
<td>so that we could go to school</td>
<td>HEAD purpose</td>
</tr>
<tr>
<td></td>
<td>so that we could learn.</td>
<td>HEAD</td>
</tr>
<tr>
<td>6</td>
<td>When I first heard</td>
<td>orienter</td>
</tr>
<tr>
<td>7</td>
<td>(that we were being taken back to Arltunga)</td>
<td>CONTENT reason</td>
</tr>
<tr>
<td>8</td>
<td>I became very frightened.</td>
<td>RESULT contraction</td>
</tr>
<tr>
<td>9</td>
<td>When my grandfather told us</td>
<td>orienter</td>
</tr>
<tr>
<td>10</td>
<td>that we had to go to school</td>
<td>HEAD CONTENT occasion</td>
</tr>
<tr>
<td>11</td>
<td>and (that we had) to go back to Arltunga</td>
<td>HEAD</td>
</tr>
<tr>
<td>12</td>
<td>I felt sick in the stomach</td>
<td>HEAD RESULT OUTCOME amplification 1</td>
</tr>
<tr>
<td>13</td>
<td>and (I) felt really sad</td>
<td>HEAD</td>
</tr>
<tr>
<td>14</td>
<td>because we were leaving Ross River.</td>
<td>Reason OUTCOME amplification</td>
</tr>
<tr>
<td>15</td>
<td>I spent the night thinking really hard</td>
<td>RESULT</td>
</tr>
<tr>
<td>16</td>
<td>about why we had to go to school.</td>
<td>reason amplification 2</td>
</tr>
<tr>
<td>17</td>
<td>My grandfather said this,</td>
<td>orienter</td>
</tr>
<tr>
<td>18</td>
<td>“In order that you may learn</td>
<td>purpose</td>
</tr>
<tr>
<td>19</td>
<td>you must go to Arltunga</td>
<td>HEAD MEANS CONTENT occasion</td>
</tr>
<tr>
<td>20</td>
<td>and you must wait for me there.</td>
<td>HEAD</td>
</tr>
<tr>
<td>21</td>
<td>I will be working at this place</td>
<td>move</td>
</tr>
</tbody>
</table>

1 I think this could just as easily be labelled as reason and perhaps the only way to be sure is to discuss the matter with the writer of the story.
22 and then I will be going to Atnarpa Station move
23 so that I can do some work over there first of all. GOAL CONTENT
24 After I have gone (with you) to Arltunga move
25 then after I have finished the work move
26 I will come back.” GOAL CONTENT
27 I was a little child of five years old. HEAD occasion
28 when they put me in the dormitory. circum-stance
29 I became really sad HEAD
30 and I cried. HEAD
31 I did not want orienter RESULT
32 that I should stay in the dormitory. CONTENT reason OUTCOME HEAD contraction
33 A lot of girls lived there. description
34 The Sisters used to keep all the girls in that dormitory. description
35 We learned a lot RESULT HEAD amplification
36 while we were going to school means
37 and we did work for the Sisters as well. HEAD
38 We learned a lot of things RESULT HEAD contraction
39 when we went to school means
40 while staying at Arltunga. circumstance
41 I kept thinking about my grandfather RESULT3 closing
42 after (because) he had gone back to Ross River. reason

2 You could perhaps argue that this relationship is not concession-CONTRA-EXPECTATION but more neutrally HEAD-comment. To determine this, one would have to find out, among other things, what relative weight the writer would give to the major constituents of this text.

3 It could be argued here that this relation is not RESULT-reason but more neutrally OUTCOME-occasion. To determine this would require a determination of the writer’s thinking about the reason for recounting the story. However, the relation between the two propositions fits well the frame determined for a BECAUSE-relation and therefore this explanation was chosen.
Appendix 4: Interlinearised morpheme analysis of *Arltunga-werne Alpeke*

\title{Arltungawerne Alpeke}

\source{Arrernte Ayeye}

\author{Veronica Dobson}

\ref{0 tx 1}
\tx
\ma\ [Arltunga]-werne alpe -ke \\
\mg Arltunga -ALL return-PC \\
\ft (We) went back to Arltunga

\ref{0 tx 2}
\tx
\ma\ [school]-ke irrpetyeke. \\
\mg school -DAT enter-VPURP \\
\ft to go to school.

