The diachronic semantics of Diyari *marla*

A formal correspondence between contexts, scales, and polarity

Will Wegner

Advisor: Josh Phillips

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Department of Linguistics
Yale University

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Abstract

The Diyari (Karnic, South Australia) word *marla* exhibits a range of synchronic functions. It is attested as (i) an adjectival intensifier; (ii) a comparative glossed as 'more'; and (iii), in negative polar contexts, an aspectual adverb corresponding to 'anymore'. This thesis presents a proposal for the diachronic semantic trajectory of *marla*, thereby illustrating the formal correspondence between its uses as a context-dependent intensifier; a degreeful comparative morpheme; and a polarity sensitive CESSATIVE adverb. It also suggests opportunities for further research on the cross-linguistic recruitment of comparatives for CESSATIVE work (e.g., English [*any*]*more*, German *mehr*, French *plus*) as well as the possible link between degree semantics and polarity sensitivity.

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1	first person
2	second person
3	third person
sg	singular
dl	dual
pl	plural
excl	exclusive
f	female
nf	non-female
ACC	accusative
AUX	auxiliary
ABS	absolutive
CMP	comparative
DAT	dative
EMP	emphatic clitic
ERG	ergative
FUT	future tense
IMP	imperative
IMPL_{ss}	implicated clause, same subject
INCH	inchoative
LOC	locative
NEG	negation
NOM	nominative
PART	partitive
POSS	possessive
PRES	present tense
PTCP	participle
REDUP	reduplicated
TOP	topicalizer
VICIN	vicinity

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1 Introduction

The Karnic language Diyari, spoken by the Diyari people who reside in the Lake Eyre Basin in northern South Australia, has within its lexicon a word *marla* which is synchronically attested as an intensifier (cf. English 'very'), a comparative lexeme (cf. 'more'), and a CESSATIVE aspectual adverb attested only in negative polar contexts (cf. 'anymore').

This thesis will draw upon available synchronic data for Diyari in order to reconstruct and analyze the diachronic semantic pathway which has resulted in the unique polysemy of *marla*.

1.1 Overview

We begin with a review of the relevant formal semantic preliminaries (§1.2), including previous analyses of gradable and comparative constructions, typological claims about ontological degrees, and polarity sensitivity. We then proceed to a discussion of the Diyari language (§1.3), including its genetic status in the Karnic subgroup, its sociohistorical background, and its documentation.

Next, we characterize the synchronic data by presenting examples of the three uses of *marla* described above (§2.1–2.3), investigating related functional items in Diyari, and discussing similar constructions in other Karnic and Australian languages.

Then comes the analytic core of the paper: a formal diachronic pathway which connects and unifies the semantic functions of *marla*. We discuss the context-sensitive nature of adjectival intensification (§3.1), the scalar relation encoded by the comparative (§3.2), and the domain extension and pragmatic constraints which explain its function as an aspectual adverb (§3.3).

To conclude, we raise cross-linguistic questions concerning the recruitment of comparative items for CESSATIVE aspectual work (§4.1) and make observations concerning a possible formal link between degrees and polarity (§4.2).

1.2 Semantic preliminaries

We begin with a review of the semantic literature which will be relevant to our synchronic description and diachronic analysis, including the standard view of gradable and comparative predicates, the parametric account of degree semantics offered by Beck et al. (2009), and several approaches to polarity sensitivity. In general, we adopt standard model theoretic notational conventions in the spirit of Montague (1970).

1.2.1 Degrees and comparison

Following early work by Cresswell (1976) and von Stechow (1984), much of the semantic literature concerning gradable adjectives and comparative constructions takes degrees of type d as an ontological primitive. Under the standard analysis (adapted here from Bochnak 2013), a gradable adjective like English *tall* has the denotation given in (1).

(1) $[\![\textit{tall}]\!]_{\langle d,\langle e,t\rangle\rangle} = \lambda d.\lambda x.\textsc{height}(x) \succeq d$

On this degreeful approach, the adjective *tall* is a function from degrees to individuals to truth values, and is verified wherever the degree of height instantiated by the individual x is greater than or equal to some degree variable d. This analysis is largely motivated by the comparative and related morphology with which gradable adjectives compose. A simplified denotation for the comparative phrase *-er than* is offered in (2), where d_c abbreviates a comparandum degree.

(2) a. $[\![\textit{-er than } d_c]\!] = \lambda P.\lambda x.\mathbf{max}(\lambda d.P(x) \succeq d) \succ d_c$

b. $[\![\textit{taller than } d_c]\!] = \lambda x.\mathbf{max}(\lambda d.\textsc{height}(x) \succeq d) \succ d_c$

The maximality operator (**max**) picks out the unique degree d within the set of degrees D such that d is greater than or equal to every degree in D (as shown in 3, from Bochnak 2013: 64); stated plainly, given a set of degrees, the operator returns the maximal degree in that set.

(3) $\mathbf{max}(D) = \iota d[d \in D \wedge \forall d' \in D[d' \preceq d]]$

The denotation in (2b) can thus be restated as such: given some individual x, the comparative phrase *taller than* d_c asserts that the maximal degree of height which can be said to hold of x exceeds the degree d_c of some comparandum.

We have not yet accounted for unmarked uses of gradable adjectives like *tall*. The denotation in (1) is not sufficient to account for uses of *tall* as a one-place predicate of individuals, since its degree argument in such cases would be unsaturated. To account for the positive form of gradable adjectives, we follow Cresswell (1976) and subsequent authors[2] in positing a phonologically null POS morpheme which binds the adjectival degree argument, explicated in (4), where s represents a standard of comparison.

(4) a. $[\![\text{POS}]\!] = \lambda P.\lambda x.\mathbf{max}(\lambda d.P(x) \succeq d) \succ s_P$

b. $[\![\text{POS}]\!]([\![\textit{tall}]\!]) = \lambda x.\mathbf{max}(\lambda d.\text{HEIGHT}(x) \succeq d) \succ s_{\textit{tall}}$

The determination of the standard degree s is assumed to be dependent on the scale structure of the predicate; for relative-standard adjectives like *tall*, whose evaluation is not absolute and varies between contexts, Bochnak (2013: 51) and others assume that s is derived via "reference to a comparison class" (see §3.1.2 for further discussion of this notion).

Adjectival intensification like that contributed by English *very* is taken to involve an increase of this standard, as illustrated in (5), where for any gradable adjective P, $!s_P \succ s_P$.

(5) a. $[\![\textit{very}]\!] = \lambda P.\lambda x.\mathbf{max}(\lambda d.P(x) \succeq d) \succ !s_P$

b. $[\![\textit{very tall}]\!] = \lambda x.\mathbf{max}(\lambda d.\text{HEIGHT}(x) \succeq d) \succ !s_{\textit{tall}}$

We will remain agnostic as to the exact derivation of the increased standard $!s$ and its relation to the POS-derived standard s for degreeful intensification. We offer, however, an applicable analysis of intensification in the spirit of Klein (1980) in §3.1.2.

This section has provided a sketch of the degreeful approach to gradable adjectives and comparative and related morphology as initiated by Cresswell (1976) and von Stechow (1984), among

[2] See Rett (2015: Ch. 2) for a more detailed discussion of POS.

others, and summarized by Bochnak (2013); however, the presence of ontological degrees is not taken for granted everywhere in the literature, and a study by Beck et al. (2009) builds upon previous cross-linguistic typologies of comparison by positing a set of interrelated parameters governing the semantic and syntactic availability of degree constructions.

1.2.2 The Degree Semantics Parameter

Stassen (1985), in the first major typological survey of comparison, identifies a number of recurrent comparative constructions across a wide sample of languages and examines their connection to a number of other syntactic phenomena. Building upon a segment of his typology, Beck et al. (2009) offer a parametric account of cross-linguistic degree semantics, explaining the availability of comparative and related constructions across a sample of 14 languages. They posit three interrelated parameters (6), a positive setting for each being a prerequisite[3] for that of the next.

(6) a. **Degree Semantics Parameter** (DSP): (Beck et al. 2009: 19)

A language {does / does not} have gradable predicates (type $\langle d, \langle e, t \rangle \rangle$ and related).

b. **Degree Abstraction Parameter** (DAP): (Beck et al. 2009: 11)

A language {does / does not} have binding of degree variables in the syntax.

c. **Degree Phrase Parameter** (DegPP): (Beck et al. 2009: 24)

The degree argument position of a gradable predicate {may / may not} be overtly filled.

English exhibits positive settings for all three parameters; accordingly, Beck et al. (2009) characterize alternate parametric settings by identifying those English constructions which do not have parallel translations in the target languages. We will proceed with an overview of possible parametric configurations and relevant data from exemplar languages, summarized in table 1.1.

Motu (Austronesian, Papua New Guinea) is the only language in the sample which utilizes what Stassen (1985: 44) characterizes as a "conjoined" comparative, wherein two parallel clauses

[3] Kapitonov (2019) presents data from an Australian language, Kunbarlang, which may prove problematic for these parametric classifications; we permit that the landscape of degree semantics might be more complex than this typology suggests but accept their system for the purposes of the analysis to follow.

DSP	DAP	DegPP	Exemplar
–	(–)	(–)	Motu
+	–	(–)	Japanese
+	+	–	Russian
+	+	+	English

Table 1.1: Degree parameter settings and exemplars, from Beck et al. (2009)

with different NPs as their subjects are "connected in such a way that a gradation between the two objects can be inferred", as illustrated in (7).

(7) *Mary na lata, to Frank na kwadogi.*
Mary TOP tall, but Frank TOP short
'Mary is taller than Frank.' (Beck et al. 2009: 3)

Evidently, Motu has the capacity to induce adjectival comparisons, albeit with a syntactic structure distinct from that of English. However, other constructions available in English, like comparisons with a degree (CompDeg; 8) and differential comparatives (DiffC; 9) were judged impossible by Motu consultants.

(8) **Mary na lata 1.70m.*
Mary TOP tall, 1.70m
Intended: 'Mary is taller than 1.70m.' (Beck et al. 2009: 19)

(9) **Mary na lata 2cm ai to Frank na kwadogi.*
Mary TOP tall 2cm by but Frank TOP short
Intended: 'Mary is 2cm taller than Frank.' (Beck et al. 2009: 19)

In view of these judgements, together with the absence of dedicated comparative morphology, Beck et al. (2009) conclude that Motu must not have degrees of type d in its semantic ontology; that is, the standard degreeful analysis for comparative constructions laid out in §1.2.1 cannot

account for the data in Motu. What we might otherwise consider 'gradable' predicates must not be of type $\langle d, \langle e, t\rangle\rangle$, as degree arguments are unavailable. In an analysis owing to Klein (1980), they take Motu adjectives to be context-sensitive (as shown in 10, a partial derivation for 7).