\ref{0 tx 3}
\tx
\ma\ arrule tyemeye atyenhele anwernenhe Inteye Arrkwentyele \\
\mg long.time.ago MoFa 1s:POSS -ERG 1pl -ACC Inteye Arrkwe-MOAWAY \\
\ft A long time ago my grandfather took us from Ross River to Arltunga

\ref{0 tx 4}
\tx
\ma\ [school]-ke irrpetyeke akaltyirretyeke. \\
\mg school -DAT enter-VPURP knowledge-INCH-VPURP \\
\ft to go to school to learn.

\ref{0 tx 5}
\tx
\ma\ ayenge arrwekele awe -me -le \\
\mg 1s:NOM first hear-NPP-SS \\
\ft When I first heard

\ref{0 tx 6}
\tx
\ma\ atere nthurre irre -ke, \\
\mg fear INTENS INCH-PC \\
\ft I became very frightened.

\ref{0 tx 7}
\tx
\ma\ tyemeyele ilerlenge \\
\mg MoFa -ERG tell-DS \\
\ft because my grandfather said (told)

\ref{0 tx 8}
\tx
\ma\ anwerne [school]-ke irrpetyeke \\
\mg 1pl:S school -DAT enter-VPURP \\
\ft that we had to go to school

\ref{0 tx 9}
\tx
\ma\ [Arltunga]-werne alpe -tyeke \\
\mg Arltunga -ALL return-VPURP \\
\ft and go back to Arltunga.
I felt sick in the stomach.

and felt really sad.

to leave Ross River.

I spent the night thinking really hard.

why we had to go to school.

My grandfather said this,

'(So that) you can learn

you have to go and live at Arltunga.

and wait for me there.

I will be working at this place
and then (I will be going) to Atnarpa Station to do some work over there.

And I will return to Arltunga after I have finished that work.

I was a little child of five years old when they put me in the dormitory.

I became really sad and cried.

I did not want to stay in the dormitory.

A lot of girls lived there.

The Sisters used to keep all the girls in that dormitory.

We learned a lot.
while we were going to school

and we did work for the Sisters as well.

We learned a lot of things

when we went to school

while staying at Arltunga.

I kept thinking about my grandfather

after (because) he had gone back to Ross River.
Appendix 5: Propositionalised English version of *Ayeye Altyerrengentyele*

<table>
<thead>
<tr>
<th></th>
<th>Propositionalised English</th>
<th>Role</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>In the beginning, in the dreamtime, there lived a woman, her husband and her son.</td>
<td>HEAD</td>
<td>identification</td>
</tr>
<tr>
<td>2</td>
<td>They lived beside a hill near a big creek.</td>
<td>amplification</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Every day this woman changed into a crow</td>
<td>move</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>and (she) sat in the big gum tree near their camp,</td>
<td>GOAL simultaneous</td>
<td>HEAD introduction</td>
</tr>
<tr>
<td>5</td>
<td>while the little boy sat on his own at the bottom of the tree.</td>
<td>simultaneous</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>One day a man came to this place.</td>
<td>occasion</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>The crow started talking loudly</td>
<td>MEANS OUTCOME simultaneous (contrast)</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>so that (she) could let her husband know</td>
<td>orienter</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>that someone was approaching their camp.</td>
<td>CONT purpose</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>But the little boy ran to meet the man</td>
<td>MEANS simultaneous reason</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>so that (he) could let him (the man) know/show</td>
<td>orienter</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>where they lived</td>
<td>CONTENT MEANS purpose</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>(and) so that he would make camp some distance away.</td>
<td>purpose</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>So then the man made camp far from them</td>
<td>move</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>and (he) started to cook his kangaroo,</td>
<td>HEAD GOAL RESULT setting</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>which he had killed on his way that morning.</td>
<td>identification</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>But/meanwhile, the crow had flown away</td>
<td>move</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>(and she) changed back into a woman</td>
<td>move</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>and (she) pretended to come back to the camp with some water from the creek.</td>
<td>GOAL initiating incident</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>“What’s up?”,</td>
<td>CONTENT question</td>
<td></td>
</tr>
</tbody>
</table>

1 ‘on his way’ could be propositionalised by ‘while he had been journeying to that place...’; but for simplicity's sake I have not done so.
the woman said to the stranger.

The stranger answered her back, "---"

She then said, "I've been living here with just the child and (I/we?) never had any wallaby so that (I/we?) could eat it/them, but there are lots and lots of them close by. (I would be glad) if for me you and my son could kill some tomorrow."

That night, the stranger and the child slept together, but the woman slept by herself.

Early in the morning, the woman woke up and looked for her husband on the hill. She saw him as he was sitting in a cave which was way up high above the water. She shouted (she) yelling out to him so that the stranger could hear, "Son, son, I can see those wallabies now! They are running around in the open everywhere on the hill.

2 Implied CONT to the orienter in proposition 22.

3 At the lower level semantically, there is little means of determining which is the more prominent unit.
<table>
<thead>
<tr>
<th>Line</th>
<th>Text</th>
<th>Complement</th>
<th>Head</th>
<th>Means</th>
<th>Purpose</th>
<th>Outcome</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>42</td>
<td>I would like some to eat,</td>
<td>grounds</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>43</td>
<td>you would (would you?) kill some for me.</td>
<td>EXHORTATION</td>
<td>OUTCOME</td>
<td>CONTENT</td>
<td>proposal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>44</td>
<td>I can’t climb the hill</td>
<td>reason⁴</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>45</td>
<td>(so that I) could chase them.”</td>
<td>RESULT</td>
<td></td>
<td></td>
<td>grounds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>46</td>
<td>So the stranger went up the hill near to (the place)</td>
<td>HEAD</td>
<td>MEANS</td>
<td></td>
<td></td>
<td>sequence 3</td>
<td></td>
</tr>
<tr>
<td>47</td>
<td>where the husband was waiting/sitting</td>
<td>identification</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>48</td>
<td>(so that he/the husband) could kill him( the stranger).</td>
<td>purpose</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>49</td>
<td>Then the woman cried out,</td>
<td>orients</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>“Not that way!</td>
<td>EXHORTATION</td>
<td>CONTENT</td>
<td></td>
<td>sequence 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>51</td>
<td>They are just below you.</td>
<td>grounds</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>52</td>
<td>Come down a bit!”</td>
<td>EXHORTATION</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>53</td>
<td>But/meanwhile, the husband got his spear ready.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>sequence 4</td>
<td></td>
</tr>
<tr>
<td>54</td>
<td>When the stranger came (closer)</td>
<td>occasion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>55</td>
<td>(the result being that the husband could now see him) = into view</td>
<td>OUTCOME</td>
<td>occasion</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>56</td>
<td>her husband speared him.</td>
<td>OUTCOME</td>
<td>HEAD</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>57</td>
<td>He (the stranger) fell right into the water below.</td>
<td></td>
<td></td>
<td></td>
<td>sequence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>58</td>
<td>But the woman ran towards him with her</td>
<td>head</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>59</td>
<td>and (she) hit him across the nose.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>sequence</td>
<td></td>
</tr>
<tr>
<td>60</td>
<td>Then her husband took him back to their camp</td>
<td>move</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>61</td>
<td>and (he/they) cooked him</td>
<td>MEANS</td>
<td>GOAL</td>
<td>HEAD</td>
<td>denouement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>62</td>
<td>so that (he/they) could eat (him) in the afternoon</td>
<td>purpose</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>63</td>
<td>for supper.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>64</td>
<td>They enjoyed their supper that night.</td>
<td>HEAD</td>
<td>comment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