(10) a. $[\![\textit{tall}_{\text{Motu}}]\!] = [\lambda c.\lambda x.x$ counts as tall in $c]$

b. $[\![\textit{short}_{\text{Motu}}]\!] = [\lambda c.\lambda x.x$ counts as short in $c]$

$[\![\textit{short}_{\text{Motu}}]\!]^c$ must be a subset of $[\lambda x.x$ does not count as tall in $c]$

c. $[\![\textit{Mary na lata, to Frank na kwadoḡi}]\!]^c = 1$ iff

Mary counts as tall in c and Frank counts as short in c (Beck et al. 2009: 20)

Another language in their sample, Japanese, has dedicated comparative morphology (*yori*) as well as DiffC constructions (11), indicating the presence of degree arguments and thus a [+DSP] setting; however, measure phrases (MP; 11), subcomparatives (SubC; 12) and degree questions (DegQ; 13) are unavailable.

(11) *Sally-wa 5 cm se-ga takai.*

Sally-TOP 5 cm back-NOM tall

Sally is 5 cm taller / *Sally is 5 cm tall (Beck et al. 2009: 10)

(12) **Kono tana-wa [ano doa-ga hiroi yori] (motto) takai.*

this shelf-TOP [that door-NOM wide CMP] (more) tall

Intended: 'This shelf is taller than that door is wide.' (Beck et al. 2009: 10)

(13) **John-wa dore-kurai kasikoi no?*

John-TOP which-degree smart Q

Intended: 'How smart is John?' (Beck et al. 2009: 10)

MP, SubC, and DegQ constructions are semantically interrelated in that they require binding of degree variables in the syntax. The observation of the joint unavailability of these three con-

structions leads Beck et al. (2004) to posit the DAP. Accordingly, because of the unavailability of degree quantification, Japanese comparative constructions must be analyzed differently from those of English; Beck et al. (2009) offer a partial derivation for the Japanese comparative (14) as adapted from Oda (2008) and Beck et al. (2004).

(14) *Sally wa Joe yori kasikoi.*

Sally TOP Joe CMP smart

'Sally is smarter than Joe.' (Beck et al. 2009: 12)

a. $[\![\textit{kasikoi}\ c]\!]^g = \lambda x.\textbf{max}(\lambda d.x \text{ is } d\text{-smart}) > g(c)$

b. $[\![\textit{Sally wa kasikoi}]\!]^g = 1$ iff $\textbf{max}(\lambda d.x \text{ is } d\text{-smart}) > g(c)$

c. c := the standard of intelligence made salient by comparison to Joe

:= Joe's degree of intelligence

This analysis sees *yori* function much like English *compared to*; as a "context setter [which is] not compositionally integrated with the main clause" (Beck et al. 2009: 12). Within their sample, they assert that Chinese, Japanese, Mooré, Samoan (cf. Hohaus 2018), and Yorùbá all share the same [+DSP, −DAP] combination and, by extension, comparative constructions in these languages are analyzed similarly.

Like the languages above, Russian does not permit MP, SubC, or DegQ constructions. A different phenomenon, scope interaction (Scope; 15), helps to illustrate how they differ. A related diagnostic, negative island effects (NegIs), is omitted; see Beck et al. (2009: 11) for discussion.

(15) a. **English**: CMP morpheme can take either WIDE or NARROW scope

This draft is 10 pp. long. The paper is required to be exactly 5 pp. longer than that.

Possible: The minimum length required for the paper is 15 pages (WIDE)

The paper must be exactly 15 pages long (NARROW) (Beck et al. 2009: 8)

b. **Japanese**: CMP can only take NARROW scope (minimum requirement reading)

Sono ronbun wa sore yori tyoodo 5 peeji nagaku-nakerebanaranai.
that paper TOP that CMP exactly 5 page long-be required
'The paper is required to be exactly 5 pp. longer than that.' (Beck et al. 2004: 331)

c. **Russian**: like English, CMP can take WIDE or NARROW scope

Статье надо быть ровно на 5 страниц длиннее.
paper.DAT necessary be exactly by 5 pages long.CMP
'The paper has to be 5 pp. longer.' (Beck et al. 2009: 23)

The Japanese sentence in (15b) is consistent with a [–DAP] setting, as Quantifier Raising for CMP requires the binding of degree variables (see Heim 2001). Accordingly, the English-like scope ambiguity for Russian (15c) must be taken as clear evidence of [+DAP], meaning that we need to account for the unavailability of MP, SubC, and DegQ in some other way. As proposed by Beck et al. (2009), the DegPP is a syntactic parameter which dictates whether the SpecAP of a gradable predicate can be overtly filled by a DegP, as it must be in the constructions above. We can thus account for the distribution of degree constructions in Russian (also consistent with that in Guaraní and Turkish) via a [–DegPP] setting, as contrasted with the [+DegPP] setting in English (and German, Bulgarian, Hindi-Urdu, Hungarian, and Thai).

A more detailed syntactic account of these phenomena and their distribution can be found in Beck et al. (2009); however, for the purposes of the subsequent analysis of Diyari, the most important observation is that of the distinction between [–DSP] and [+DSP]; a language may or may not have a domain of degrees (D_d) in its semantic ontology; comparison can be expressed either way, with observable differences in the structure and distribution of particular constructions.

Next, we will offer a brief overview of the literature on negative polarity items and various attempts to explain the behavior and distribution of polarity sensitive lexemes.

1.2.3 Polarity sensitivity

"All human systems of communication contain a representation of negation" according to Horn (2001: xiii). As he goes on to demonstrate, and as has been observed across linguistic and philosophical literature, negation is not merely the simple logical operator (¬) to which a formal semanticist might be inclined to reduce it. Indeed, as Israel (2011: 22) observes, "the expression of negation … often has significant consequences for the structure of a sentence as a whole".

The latter is making reference to negative polarity items (NPIs) and positive polarity items (PPIs), lexemes whose felicity is, respectively, restricted to or prohibited within negative contexts (as well as a number of related environments). Such items have received frequent treatment in the semantic literature and are "commonplace throughout the world" (Israel 2011: 23). Contrastive sentences illustrating the behavior of a few English examples are offered in (16) and (17).

(16) Some negative polarity items (NPIs) in English

a. Josh didn't have **any** breakfast.

*Josh had **any** breakfast.

b. Hillary isn't **at all** interested in continental philosophy.

*Hillary is **at all** interested in continental philosophy. (Israel 2011: 27)

c. Lily hasn't seen the new Marvel movie **yet**.

*Lily has seen the new Marvel movie **yet**.

(17) Some positive polarity items (PPIs) in English

a. The secretary was **sort of** rude to Gladys.

*The secretary wasn't **sort of** rude to Gladys. (Israel 2011: 27)

b. Hugo could **just as well** have bought a Ferrari.

*Hugo couldn't **just as well** have bought a Ferrari. (Israel 2011: 28)

c. Nico has a beer **every so often**.

*Nico doesn't have a beer **every so often**.

Each of these examples involves sentential (verbal, copular, or auxiliary) negation, but as suggested above, overt negation is not the only sort of context in which polarity sensitivity occurs. Other triggers for the felicity of NPIs (and the infelicity of PPIs) include "interrogatives, comparatives, … conditional antecedents … 'adversative' predicates like *doubt*, *deny*, *regret*, and *be amazed* … generic or universal quantifier[s] … and … exclusive particle[s] like *only*" (Israel 2011: 29).

In view of this *prima facie* heterogeneity of negative polar contexts as well as the wide range of polarity sensitive forms within and across languages, numerous semantic proposals have been put forth to account for NPI and PPI licensing.

In a foundational work on the topic, Ladusaw (1980) introduces the now-widespread notion of "upward entailing" and "downward entailing" environments. He presents the set of entailments given in (18), where the denotation of *father* is taken to be a subset of the denotation of *man*.

(18) a. John is a father $\vdash$ John is a man
(John is a man $\nvdash$ John is a father)

b. Some fathers walk $\vdash$ Some men walk
(Some men walk $\nvdash$ Some fathers walk)

c. John isn't a man $\vdash$ John isn't a father
(John isn't a father $\nvdash$ John isn't a man)

d. No man walks $\vdash$ No father walks
(No father walks $\nvdash$ No man walks) (Ladusaw 1980)

The entailments in (18a) and (18b) are from a subset to its superset, and are thus designated "upward" entailments. Those in (18c) and (18d), are "downward", from a superset to its subset. Crucially, under Ladusaw's (1980) analysis, those environments which are downward-entailing are those same environments which license NPIs. (He makes no claim regarding the distribution of

PPIs, but we can assume that they are licensed within upward-entailing environments.) Observe the examples in (19), where the NPI *ever* is licensed in those contexts where downward entailment occurs (assuming that *semanticist* is a subset of *linguist*).

(19) a. Jack didn't love a linguist. ⊢ Jack didn't love a semanticist.
Jack didn't **ever** love a linguist.

b. No linguist is well-adjusted. ⊢ No semanticist is well-adjusted.
No linguist is **ever** well-adjusted.

c. If he befriends a linguist, he's toast. ⊢ If he befriends a semanticist, he's toast.
If he **ever** befriends a linguist, he's toast.

Ladusaw's (1980) approach accounts effectively predicts the distribution of English NPIs in a range of contexts,[4] although he does not make any claims as to what about the semantics of NPIs themselves leads to their restriction to downward-entailing environments.

Kadmon & Landman (1993: 356) attempt to address this problem for a particular English NPI, *any*, posing the central question, "How is the distribution of the NPI related to what it means?" They offer an analysis of *any* which also accounts for its use as a free choice item (FCI) outside of downward-entailing contexts, as in (20), where it apparently contributes universal quantification.

(20) **Any** lawyer could tell you that. (Kadmon & Landman 1993: 354)

They suggest that the NPI and FCI uses of *any* can be unified by their shared pragmatic effect, a reduced tolerance to exceptions, characterized as widening: "In an NP of the form *any CN*, *any* widens the interpretation of the common noun phrase (CN) along a contextual dimension" (Kadmon & Landman 1993: 361). A result of this widening effect can be observed in (21).

(21) a. We don't have potatoes, or at least not enough.

b. #We don't have **any** potatoes, or at least not enough. (Kadmon & Landman 1993: 368)

[4] Work by Giannakidou (e.g., 1998, 2011, a.o.) shows that not all NPI-licensing environments are downward entailing. She proposes the alternate (weaker) notion of "veridical dependency" in an attempt to better account for the full range of data.

While the meaning of the CN *potatoes* in (21a) might exclude those quantities of potatoes which are irrelevant to the discourse; as such, the second clause is judged as well-formed. The use of *any* in (21b) widens the domain to include even those irrelevant potatoes, explaining the infelicity of the second clause. They posit a related semantic property, strengthening, which they see as "a lexicalization of a pragmatic function"; *any* is licensed only where the widened statement entails (i.e., is stronger than) the narrow version (Kadmon & Landman 1993: 369).

Israel (1997, 1998, 2011) offers subsequent analyses which directly relate the distribution of NPIs to their meaning as lexical items; unlike Kadmon & Landman (1993), who focus merely on *any*, he seeks to offer a unified semantic account for all polarity sensitive items. Under his "Scalar Model of Polarity", all polarity items encode information along a scale, and their licensing depends on whether a context is **scale-preserving** (≈ upward-entailing) or **scale-reversing** (≈ downward-entailing) (Israel 2011: 62). Every polarity item has a QUANTITATIVE (q-) value, referring to its "position within a scalar model", as well as an INFORMATIVE (i-) value, referring to its "relative informativity within a model"; different combinations of q- and i-values reflect the various licensing and truth conditions of the items which encode them (Israel 2011: 81). Though this approach to polarity will not have a direct bearing on our diachronic analysis for *marla*, we will invoke the notion of a scalar model of NPI licensing in §4.2.

With the relevant semantic preliminaries for our analysis explicated, we will progress to a discussion of our primary language of study, Diyari, and some relevant facts regarding its genetic classification, sociohistorical background, and documentation.

1.3 Diyari

Diyari is an indigenous language historically spoken within the Lake Eyre Basin in northern South Australia. Genetically, it belongs to the Karnic subgroup of the Pama-Nyungan language family, and its native speakers have typically identified themselves as members of the Diyari (alternately, Dieri) community. Though previously designated "extinct" by *Ethnologue*, there are

in fact a number of native and fluent speakers alive today, as well as many Diyari people who are champions of and participants in active language revitalization efforts (Austin 2014: 2).

1.3.1 The Karnic subgroup

Considerable scholarship (e.g., Austin 1990; Bowern 1998, 2001) has sought to determine the genetic relationships between those languages spoken within the Lake Eyre Basin. Although the status of several candidate members of the Karnic subgroup is contested, there is a consensus that at least ten languages descend from the reconstructed proto-Karnic, among them Diyari, Arabana (documented by Hercus 1994), and Yandruwandha (documented by Breen 2015). Figure 1.1 from Bowern (2001: 246) maps these and the other languages spoken in the Lake Eyre Basin.

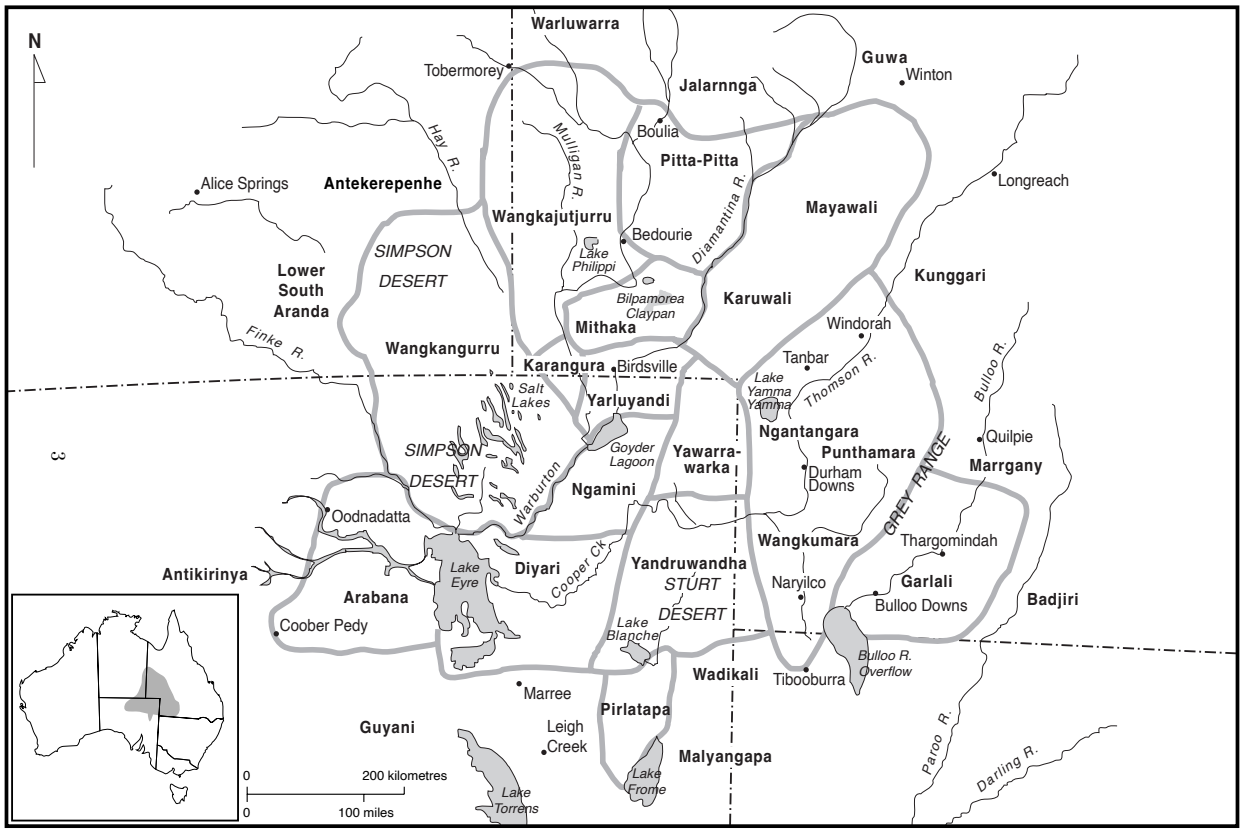


Figure 1.1: Language map of the Lake Eyre Basin

1.3.2 Sociohistorical background

Kneebone (2005) provides a detailed account of the historical and linguistic interface between the Diyari people and European colonizers in the Lake Eyre Basin, particularly German Lutheran missionaries. Diyari is atypical in that it has "a richly attested contact history, a time dimension which goes back to the middle of the 19th century, whereas the bulk of information available for Australian languages stems from the middle of the 20th century" (Kneebone 2005: 22). This can be attributed at least in part to the selection of Diyari as the "language of evangelisation" by the missionaries, as described by Hoffman (2008: 44).

From the late 19th century onward, a range of documents appear, written by colonizers and native Diyari speakers alike, which utilize a standard graphization of Diyari as initiated by the Lake Eyre missionaries. These include dictionaries, primers, Bible translations, and letters, among others. While this corpus of written materials is unique among Australian languages, and has contributed to subsequent documentation efforts, the selection of Diyari as a "mission language" was not without its linguistic consequences. According to Kneebone (2005: 7), such languages "are characterised by structural standardisation and changes in lexical distribution in favour of a proliferation of religious terms at the expense, in many cases, of terms integrated with the environment. The functional range of such languages is engineered and restricted according to the aims of the mission". While the lexical shifts to which she alludes are not of direct relevance to the analysis to follow, the role of German missionary contact in functional changes like that analyzed for *marla* must be clarified through further sociolinguistic investigation.[5]

1.3.3 Relevant sources

There are two sources from which the Diyari data used in the subsequent analysis have been taken. The first is a dictionary compiled by German missionary Johann Georg Reuther and trans-

[5] Said investigation has been initiated by Jack Sullivan and is represented by Wegner, Phillips, Sullivan & Bowern (2022), in part. My sincerest thanks go to Jack for introducing me to Kneebone (2005) and pointing me toward those elements most relevant to my present work; undoubtedly, there is much more to be said on the role of missionary contact in Diyari, as we briefly allude to in §4.1.

lated into English by archivist Phillip Scherer (cited as Reuther 1899). The second is a reference grammar assembled by Australian linguist Peter K. Austin (cited as Austin 1978, 1981, 2011).

Reuther was the reverend in charge of the Lutheran mission at Lake Killalpaninna, a smaller lake within the vicinity of Lake Eyre, from 1888 to 1906. Beyond his missionary responsibilities, he took ethnographic and linguistic interest of the Diyari people and their language, and during his first decade in Diyari country, he assembled a 2,600-page manuscript documenting his findings, the first four volumes of which were a German-Diyari dictionary (Austin 2022: 2–3).

More than seven decades later, in 1974, Scherer received funding from the Australian Institute of Aboriginal Studies to translate the manuscript into English (Austin 2022: 3). Following the delayed publication of a microfiche version of Scherer's translation, the document was eventually digitized and reformatted; the ongoing effort to make the file more accessible and useful to revitalization efforts is described in detail by Austin (2022).

The document is not without its limitations; Reuther used the prevailing mission orthography, which, per Austin (2022: 7), "generally under-differentiates consonants and over-differentiates vowels". Worth mentioning for our specific purposes is that *marla* is spelled *morla*; the mission orthography uses five vowel symbols, whereas Diyari only has three vowel phonemes. In the interest of transparency, we preserve Reuther's original orthography for the data presented.

Peter K. Austin first conducted linguistic fieldwork on Diyari for his undergraduate honors thesis, at which time he met Ben Murray,[6] who later became his primary consultant, or as Austin (2014: 6) puts it, his "language teacher". For his subsequent doctoral thesis, Austin assembled a reference grammar of Diyari, utilizing an empirical approach lacking in previous documentation efforts. This 1978 thesis version was soon adapted into a 1981 publication, and in the decades since, Austin has continued his work on Diyari and other Karnic languages. More recently, as part of ongoing revitalization efforts, Austin has further updated his grammar and freely distributed online several iterations of this new second edition, including the 2011 version from which the majority of our data is drawn. As above, the source orthography is preserved in reproduced data; however, we take the phonemic system used in the 2011 edition to be definitive and default to

these spellings outside of direct quotes.

Having offered a general overview of the thesis, a discussion of the semantic concepts relevant to our analysis, and a brief background of the Diyari language and its documentation, we will now present the particular synchronic observations which our analysis seeks to explain.