I have labelled this relationship **reason**-RESULT and not **means**-PURPOSE because I see this statement as being the equivalent of ‘I cannot climb the hill and as a RESULT I cannot chase the wallabies.’
<table>
<thead>
<tr>
<th>Line</th>
<th>Text</th>
<th>Type</th>
<th>Relationship</th>
</tr>
</thead>
<tbody>
<tr>
<td>64</td>
<td>But the little boy never ate men.</td>
<td>RESULT</td>
<td>contrast</td>
</tr>
<tr>
<td>65</td>
<td>(that’s why) he did not have any.</td>
<td>reason</td>
<td></td>
</tr>
<tr>
<td>66</td>
<td>This is the way things were in the dreamtime.</td>
<td>comment</td>
<td></td>
</tr>
<tr>
<td>67</td>
<td>A couple of years later, when the little boy was old enough</td>
<td>reason</td>
<td></td>
</tr>
<tr>
<td>68</td>
<td>(so that he) could talk</td>
<td>RESULT</td>
<td>occasion</td>
</tr>
<tr>
<td>69</td>
<td>?? the young men who came to their camp</td>
<td>identification</td>
<td></td>
</tr>
<tr>
<td>70</td>
<td>he (the now older boy) would try to warn them about his father and mother.</td>
<td>HEAD</td>
<td>OUTCOME</td>
</tr>
<tr>
<td>71</td>
<td>He used to say,</td>
<td>orienter</td>
<td></td>
</tr>
<tr>
<td>72</td>
<td>“Brother, brother, mummy daddy eat eat.”</td>
<td>CONTENT</td>
<td>concession</td>
</tr>
<tr>
<td>73</td>
<td>He could not talk like a grownup yet</td>
<td>reason</td>
<td></td>
</tr>
<tr>
<td>74</td>
<td>(that’s why) they could not understand him.</td>
<td>RESULT</td>
<td>CONTEXT</td>
</tr>
<tr>
<td>75</td>
<td>So things went on as before</td>
<td>HEAD</td>
<td>contrast</td>
</tr>
<tr>
<td>76</td>
<td>as they used to</td>
<td>comparison</td>
<td></td>
</tr>
<tr>
<td>77</td>
<td>until the boy was big (about five years old)</td>
<td>reason</td>
<td></td>
</tr>
<tr>
<td>78</td>
<td>and could talk well enough</td>
<td>RESULT</td>
<td>HEAD</td>
</tr>
<tr>
<td>79</td>
<td>So then when he talked to them</td>
<td>occasion</td>
<td></td>
</tr>
<tr>
<td>80</td>
<td>they could understand him.</td>
<td>OUTCOME</td>
<td>RESULT</td>
</tr>
<tr>
<td>81</td>
<td>One day another man came.</td>
<td>HEAD</td>
<td>initiating incident</td>
</tr>
<tr>
<td>82</td>
<td>This man had a strange dream,</td>
<td>HEAD</td>
<td>contract</td>
</tr>
<tr>
<td>83</td>
<td>before he came to the camp.</td>
<td>time</td>
<td></td>
</tr>
<tr>
<td>84</td>
<td>He’d had a powerful dream</td>
<td>HEAD</td>
<td>amplification</td>
</tr>
<tr>
<td>85</td>
<td>before he came to the camp of the woman and her son.</td>
<td>time</td>
<td></td>
</tr>
<tr>
<td>86</td>
<td>He had dreamed</td>
<td>orienteer</td>
<td></td>
</tr>
<tr>
<td>87</td>
<td>that there was a man there</td>
<td>CONTENT</td>
<td>amplification</td>
</tr>
<tr>
<td>88</td>
<td>and that he was hiding there somewhere.</td>
<td>CONTENT</td>
<td></td>
</tr>
</tbody>
</table>
89 He was very cautious.

90 When he saw the crow,He was very cautious.

91 it was sitting on the treetopHEAD occasion

92 (and it was) shouting awayHEAD circumstance

93 when he came.HEAD description

94 (It was) just like in his dream.

95 He saw the boyHEAD

96 (as he/the boy was) walking aroundHEAD manner

97 (and as he was) playing with his spearsHEAD

98 but the man was missing.HEAD contrast

99 (It was) just like in his dream.