[6] For a detailed biography of Murray, "a rugged individualist who stood in a unique and solitary position", written by the linguists who came to know him through years of fieldwork and friendship, see Austin et al. (1988).

2 The synchronic polysemy

We are now appropriately equipped to characterize the synchronic polysemy exhibited by the Diyari word *marla* in the data collected by Austin (1978, 2011) and Reuther (1899). In the case of the former, we will rely on elicitations as well as grammatical description; we will depend upon the latter to illustrate functions not represented elsewhere. We will also appeal to data from other Australian languages, including Arabana and Yandruwandha, members of the Karnic subgroup.

2.1 Intensifier

Austin (2011: 40) describes three functions of *marla*; he first notes, in enumerating the grammatical differences between Diyari nominals and adjectives, that "adjectives are intensified by *marla*". He offers an explicit definition of *marla* as "true[7], very", the latter word appearing in his glosses of intensifier usages of *marla* like those in (22) throughout the grammar.

(22) a. *nhani-ya* *mankarra* *ngumu* ***marla***
3sgf.NOM-near girl.NOM good **very**
'This girl is very good.' (Austin 2011: 112)

b. *ngayani* *waltha-yi* *nhinha* *ya* *mardi* ***marla***
1plexcl.ERG carry-PRES 3sgnf.ACC and heavy **very**
'We carry him and (he) is very heavy.' (Austin 2011: 234)

[7] Austin (2011: 111) does not gloss any use of *marla* as 'true', though he does offer that definition for a manner adjective *marlarlu* ('true'). For reasons of space, we will not discuss their historical connection. See Reuther (1899) for examples of *marlarlu* and Heine & Kuteva (2002: 302) for data on TRUE > VERY as a grammaticalization cline.

c. *nhani* *mangathandra* *malhantyi* ***marla*** *pantyi-rna* *wara-yi*
3sgf.NOM head.NOM bad **very** become-PTCP AUX-PRES
'She got really silly.' (Austin 2011: 109)

Of these examples, (22c) is perhaps the least semantically transparent; just as in the other examples, however, *marla* intensifies an adjective, which in this case is predicated of an individual's head, thus idiomatically characterizing a mental state.

Austin (2011: 111) observes that *marla* is one of three Diyari adjectives with an adverbial function to "express degree"; the other two are *pirna* ('big, a lot'; 23) and *ngalyi* ('a little'; 24).

(23) a. *nhawu* *kanku* ***pirna*** *pantyi-yi*
3sgnf.NOM boy **big** become-PRES
'He's getting to be a big boy.' (Austin 2011: 109)

b. *ngapa* ***pirna*** *pantu-nhi* *parra-yi*
water **big.NOM** lake-LOC lie-PRES
'There is a lot of water in this lake.' (Austin 2011: 106)

c. *ngathu* *yinanha* ***pirna*** *ngantya-yi*
1sg.ERG 2sg.ACC **a.lot** like-PRES
'I like you very much.' (Austin 2011: 111)

(24) a. *nhani* *thina* ***ngalyi*** *dapa-ri-yi*
3sgnf.NOM foot.NOM **a.little** sore-INCH-PRES
'Her foot became a little sore.' (Austin 2011: 112)

b. *ʈuñuʈuñu* ***ŋaʎi*** / *kaɲa* *ʈuñuʈuñu-ø*
hot **a.little** ash hot-ABS
'(It's) a little hot, hot ashes.' (Austin 1978: 518)

Like *marla*, *ngalyi* appears to express degree only for adjectival predicates. Conversely, *pirna* can function adnominally with count nouns, with the adjectival meaning 'big' (23a), as well as mass nouns, with the meaning 'a lot' (23b); it can also function with verbal predicates (23c) to indicate "great degree" (Austin 2011: 111). Furthermore, morphophonological reduplication, when applied to adjectives, "increases the intensity or degree of the quality expressed by the adjective root," as shown by the translation of *waka* ('little, small') as compared to that of *wakawaka* ('tiny') (Austin 2011: 62).

As described by Hercus (1994: 257), the Karnic language Arabana has Diyari cognate[8] *arla*, which can "function as a free adjective meaning 'true', [']real', 'evident' [and] ... also serve as a clitic with the meaning of 'very'", as shown in (25a). Beyond the identified clitic use, it is also seen to function as a free intensifier, as in (25b).

(25) Arabana `[ard]`

a. *ulyurla uriya yamdi-nganha-**arla***
woman decrepit long.ago-from-**very**
'A truly ancient decrepit woman' (Hercus 1994: 257)

b. *ngurku **arla** nhiki puntyu-kithiya*
good **truly** this meat-EMP
'This meat is really excellent.' (Hercus 1994: 174)

These and subsequent cross-linguistic data will serve as partial evidence for the diachronic relationship between the synchronic functions of *marla* in §3.1; for our present purposes, we will proceed to further discussion of said functions, beginning with the comparative.

[8] Hercus (1994: 32) observes the loss of word-initial nasals in Arabana, offering the example *irrtya* ('noise') as contrasted with Diyari *mirrtya*.

2.2 Comparative

As described by Austin (2011: 112), *marla* also "functions like English 'more'", inducing a comparison between two predicates. As in its intensifier usage, comparative *marla* can occur with adjectives (26a–b), but its function also extends to the comparison of ergative-marked nominals (26c–d) as well as verbal predicates with (26e) and without (26f) direct objects.

(26) a. *ngakarni kinthala pirna* ***marla*** *yingkarna-nhi*
1sg.DAT dog.NOM big **more** 2sg.DAT-LOC
'My dog is bigger than yours.' (Austin 2011: 112)

b. *ŋani* ***maḷa*** *kiři ṯanaŋu-ya maṯari-ni wiḻa-ni*
1sg.NOM **more** clever pl.LOC-near men-LOC woman-LOC
'I'm more clever than those men and women.' (Austin 1978: 293)

c. *nhawu* ***marla*** *mawa-li ngana-yi ngalingu*
3sgnf.NOM **more** hunger-ERG be-PRES 1dl.excl.LOC
'He is hungrier than we are.' (Austin 2011: 112)

d. *ṉani* ***maḷa*** *yapa-ali ŋana-yi ŋakŋu*
3sgf.NOM **more** fear-ERG be-PRES 1sg.LOC
'She is more afraid than I.' (Austin 1978: 293)

e. *ṉulu* ***maḷa*** *ŋaṉṯi marapu-ø tayi-yi ŋakaŋu*
3sgnf.ERG **more** meat much-ABS eat-PRES 1sg.LOC
'He eats more meat than I.' (Austin 1978: 294)

f. *nhandru nguyama-yi* ***marla*** *ngakungu*
3sgf.ERG know-PRES **more** 1sg.LOC
'She knows more than me.' (Austin 2011: 112)

Note that in each of the sentences above, the comparandum is supplied explicitly; as Austin (2011: 133) observes, "[i]n clauses containing the adverb *marla* 'more' … locative case NPs signify the object with which something is compared". A semantic account of the Diyari locative which accounts for this and other uses will be offered in §3.2; for present purposes, permit that locative marking is well-attested cross-linguistically for denoting comparanda (Bobaljik 2012: 20).

As documented by Breen (2015: 81), a similar comparative construction occurs in the Karnic language Yandruwandha, where intensifier *muthu* ('very') exhibits comparative function in sentences wherein the locative case "mark[s] the object of comparison 'than —'". The intensifier and comparative functions of *muthu* are illustrated in (27).

(27) Yandruwandha [ynd]

a. *parndringa* ***muthu*** *ngathu* *yinha*
hit-FUT **very** 1sg.ERG 3sg.ACC
'I'm going to really belt him.' (Breen 2015: 217)

b. *nganyi* *pirna* ***muthu*** *yingganyi*
1sg.NOM big **very** 2sg.DAT-LOC
'I'm older than you.' (Breen 2015: 83)

In Diyari, however, an explicit, LOC-marked comparandum is not a requirement for the comparative function of *marla*; there are other instances, such as those in (28) from Reuther (1899), in which the standard of comparison appears to be derived implicitly.

(28) a. *pirra* *ngakani* ***morla*** *dulkuru*
wooden.bowl 1sg.DAT **more** deep
'My wooden bowl is deeper' [than yours]. (Reuther 1899: 199)

b. *turu* *ngato* ***morla*** *kampana* *wara-i*

firewood 1sg.ERG **more** gather AUX-PRES

'I have gathered more firewood' [than you]. (Reuther 1899: 1326)

c. *ngarimata* *pirnali* *kajiri* ***morla*** *mikari* *damana* *wonti*

flood big creek **more** deep wash.out AUX.PRES

'A big flood washed out the creek deeper.' (Reuther 1899: 196)

d. *kapi* *ngato* ***morla*** *kampa-la* *ngana*

egg 1sg.ERG **more** gather.FUT AUX.PRES

'I shall gather some more eggs.' (Reuther 1899: 1326)

These data illustrate that for both adjectival and verbal predicates, the comparandum can be derived from the discourse rather than provided explicitly. Austin (1978: 294) posits a "reduction rule" whereby repeated verbal predicates in comparative constructions are deleted from surface structure, as in (29a), which displays the underlying representation of (26e). We can posit similar "reductions" for (28a) and (28b) to account for the absence of an explicit comparandum; these are given in (29b) and (29c), respectively. We remain agnostic as to their exact syntactic structure.

(29) a. ⟦26e⟧ ≈ He eats more meat than I eat meat.

→ He eats more meat than I. (Austin 1978: 294)

b. ⟦28a⟧ ≈ My wooden bowl is deeper than your wooden bowl is deep.

→ My wooden bowl is deeper than yours.

→ My wooden bowl is deeper.

c. ⟦28b⟧ ≈ I have gathered more firewood than you have gathered firewood.

→ I have gathered more firewood than you.

→ I have gathered more firewood.

Another type of comparandum is available in these implicit constructions which does not

appear to be available with the LOC-marking strategy in (26); in sentences like (28c) and (28d), the standard of comparison is not another individual, but an earlier temporal stage of the same individual; observe the "reductions" posited in (30).

(30) a. ⟦28c⟧ ≈ A big flood washed out the creek deeper than the creek was deep.

→ A big flood washed out the creek deeper.

b. ⟦28d⟧ ≈ I shall gather some more eggs than I have gathered eggs.

→ I shall gather some more eggs.

Austin (2011) does not describe the capacity of comparative *marla* to induce temporal comparisons as characterized in (30), but such readings are richly documented by Reuther (1899).

It is notable that the optionality of explicit comparanda can result in ambiguity for adjectival constructions; as described by Austin (2011), (22a) has a second available reading, given in (31).

(31) *nhani-ya* *mankarra* *ngumu* ***marla***

3sgf.NOM-near girl.NOM good **more**

'The girl is better.' (Austin 2011: 112)

Polysemy between intensifiers and comparative lexemes appears to be relatively rare cross-linguistically; Yandruwandha *muthu* (shown in 27) is the only other free lexeme with both intensive and comparative functions we have observed. Such a construction is absent from Bobaljik's (2012: 23) typology of comparative morphology,[9] although a footnote makes passing mention of Yidiɲ, a Pama-Nyungan language with a suffix *-waḍan* which is both "glossable as 'very'" and used to mark adjectival comparisons. Illustrative data from Dixon (1977) is given in (32).

[9] In a number of languages in Bobaljik's (2012: 226) typology, the "superlative is derived from the comparative by means of an intensifier"; there is no data to suggest the occurence of a Diyari superlative.

(32) Yidiɲ [yii]

a. *bama* *yiŋu* *milba-**waḍan***
person.ABS this.ABS clever-***waḍan***
'This person is certainly clever.' (Dixon 1977: 245)

b. *ŋayu* *maḍi-ndaŋ* *bunda* *ŋala-lda-**waḍan***
1sg.ERG walk.up-PRES mountain.LOC big-LOC-***waḍan***
'I'll climb a bigger mountain.' (Dixon 1977: 246)

Schweiger (1984, 2005) observes the relative poverty of data on comparative constructions in Australian languages, though he does not commit himself as to whether this is the result of a genuine typological characteristic. Besides Diyari and Yidiɲ (he does not discuss Yandruwandha), he makes note of one other Pama-Nyungan language, Kuku-Yalanji, which has a prefix *jarra-* with intensive and comparative functions; this is illustrated by the sentences in (33) from Patz (2002).

(33) Kuku-Yalanji [gvn]

a. *nyungu* *kangkal* ***jarra**-kaykay*
3sg.POSS.ABS child.ABS ***jarra***-small
'Her child is rather small.' (Patz 2002: 60)

b. *minya* *ngawuya* ***jarra**-kima* *minya-ka* *bulki-ka*
meat.ABS sea.turtle.ABS ***jarra***-soft meat-DAT cattle-DAT
'Sea-turtle meat is softer[10] than beef.' (Patz 2002: 61)

It is noteworthy that, of the 21 Australian languages[11] with comparative constructions identified by Schweiger (1984, 2005), Diyari is the only language for which he presents a non-adjectival example (26f above); in the remaining languages, comparison appears to be limited to adjectival predicates. This observation will help support our diagnosis of a [+DSP] setting for Diyari in §3.2; at present, we will provide data to illustrate the final function of *marla* as an aspectual NPI.

[10] Bowern (p.c.) politely disagrees with this speaker's assessment.
[11] Bowern (p.c.) notes that the sample is "broadly representative" with substantial areal coverage.

2.3 Aspectual NPI

In addition to its functions as an intensifier and comparative, *marla* sees use as a "phasal adverb" (this term due to Löbner 1986, 1989), contributing aspectual information about the eventuality denoted by a verbal predicate. Under negation, it encodes a presupposition that the eventuality obtains at some time prior to reference time and asserts that it does not obtain at reference time (henceforth, CESSATIVE aspect).

Crucially, aspectual uses of *marla* are attested only in negative polar contexts (see §1.2.3), specifically within the scope of sentential negator *wata* ('not') and modal negator *pulu* ('cannot'); accordingly, in its adverbial function, *marla* appears to be a negative polarity item (NPI). In these uses, Austin (2011: 113) translates the contribution of *marla* as both 'any more' and 'any longer'; it is also variously rendered in Reuther (1899) as 'no longer' and, with the future auxiliary, 'not … again' and 'never … again'. Several examples are given in (34).

(34) a. *pulu* ***marla*** *nhulu-ya* *pantu-yali* *parda-rna* *wanthi-yi* *ngapa*
cannot **more** 3sgnf.ERG-near salt.lake-ERG hold-PTCP AUX-PRES water.NOM
'This salt lake could not hold water any longer.' (Austin 2011: 113)

b. *karna* *wata* ***marla*** *ngama-yi* *nhingki-rda*
person.NOM not **more** sit-PRES here.VICIN-LOC
'People don't live here any more.' (Austin 2011: 113)

c. *wata* ***marla*** *nganhi* *yawarra* *yatha-yi*
not **more** 1sg.NOM language speak-PRES
'I don't speak the language any more.' (Austin p.c. Di-elic0174[12])

d. *kaldra* *nauja* *karakara,* *tana* *wata* ***morla*** *worita* *ngama*
voice 3sgnf.NOM nearby 3pl.NOM not **more** far.away sit
'The voice is nearby; they cannot be far away any more.' (Reuther 1899: 525)

There are no aspectual uses of *marla* that are not within the scope of negation attested in the data; CONTINUATIVE aspectual work (i.e., that contributed by English 'still') is often performed instead by the post-inflectional suffix *-rlu*, which also functions in wide-scope negative polar contexts as an adverb with UNATTAINED aspect (e.g., 'yet'). Its various uses are shown in (35).

(35) a. *nhawu kupa thurara-rnda purri-yi-**rlu***
3sgnf.NOM child.NOM sleep-PTCP AUX-PRES-**still**
'The child is still sleeping.' (Austin 2011: 182)

b. *wata nhawu thurrara-yi-**rlu***
not 3sgnf.NOM sleep-PRES-**still**
'He is not still sleeping.' (Austin 2011: 183)

c. *wata-**rlu** nhawu thurrara-yi*
not-**still** 3sgnf.NOM sleep-PRES
'He is not sleeping yet.' (Austin 2011: 183)

d. *pulu-**rlu** nhani kupa-kupa wapa-yi*
cannot-**still** 3sgf.NOM REDUP-child.NOM go-PRES
'The baby cannot walk yet.' (Austin 2011: 183)

As discussed by Phillips et al. (forthcoming), NPIs are nearly unattested among Australian languages. This observation will inform our diachronic proposal in §3.1.2, and we will discuss avenues for further investigation of this typological generalization in §4.2.

In the next chapter, the synchronic distribution of *marla* illustrated above will be accounted for using a diachronic semantic analysis. We will draw upon relevant data from Diyari and other Australian languages and appeal to established semantic phenomena (building upon the preliminaries discussed in §1.2) in order to offer an analysis for *marla* in each of its uses given above and illustrate the diachronic pathway which links them together.

[12] Thanks to Peter K. Austin for sharing unpublished data from his Diyari fieldwork.

3 A diachronic trajectory

In the previous chapter, we presented synchronic data illustrating the three attested functions of the Diyari word *marla* as an intensifier, comparative, and aspectual NPI. We will now appeal to cross-linguistic data and existing semantic proposals in order to offer a diachronic analysis which connects these three usages, exploiting the observable formal correspondence therebetween.

3.1 Degreeless intensification

We begin our diachronic analysis by asserting that intensifier uses of *marla* represent its earliest functional stage. We motivate this assumption in part through an appeal to the Degree Semantics Parameter (see §1.2.2) and typological observations about Australian languages.

3.1.1 Parametric diagnosis

There is considerable evidence that a negative setting for the Degree Semantics Parameter (DSP) should be the null hypothesis for Australian languages. Beck et al. (2009: 21) do not include any Australian languages in their sample; however, while discussing Motu, their only [–DSP] diagnosis, they introduce the notion that "degrees and scales are a level of abstraction above context dependency that a language may or may not choose to develop".

In her analysis of the Pama-Nyungan language Warlpiri, Bowler (2016) makes use of a number of diagnostics in order to support her claim that Warlpiri is [–DSP]. She first invokes Kennedy's (2007) distinction between explicit and implicit comparative constructions, whereby the former makes use of dedicated comparative morphology while the latter does not. In Warlpiri, she argues, speakers use implicit comparisons, exploiting "the inherent context sensitivity of the positive, unmarked form of gradable predicates to indicate comparison" (Bowler 2016: 4). She notes

that for two other languages diagnosed as [–DSP], Motu (by Beck et al. 2009) and Washo (by Bochnak 2013), implicit comparisons are the "primary comparative strategy"; she also observes that the Australian languages Gumbaynggirr and Mangarayi are among those Stassen (1985) places in his identical "conjoined comparative" category (Bowler 2016: 5).

Related data in Schweiger (1984, 2005) further support the conclusion that Australian languages are [–DSP] by default. As mentioned above, in his survey of comparative constructions in 21 Australian languages, only Diyari appears to exhibit the capacity to compare nominal or verbal predicates; the remainder draw comparisons only between gradable adjectives, in line with Bowler's (2016) hypothesis concerning context-sensitive predicates.

Bowler (2016) further supports her claim by demonstrating the unavailability of particular constructions given in Beck et al. (2009) which are dependent upon ontological degrees. Differential comparatives, comparisons with degree, degree questions, measure phrases, and subcomparatives are all unavailable in Warlpiri; her English prompts for such constructions resulted in degreeless paraphrases by her consultants, as with the differential comparative in (36).

(36) *Japangardi=ji ka nyina kamparru-warnu Jakamarra-ku=ju*
Japangardi=TOP AUX be before-LOC Jakamarra-DAT=TOP
Prompt: 'Japangardi is three years older than Jakamarra.'
Literally: 'Japangardi is before Jakamarra.'

None of the aforementioned constructions are attested by Austin (1978, 2011), nor by Reuther (1899) for Diyari;[13] although other synchronic data (as will be discussed in §3.2) support a [+DSP] setting. We have offered sufficient evidence, however, to conclude that [–DSP] should be the null hypothesis for Australian languages; accordingly, any [+DSP] diagnosis thereof will benefit from a diachronic hypothesis to account for the parametric switch like that offered by Hohaus (2018) for Samoan. Accordingly, our formal analysis of *marla* should integrate, if not explain, the switch from [–DSP] to [+DSP] that we propose for Diyari here.

[13] Data from Reuther & Strehlow (1897) displays the availability of measure phrases and comparisons with a degree.

3.1.2 Quantifying over contexts

As noted above, NPIs appear to be almost entirely absent from Australian languages. In their survey of grammars, Phillips et al. (forthcoming) find only one other, the negative polarity demonstrative *nyambakini* in the Mirndi language Jingulu. Furthermore, Schweiger's (1984, 2005) central observation is that "there is no great evidence for comparative constructions in Australian languages" (2005: 1). Adjectival intensifiers, however, are typologically unremarkable and attested in many grammars.[14] These typological observations offer compelling evidence that the earliest semantic function of *marla*, and thus the starting point of our analysis, is the intensifier.