100 He (man) approached very carefully.

101 The boy ran up to meet him,HEAD

102 but the crow very quickly changed back into awoman.HEAD

103 She shouted to the boy,orienter

104 “Boy, come away from your brother.CONTENT

105 He’s hot from the sun,grounds

106 leave himMEANS EXHORTATION CONTENT

107 so that he can rest!”purpose HEAD

108 She was afraidRESULT comment

109 lest (that) the boy would tell the man about her and her husband.reason

110 But the boy spoke lowmanner

111 he (the boy) did tell the man,HEAD

112 (“This man and this woman are devils!CONTENT

5 This is not RESULT-reason! The reason behind this reaction is left unstated and presumably is based on cultural presuppositions regarding the seeing of crows sitting on branches.
Brother, all the men who have come here identification
those two have killed them HEAD
and (they have) eaten them. HEAD HEAD grounds
But I only eat meat HEAD means
that the men bring. identification
That is how I have been living. RESULT contrast
Brother, you must believe orienter
what I tell you. CONTENT EXHORTATION
You will hear her OUTCOME
(when she) tells you orienter
that she had been sitting down and hasn’t eaten CONTENT HEAD occasion
any wallaby,
and she will tell you orienter
that there are lots of them on top of the hill (near
the waterhole)."
Just then, the woman shouted, orienter
"Son, there are lots of wallabies on the hill!"
The boy continued, orienter
“She will pretend CONTENT MEANS HEAD move
that there are many wallabies down below you
so that you will look down,
but her husband is really above you.
She will get him MEANS HEAD GOAL CONTENT remark
(so that he ) will spear you right away.
That’s the time you have to watch out for
yourself."

It is very difficult at this point to distinguish between move-GOAL (time focus) vs. MEANS-purpose (no time focus). I lean towards the former simply because this is a narrative.
<table>
<thead>
<tr>
<th>Line</th>
<th>Text</th>
<th>Type</th>
<th>Sequence</th>
</tr>
</thead>
<tbody>
<tr>
<td>137</td>
<td>So the man thought,</td>
<td>orienter</td>
<td>7</td>
</tr>
<tr>
<td>138</td>
<td>“I will try and kill him first,</td>
<td>CONCLUSION</td>
<td>CONTENT</td>
</tr>
<tr>
<td>139</td>
<td>lest/before he kills me and the boy.”</td>
<td>grounds</td>
<td>7</td>
</tr>
<tr>
<td>140</td>
<td>He climbed very carefully,</td>
<td>simultaneous</td>
<td>8</td>
</tr>
<tr>
<td>141</td>
<td>and he thought hard</td>
<td>contact</td>
<td>simultaneous</td>
</tr>
<tr>
<td>142</td>
<td>(as he) tried to remember everything</td>
<td>orienter</td>
<td>9</td>
</tr>
<tr>
<td>143</td>
<td>that the boy had told him.</td>
<td>CONTENT</td>
<td>amplification</td>
</tr>
<tr>
<td>144</td>
<td>So he went down from the top of the hill,</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>145</td>
<td>and when he thought</td>
<td>orienter</td>
<td>circumstance</td>
</tr>
<tr>
<td>146</td>
<td>that he was right under the other man,</td>
<td>CONTENT</td>
<td>10</td>
</tr>
<tr>
<td>147</td>
<td>he looked up,</td>
<td>HEAD</td>
<td>10</td>
</tr>
<tr>
<td>148</td>
<td>and sure enough there he was</td>
<td>HEAD</td>
<td>comment</td>
</tr>
<tr>
<td>149</td>
<td>(as he/the husband) was looking down at him</td>
<td>description</td>
<td>11</td>
</tr>
<tr>
<td>150</td>
<td>But the stranger was too quick for him.</td>
<td>reason</td>
<td>11</td>
</tr>
<tr>
<td>151</td>
<td>he threw his spear.</td>
<td>RESULT</td>
<td>11</td>
</tr>
<tr>
<td>152</td>
<td>But the woman cried out,</td>
<td>orienter</td>
<td>12</td>
</tr>
<tr>
<td>153</td>
<td>The boy has been telling tales.</td>
<td>HEAD</td>
<td>CONTENT</td>
</tr>
<tr>
<td>154</td>
<td>My husband is dead</td>
<td>RESULT</td>
<td>HEAD</td>
</tr>
<tr>
<td>155</td>
<td>because you (have speared him).”</td>
<td>reason</td>
<td>12</td>
</tr>
<tr>
<td>156</td>
<td>When she said this,</td>
<td>occasion</td>
<td>13</td>
</tr>
<tr>
<td>157</td>
<td>she ran after the boy with her digging stick,</td>
<td>concession</td>
<td>13</td>
</tr>
<tr>
<td>158</td>
<td>but the man speared her too.</td>
<td>CONTRAEXPECTATION</td>
<td>OUTCOME</td>
</tr>
</tbody>
</table>