The observation (explicated in 25) that cognate *arla* in Arabana functions as an intensifier but not as a comparative lexeme or aspectual adverb provides further support for this conclusion.

As stated above, gradable adjectives and intensifiers are well-attested in Australian languages; departing from the degreeful approach in §1.2.1, and building upon the analysis for Motu by Beck et al. (2009) given in §1.2.2, the meaning of such items can be analyzed without ontological degrees. Following Klein's (1980) approach to English "vague predicates" (adopted, in part, by Beltrama & Bochnak 2015 for their analysis of Washo *šému* and Italian *-issimo* and by Bowler 2016 for Warlpiri intensifier *-nyayirni*), we provide a degreeless denotation for the Diyari gradable adjective *pirna* 'big', as evaluated relative to a discourse context c, in (37).

(37) $[\![\textit{pirna}]\!]^c = \lambda x\,.\,x$ counts as big in c

$= \lambda x.x \in \text{pos}_{\textbf{big}}(c)$

$= \lambda x.\textbf{big}_c(x)$

The meaning of *pirna* is context-sensitive; the context c returns a comparison class X_c whose elements determine the evaluation of the predicate. Per Klein (1980: 13), "the comparison class is just the set of things that the participants in a conversation happen to be talking about at a given time", or more formally, "a comparison class is a subset of the universe of discourse which

[14] This claim is supported by Bowern (p.c.).

is picked out relative to a context of use". The vague predicate *pirna* induces a partition on X_c into three sets; the positive extension of *pirna* ($\text{pos}_{\textbf{big}}(c)$; those individuals who are definitely big in c), the negative extension ($\text{neg}_{\textbf{big}}(c)$; those who are definitely not big in c), and the "extension gap" containing those individuals who fail to belong to either extension (Klein 1980: 10, following Kamp 1975). Schmidt et al. (2009) conduct a study to identify which mathematical models will best comport with human judgements regarding gradable adjectives, using English *tall* in constructed contexts to assemble their data; like Klein (1980), however, we will remain agnostic as to the particulars of the partition on X_c except to the extent that it is non-trivial in minimal contexts, a notion explicated in the examples to follow.

The comparison class X_{c_1} in figure 3.1 contains three individuals (α, β, and γ) of different sizes. The partition induced on X_{c_1} by *pirna* is non-trivial in that $\gamma \in \text{pos}_{\textbf{big}}(c_1)$, $\alpha \in \text{neg}_{\textbf{big}}(c_1)$, and β is an element of neither; that is, $\textbf{big}_{c_1}(\gamma)$ is true, $\textbf{big}_{c_1}(\alpha)$ is false, and $\textbf{big}_{c_1}(\beta)$ is undefined.

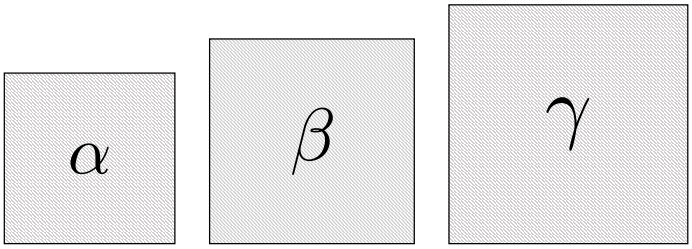


Figure 3.1: The comparison class X_{c_1} returned by c_1

Similarly, for X_{c_2} in figure 3.2, which contains two individuals (α and γ) of different sizes, a non-trivial partition does not produce an extension gap (i.e., $\textbf{big}_{c_2}(\gamma)$ is true and $\textbf{big}_{c_2}(\alpha)$ is false).

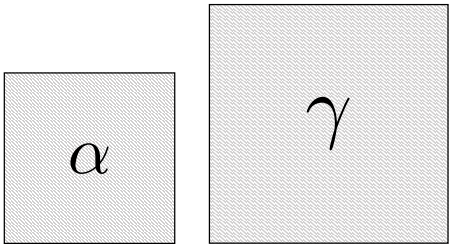


Figure 3.2: The comparison class X_{c_2} returned by c_2

Finally, in the case of X_{c_3} in figure 3.3, which contains two individuals (γ' and γ'') of the same

size, a non-trivial partition fails to place either individual in the positive or negative extension of *pirna*; both belong to the extension gap (i.e., $\textbf{big}_{c_3}(\gamma')$ and $\textbf{big}_{c_3}(\gamma'')$ are both undefined).

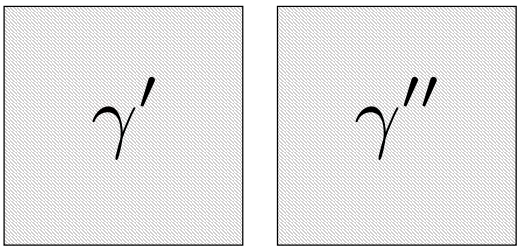


Figure 3.3: The comparison class X_{c_3} returned by c_3

Assuming a denotation for vague predicates like that given in (37) for *pirna*, we can offer a semantics for intensifier *marla* which exploits the context-sensitivity of the predicates it relates. Following Klein's (1980: 25) iterative semantics for English *very*, and incorporating previous approaches by Beltrama & Bochnak (2015) and Bowler (2016) for degreeless intensification, we assume that *marla* realizes universal quantification over contexts, asserting that a vague predicate holds in every possible context c' which is accessible from the discourse context c via some relation R_c; see the denotation in (38).

(38) $[\![\textit{marla}]\!]^c = \lambda P.\forall c'[R_c(c') \rightarrow P(c')]$

Neither Beltrama & Bochnak (2015) nor Bowler (2016) offer an explicit semantics for R_c. In a departure from their approaches, we define it such that it makes accessible any context c' whose comparison class $X_{c'}$ is the set of individuals in the positive extension of P_c (as explicated in 39).

(39) $R_c = \lambda c \lambda c' \,.\, X_{c'} = \text{pos}_P(c)$

In other words, a vague predicate P which is intensified by *marla* in c must be evaluated relative to every comparison class which contains the individuals who already count as P in c, whence the "intensified" truth conditions. Observe the partial derivation for (22a) given in (40).

(40) a. $[\![\textit{marla}]\!]^c = \lambda P.\forall c'[X_{c'} = \text{pos}_P(c) \rightarrow P(c')]$

b. $[\![\textit{ngumu marla}]\!]^c = \lambda x.\forall c'[X_{c'} = \text{pos}_{\textbf{good}}(c) \rightarrow \textbf{good}_{c'}(x)]$

c. $[\![\textit{nhaniya mankarra ngumu marla}]\!]^c = \forall c'[X_{c'} = \text{pos}_{\textbf{good}}(c) \rightarrow \textbf{good}_{c'}(\textbf{this.girl})]$
$= \forall c'[R_c(c') \rightarrow \textbf{good}_{c'}(\textbf{this.girl})]$

Here we have offered a formal proposal for the semantics of *marla* in its function as an intensifier; we will now connect this analysis to its function as a comparative lexeme for adjectival, nominal, and verbal predicates.

3.2 The emergence of comparative morphology

As discussed in §2.2, *marla* is also observed to compare the instantiation of adjectival predicates (a function well-attested within Australian languages) as well as nominal and verbal predicates (a function which seems to be typologically rare; see Schweiger 1984, 2005).

3.2.1 Degreeless comparison

Diyari is not alone in its polysemy between intensive and comparative lexemes; as described in §2.2, the Australian languages Yandruwandha (27), Yidiŋ (32), and Kuku-Yalanji (33) also have lexemes which perform both functions. In none of these languages, however, does the lexeme also have another aspectual meaning like that of *marla*; it is this observation, taken together with the typological considerations discussed in §3.1.2, which motivates our conclusion that comparative function represents the next diachronic stage of *marla*.

Furthermore, in these and other Australian languages, it appears that the comparative occurs only with adjectives, not with nominal or verbal predicates (Schweiger 1984, 2005). Accordingly, we conclude that the comparison of context-sensitive predicates is a natural extension of degreeless intensification, as attested in several other languages, whereas the use of the same lexeme to relate nominals and verbs will necessitate a further stage of analysis for Diyari.

We begin by deriving the comparative use of *marla* with context-sensitive predicates. Recall that, wherever an explicit comparandum is provided, the NP receives locative case marking, as

shown in (26). The Diyari locative has a number of functions which Austin (2011: 127) classifies as as either 'local' and 'non-local' (following Lyons 1968: 295) according to whether the LOC-marked NPs are queried using either a spatial or temporal question pronoun (*warrayari*; *wintha*) or a human or non-human question pronoun (*minhanhi*; *wa̱rangu*), respectively. We will not delineate all of the functions Austin (2011) describes, but we will offer illustrative examples of several 'non-local' uses. In (41a), the locative marks the NP complement of an intransitive verb. In (41b), it marks the NP which accompanies an agent in some activity.

(41) a. *yini* *tyampa-yi* *wilha-**nhi***
2sg.NOM be.fond-PRES women-**LOC**
'You're really fond of women.' (Austin 2011: 131)

b. *nhani* *pirki-yi* *wana-**nhi***
3sgf.NOM play-PRES digging.stick-**LOC**
'She is playing with a digging stick.' (Austin 2011: 132)

In view of these uses, we analyze the contribution of a LOC-marked NP as that of a contextual modifier, following Francez's (2008, 2009) approach to existential predications. We argue that LOC-marking restricts a contextual domain $\mathbb{R}$ such that an individual x is salient in $\mathbb{R}$ as signaled by its membership in the context-dependent comparison class X_c, with the semantics in (42).

(42) $[\![\text{LOC}]\!] = \lambda x \lambda \mathbb{R}.\mathbb{R}_c$ where x is contextually salient in c
$= \lambda x \lambda \mathbb{R}.\mathbb{R}_c$ where $x \in X_c$
$= \lambda x \lambda \mathbb{R}.[\mathbb{R}_{c_x}]$

With this analysis of LOC-marked NPs explicated, we can explain their semantic function in comparative usages of *marla*. (43) presents a simplified version of (26a), with deictic possessives replaced by individual constants. We offer a partial derivation thereof in (44).

(43) *fido pirna* ***marla*** *spot-nhi*

fido big **more** spot-LOC

'Fido is bigger than Spot.'