7 It could be argued here that this is not a concession-CONTRAEXPECTATION relation but rather a HEAD-comment relation in the absence of any overt IF type word, however, I have chosen to label it this way because the result of the woman's actions are certainly contrary to what she was expecting to happen.
159 When/after he (the stranger) had killed the father and mother, occasion

160 the man looked at the boy, OUTCOME simultaneous question\(^8\)

161 and he wondered, orienter

162 “Perhaps he too has been eating men.” CONTENT simultaneous

163 But the little boy looked at him with frightened eyes, simultaneous ANSWER reason

164 and he (the boy) said, orienter

165 “Not me brother; I have not been eating men, CONTENT simultaneous

166 I told you orienter

167 that I always eat only kangaroo meat.” CONTENT CONTENT

168 So the man felt sorry for him, HEAD RESULT denouement

169 and he decided to take him back to his home with him. HEAD

---

\(^8\) This one is interesting. The question implied is merely thought, but the boy responds as surely as if he heard it actually spoken.
Appendix 6: Interlinearised morpheme analysis of Ayeye Altyerrengentyele

\title{Angepe: Ayeye Altyerrengentyele}
\source{Arrernte Yeye}
\author{Rosie Ferber}
\original{written}
\ref{Angepe}
\ref Angepe: c 1
\text{Lyetenyenge kwele altyerre -nge ane -ke arelhe}
\text{today-ADJVR-ABL QUOT dreamtime-ABL sit/be-PC woman}
\text{ante anewikwe ante ampe urreye.}
\text{CONJ spouse-3KinPOSS CONJ child boy}
\text{In the beginning, in the Dreamtime, there lived woman, her husband and her son.}

\ref Angepe: c 2
\text{Itne anetyarte apwerte itere-le lhere akngerre itwele.}
\text{3pl:S sit/be-HPAST hill near -LOC creek big near -LOC}
\text{They lived beside hill near big creek.}
\ref Angepe: c 3
\text{Arlte arrpenenhe-le, arelhe akngartiwelhetyarte angepewerne}
\text{day every -LOC(ADV) woman change -REFL-HPAST crow -ALL}
\text{Every day, this woman changed into a crow}

\ref Angepe: c 4
\text{ante arne pere akngerre-le anetyarte apmere itnekenhe itwele.}
\text{CONJ tree gum tree big -LOC sit/be-HPAST place/camp 3pl -POSS near -LOC}
\text{and sat in the big gum tree near their camp,}
\ref Angepe: c 5
\text{Urreye kweke kenhe anetyarte arne atnartengele rarrpe.}
\text{boy little BUT sit/be-HPAST tree base -LOC 3sg:S-own}
\text{while the little boy sat on his own at the bottom of the tree.}
\ref Angepe: c 6
\text{Arlte nyentele artwe petyeke apmere nhenhe ikwerewerne.}
\text{day one -LOC(ADV) man come-PC place/camp this(DEM) 3sg:DAT-ALL}
\text{One day a man came to this place.}
\ref Angepe: c 7
\text{Anggepe angkentye akngerrirreke}
\text{crow say -NMLZR big -INCH-PC}
\text{The crow started talking loudly}
\ref Angepe: c 8
\text{anewikwele awetenhenge}
\text{spouse-3KinPOSS-ERG hear-SUBSQ}
\text{to let her husband know}
that someone was approaching their camp.

The little boy ran to meet the man to show him

so he would make camp some distance away.

The man made camp far from them

and started to cook his kangaroo (which he had killed on his way that morning).

Meanwhile, the crow had flown away

and changed back to a woman

and pretended to come back to the camp with some water from the creek.
‘What’s up?’,

The stranger answered back.

She then said,

‘I’ve been living here with just the child

and never had any wallaby to eat,

but there are lots and lots of them close by.

(I’ll be very glad) if you and my son could kill some for me tomorrow.’

That night, the stranger and the child slept together,

the woman by herself.
In the morning, the woman woke up to look for her husband on the hill. She saw him sitting in a cave above the water, way up high. She said out loud yelling out to him so that the stranger could hear, ‘Son, Son, you can see those wallabies now!’ They are running around everywhere on the hill. I would like some to eat.
unte atwerlenge arrpenheme atyenge.

if you’d kill some for me.

Yenge apwerte ke antyetyakenhe itnenhenhe alwernetyeke.’

I can’t climb the hill and chase them.’

Kele artwe alethengre apwerte kertneke antyenheke

The stranger climbed up the hill

Kele arelhe re arlkeke,

The woman cried out,

‘Not that way.

Kenhe anewikweler re arrtyartele arratyilerlenge.

Meanwhile, the husband got his spear ready.
When the stranger came into view,

her husband speared him.

He fell right into the water below.

The woman ran towards him (with her nullanulla)

and hit him across the nose.

Then the husband took him back to their camp

and cooked him

for supper.

They enjoyed their supper that night

but the little boy never ate men
that's why he didn't have any.

This was the way things were in this Dreamtime.

This was the way things were in this Dreamtime.

A couple of years later, when the little boy was old enough to talk, (he) the young men who came to their camp he tried to warn (them) about his father and mother.

He would say, ‘Brother, brother, mama dada eat’.

He couldn’t talk like a grownup yet

that’s why couldn’t understand him.

Things went on as before
as they used to

till the boy was about five years old

and could talk well enough.

So then when he talked to them

One day a new man came.

This man had a strange dream,

before he came.

He’d had a powerful dream,

before he came to the camp of the woman and her son.
He had dreamed this that there was a man there too, but was hiding somewhere. He was very cautious. When he saw the crow it was sitting on the treetop shouting away when he came. Just like in his dream. He saw the boy walking around playing with his spears,
but he didn’t see the man (who had disappeared).

Just like in his dream.

He approached carefully.

The boy ran up to meet him,

but the crow changed back to a woman.

She shouted to the boy,

‘Boy, come away from your brother.

He’s hot from the sun. He’s tired.

Leave him.

Let him rest!’
She was afraid

that the boy would tell the man about her and her husband.

But the boy, in a low voice, did tell the man,

‘This man and woman are cannibals.

Brother, all the men who have come here

those two have killed

and eaten.

But I only eat meat

the men bring.

That’s how I’ve been living.
Brother, you must believe to what I tell you. You’ll hear her and she will tell you that there are lots of them on the hill near the waterhole.’ Just then, the woman shouted, ‘Son, there are lots of wallabies on the hill’. The boy continued,
‘She will pretend

that there are wallabies, down below you,

so that you will look down,

but her husband is really above you.

She’ll hurriedly get him

to spear you right away.

That’s the time you have to watch for yourself.’

The man thought,

‘I will try and kill him first,

before he kills me and the boy’.
He climbed carefully.

and he thought hard.

and tried to remember all that the boy had told him.

So he went down from the top of the hill and when he thought

that he was right under the other man,

he looked up.

and sure enough there he was

looking down at him with his spear ready.

But the stranger was too quick for him.

He threw his spear.
Kenhe arelhe re arlkeke,
BUT woman 3sg:S shout-ke
The woman cried out,

ʻUrreyele ayyeye ileke.
boy -ERG story -LOC(ADV) tell-PC
ʻThe boy’s been telling tales.

Tyenge anewe ilweke ngkwengenge ware.
1sg:Dat spouse die -PC 2sg:DAT -ABL JUST
My husband is dead because of you!

So saying,

re urreye ikwere unteke arne tnyehentnyenhe ikwerenhe kerte.
3sg:S boy 3sg:DAT run -PC stick dig -HREDUP -dig -HREDUP 3sg:POSS PROP
she ran after the boy with her digging stick,

kenhe renhe artwe re irrtyarte antantherlengarle antimarl.
BUT 3sg:ACC man 3sg:A spear -INSTR spear -DS -RELCL right there -RELCL
but the man speared her too.

Kele anyikwe uthene mikwe uthenarl.
so then father-3KinPOSS CONJ mother-3KinPOSS CONJ -FOC
Having killed the father and mother,

artwe re areke urreye renhe anteme.
the man looked at the boy

ante itirreke.
and wondered,

ʻRe apeke artwe arlkwetyarte antime apeke.’
ʻPerhaps he too has been eating men.’
The little boy looked at him with frightened eyes

and said,

‘Not me, brother; I told you

that I always eat kangaroo meat’.

The man felt sorry for him

and decided to take him back home with him.

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