(44) a. $[\![\textit{pirna marla}]\!]^c = \lambda x.\forall c'[R_c(c') \rightarrow \textbf{big}_{c'}(x)]$

b. $[\![\textit{fido pirna marla}]\!]^c = \forall c'[R_c(c') \rightarrow \textbf{big}_{c'}(\textbf{fido})]$

c. $[\![\underset{\text{-LOC}}{\textit{-nhi}}]\!](\llbracket \textit{spot} \rrbracket) = \lambda x \lambda \mathbb{R}.[\mathbb{R}_{c_x}](\textbf{spot})$

d. $[\![\underset{\text{spot-LOC}}{\textit{spot-nhi}}]\!](R_c) = \lambda \mathbb{R}.[\mathbb{R}_{c_{\textbf{spot}}}](R_c) = R_{c_{\textbf{spot}}}$

e. $[\![\textit{fido pirna marla}]\!]^c(\llbracket \textit{spot-nhi} \rrbracket) = \forall c'[R_{c_{\textbf{spot}}}(c') \rightarrow \textbf{big}_{c'}(\textbf{fido})]$

$= \forall c'[X_{c'} = \{\textbf{spot}, \textbf{fido}\} \rightarrow \textbf{big}_{c'}(\textbf{fido})]$

Under this analysis, the LOC-marked NP *fido-nhi* modifies the contextual relation R_c such that it makes accessible only those minimal contexts whose comparison class contains two members, **spot** and **fido**. The denotation given in (44e) thus asserts that for every c' which returns said comparison class $X_{c'} = \{\textbf{spot}, \textbf{fido}\}$, **fido** counts as big in c'. In view of the nature of non-trivial partitions on comparison classes as laid out in §3.1.2, if **fido** falls within the positive denotation of *pirna* for every partition on said $X_{c'}$, then **fido** must be bigger than **spot**. We relate this intuition to the first (45a) of two "consistency constraints" concerning the interpretation of gradable predicates as formulated by Bochnak (2013), following Klein (1980) and Kennedy (2011).

(45) Bochnak's (2013: 103) consistency constraints (due to Klein 1980; Kennedy 2011):

a. For any ... gradable predicate g and objects x and y in its domain, and for any context c, if g holds of x but not of y in c, then x exceeds y relative to the scalar concept encoded by g.

b. For any ... gradable predicate g and objects x and y ... if there is a context c such that g holds of x but not of y in c, then for any c' such that g holds of y in c', then g also holds of x in c'.

Note that (44e) is no longer evaluated relative to utterance context c and thus makes an assertion which can be seen to hold across all possible contexts of evaluation; in view of the second

(45b) consistency constraint given by Bochnak (2013), if **fido** counts as big relative to **spot** in every minimal context, it is impossible to construct a comparison class such that **spot** counts as big and **fido** does not count as big. That is, for every possible context c', if **spot** counts as big in c', then **fido** also does, as shown in (46a). This conclusion, taken together with the knowledge that in minimal contexts, **fido** counts as big while **spot** does not, means that this intuition can be captured by the proper superset relation given in (46b).

(46) a. $\forall c'[\mathbf{big}_{c'}(\mathbf{spot}) \rightarrow \mathbf{big}_{c'}(\mathbf{fido})]$

b. $\lambda c'(\mathbf{big}_{c'}(\mathbf{fido})) \supsetneq \lambda c''(\mathbf{big}_{c''}(\mathbf{spot}))$

As such, we have formally analyzed the comparative function of *marla* with gradable adjectives as a natural extension of its intensifier semantics. Next, we will motivate and formalize the degreeful reanalysis which accounts for its use with nominal and verbal predicates.

3.2.2 Contextual "collapse" and the switch to degrees

The analysis described above can account for the distribution of *marla* in Diyari comparative constructions in which it relates the instantiation of adjectival predicates. Such an analysis might also be adopted for the other Australian languages (as described in §2.2) which exhibit polysemy between intensive and comparative lexemes. The observation that *marla* also occurs in nominal and verbal comparatives (such as 26c and 26f above), however, shows us that a context-sensitive analysis will not suffice to explain its full distribution. For instance, the conceivable denotation for (26f) given in (47), based on the analysis of the adjectival comparative in (46b), must be rejected.

(47) $[\![26f]\!] = \lambda c'(\mathbf{know}_{c'}(\mathbf{she})) \supsetneq \lambda c''(\mathbf{know}_{c''}(\mathbf{me}))$

Such an analysis would require that the evaluation of a verbal predicate like *nguyama* ('know') be dependent upon context; there is no evidence elsewhere in Diyari, however, which would motivate the treatment of such a predicate as vague. Evidently, we must offer a further reanalysis of comparative *marla* which can account for such uses.

We restate the truth conditions (46b) for (43) below in (48), where **red** and **blue** signify the **subject** and **comparandum**, respectively (in a convention adopted henceforth). We offer a visual representation of the proper superset relation between sets of contexts in figure 3.4.

(48) $[\![43]\!] = \lambda c'(\mathbf{big}_{c'}(\mathbf{fido})) \supsetneq \lambda c''(\mathbf{big}_{c''}(\mathbf{spot}))$

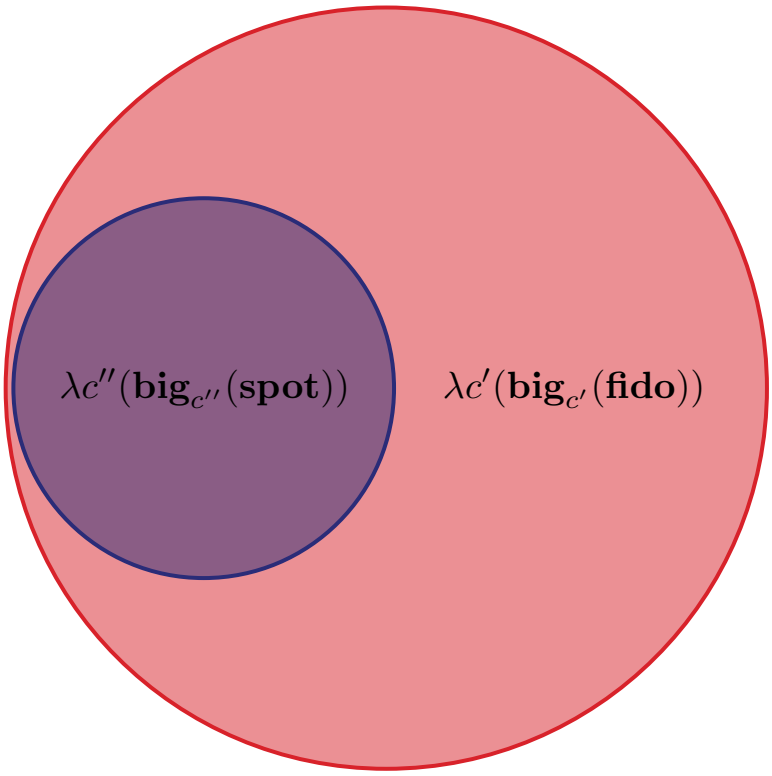


Figure 3.4: Visualizing contextual comparison

In view of the consistency constraints given in (45), this denotation entails that **fido** exceeds **spot** "relative to the scalar concept encoded by" *pirna* (i.e., the property of SIZE); such an assertion exploits the semantic properties of vague predicates which dictate that what counts as big will vary between contexts. Once discourse context c is no longer relevant to the evaluation of the assertion, as in (48), the sets of possible contexts can be "collapsed" to the salient scalar information they contribute: a threshold relative to which the instantiation of the gradable property SIZE is compared, as depicted in figure 3.5.

We argue that gradable predicates like *pirna* are thus reanalyzed to realize degree arguments

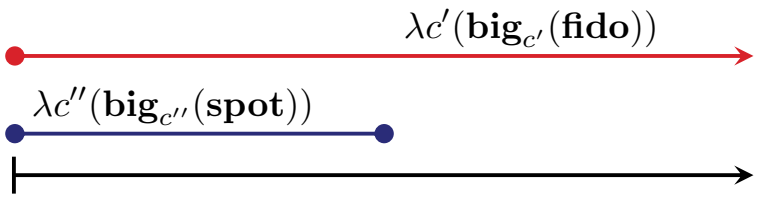


Figure 3.5: Contexts "collapsed" to a scalar relation

of type d, which are truth-conditionally indistinguishable from "collapsed" ontological contexts, as exhibited by the formal correspondence between (48) and (49d); a superset relation between sets of degrees can be rewritten as a relation between their maximal elements, thus accounting for the remainder of the degreeful derivation of (43) provided in (49).

(49) a. $[\![\textit{marla}]\!]_{\langle e,\langle\langle d,et\rangle,et\rangle\rangle} = \lambda x\lambda P_{\langle d,et\rangle}\lambda y.\mathbf{max}(\lambda d.P(d)(y)) \succ \lambda x.\mathbf{max}(\lambda d'.P(d')(x))$

b. $[\![\textit{marla spot-nhi}]\!]_{\langle\langle d,et\rangle,et\rangle} = \lambda P\lambda y.\mathbf{max}(\lambda d.P(d)(y)) \succ \mathbf{max}(\lambda d'.P(d')(\mathbf{spot}))$

c. $[\![\textit{pirna marla spot-nhi}]\!]_{\langle e,t\rangle} = \lambda y.\mathbf{max}(\lambda d.\textsc{size}(d)(y)) \succ \mathbf{max}(\lambda d'.\textsc{size}(d')(\mathbf{spot}))$

d. $[\![\textit{fido pirna marla spot-nhi}]\!] = \mathbf{max}(\lambda d.\textsc{size}(d)(\mathbf{fido})) \succ \mathbf{max}(\lambda d'.\textsc{size}(d')(\mathbf{spot}))$

$= \lambda d.\textsc{size}(d)(\mathbf{fido}) \supsetneq \lambda d'.\textsc{size}(d')(\mathbf{spot})$

Also represented in the posited derivation is a concordant syntactic reanalysis whereby LOC-marking becomes semantically vacuous, signifying only the structural relation between an individual and its comparandum; the locus of comparative function lies solely with *marla*, whose semantic function relating sets (whether of contexts c or degrees d) holds constant across the structural and semantic reanalysis. We provide a degreeful denotation for *marla* in (50) and a visual representation thereof in figure 3.6.

(50) $[\![\textit{marla}]\!] = \lambda x\lambda P\lambda y.\lambda d(P(d)(x)) \supsetneq \lambda d'(P(d')(y))$

This reanalysis accompanies a parametric switch from [−DSP] to [+DSP] (cf. Hohaus's 2018 proposal for Samoan) whereby degree arguments are realized for predicates which encode scalar concepts; this shift accounts for the extension of comparative *marla* to nominal and verbal predicates observed in Diyari. we can thus revise our denotation in (47) using the degree arguments

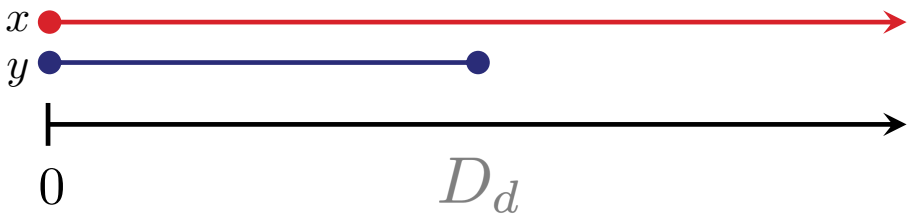


Figure 3.6: Scalar contexts reanalyszed as degrees

realized by verbal predicates, as in (51).

(51) $[\![26f]\!] = \lambda d.\exists s[\textbf{know}(s) \wedge s(d)(\textbf{she})] \supsetneq \lambda d'.\exists s'[\textbf{know}(s') \wedge s'(d')(\textbf{me})]$

Having offered a semantics for comparative *marla* by way of reanalysis of its intensive uses, we will now explain its function as an aspectual NPI through its extension within the scalar domain and subsequent pragmatic constraints which result in presuppositions.

3.3 Becoming an aspectual NPI

As shown in §2.3, *marla* appears under negation as a phasal adverb with CESSATIVE semantics. We will now posit subsequent semantic changes which can account for this distribution, first by explaining its domain extension from degrees to times, and then by describing the pragmatic origins of its aspectual presuppositions and polarity sensitivity.

3.3.1 Scalar extension from degrees to times

We provided a denotation for (26f) in (51) which demonstrated the capacity of *marla* to relate the degree of instantiation of verbal predicates using an explicit, LOC-marked comparandum. We can recall from §2.2, however, that this is not the only means by which a comparandum can be introduced; a comparative utterance which does not contain a LOC-marked NP is instead evaluated relative to some implicit standard, as shown in (28). Of particular relevance to our analysis are examples like (28c) and (28d), repeated below as (52a) and (52b), respectively, wherein a subject is compared to itself across temporal stages.

(52) a. *ngarimata pirnali kajiri* ***morla*** *mikari damana wonti* [28c repeated]

flood big creek **more** deep wash.out AUX.PRES

'A big flood washed out the creek deeper.' (Reuther 1899: 196)

b. *kapi ngato* ***morla*** *kampa-la ngana* [28d repeated]

egg 1sg.ERG **more** gather.FUT AUX.PRES

'I shall gather some more eggs.' (Reuther 1899: 1326)

We relate this phenomenon of temporal displacement to the observation that certain verbal predicates exhibit a particular relationship between the degree d and time t of their instantiation. For EVENTIVE predicates (53a), an increase in degree entails that time has elapsed, whereas for STATIVE predicates (53a), there is no such entailment. This observation is formalized as **degree-time monotonicity** in (54).

(53) a. Diyari EVENTIVE predicates and their English glosses:

morla tapana ('to drink more') (Reuther 1899: 1329)

morla bakuna ('to dig more'; 'to dig deeper') (Reuther 1899: 1329)

morla wapana ('to walk more'; 'to travel further') (Reuther 1899: 1330)

b. Diyari STATIVE predicates and their English glosses:

morla ngundrana ('to think of more'; 'to want more') (Reuther 1899: 1561)

nguyama marla ('to know more') (Austin 2011: 112); [26f]

(54) A verbal predicate P is defined as **degree-time** (d-t) **monotonic** if and only if:
For any two times t_1, t_2 within the runtime $\tau(\varepsilon)$ of some eventuality $P(\varepsilon)$,
$\mathbf{max}(\lambda d.P(d)(t_1)) \succ \mathbf{max}(\lambda d'.P(d')(t_2)) \rightarrow t_1 \succ t_2$

Using our definition of **d-t monotonicity**, we can observe how **d-t monotonic** predicates, when used in constructions like those in 52, permit the reanalysis of the scalar contribution of *marla* from the domain of degrees (D_d) to the domain of times (D_i). If a subject is asserted to

exceed some comparandum stage of itself with regard to the degree of instantiation of a **d-t monotonic** predicate, it entails that the predicate obtains at a time which succeeds the time of obtainment for the comparandum stage.

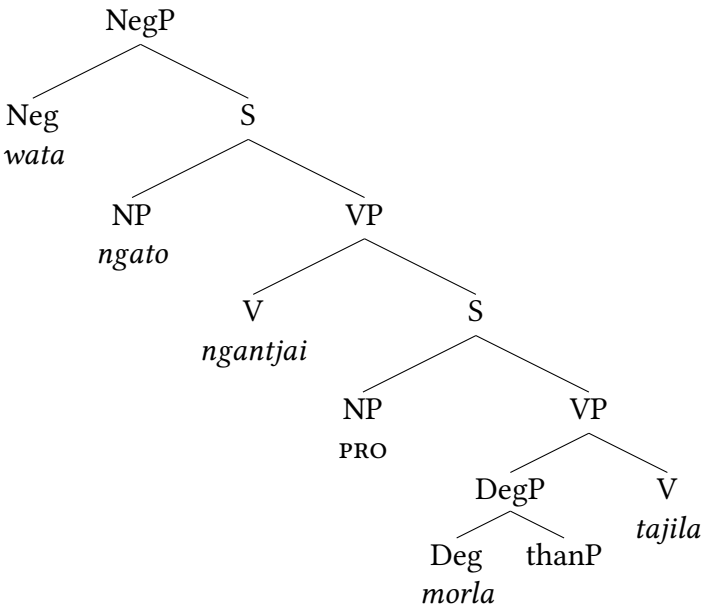
Aspectual uses of *marla*, however, are not restricted to **d-t monotonic** predicates, and we must account for all those uses of *marla* which relate times. We theorize that biclausal sentences like (55) present bridging contexts in which *marla* is reanalyzed to relate times for all types of predicates; two possible syntactic structures are given, disregarding tense.[15]

(55) a. *wata ngato ngantja-i* ***morla*** *taji-la*

not 1sg.ERG want-PRES **more** eat-IMPL$_{ss}$

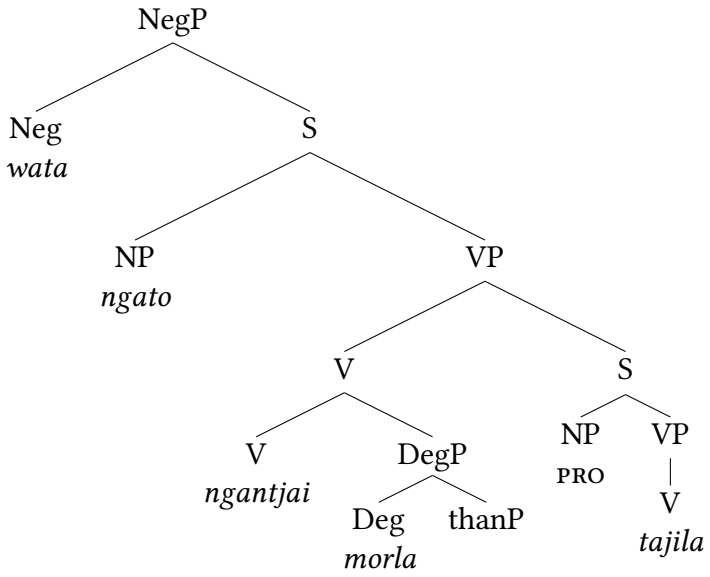
'I don't wish to eat any more.' (Reuther 1899: 1235-36)

b. Structure with *m*[*a*]*rla* predicated of *tajila* ('eat')



[15] Thanks to Milena Šereikaitė for feedback on the syntactic structures posited here.

c. Structure with *m*[*a*]*rla* predicated of *ngantjai* (‘want’)



The structure in (55b) represents a conservative reading of the sentence, prior to reanalysis. Therein, *marla* is predicated of the **d-t monotonic** predicate *tajila* (‘eat’), asserting that the speaker’s wants are such that there are no times of obtainment of **eat** which succeed prior times of obtainment. The possible structure in (55c) represents an innovative reading wherein *marla* is predicated of *ngantjai* (‘want’), asserting that there are no times of obtainment of **want** which succeed prior times of obtainment such that the speaker’s wants are that they eat. It is crucial to observe that the truth conditions for the two have considerable overlap, as intuitions regarding the English paraphrases in (56) will confirm.

(56) a. English paraphrase of (55b):

I want that [I no longer eat]

b. English paraphrase of (55c):

I no longer want that [I eat]

The structural reanalysis of (55b) as (55c) is thereby explained; with this change comes a concordant semantic reanalysis of *marla* such that it relates the times of obtainment of a predicate P to those times of obtainment of P which are prior to reference time t, as formalized in (57).

(57) $[\![\textit{marla}]\!]_{\langle \imath,\langle \imath t,t\rangle\rangle} = \lambda t \lambda P_{\langle \imath t\rangle}.\lambda t'(P(t')) \supsetneq \lambda t''(P(t'') \wedge t'' \prec t)$

We have thus accounted for the extension of *marla* across scalar domains, from degrees to times. These semantics, however, do not predict the presuppositions which are characteristic of CESSATIVE aspect nor the restriction of *marla* to negative polar contexts as exhibited in the data presented in §2.3. Below, we proceed to a pragmatic account of these phenomenon.

3.3.2 Pragmatic origins of aspect and polarity sensitivity

In order to account for the observed distribution of *marla* as an aspectual NPI, we must look more closely at the intermediate semantics for *marla* given in (57); the relation and some of its logical consequences are provided below for both *marla* (58a) and *wata marla* (58b).

(58) a. $[\![\textit{marla}]\!] = \lambda t \lambda P.\lambda t'(P(t')) \supsetneq \lambda t''(P(t'') \wedge t'' \prec t)$

$= \lambda t \lambda P.\lambda t'(P(t')) \nsubseteq \lambda t''(t'' \prec t)$

$= \lambda t \lambda P.\mathbf{max}(\lambda t'.P(t')) \succ \mathbf{max}(\lambda t''.P(t'') \wedge t'' \prec t)$

$= \lambda t \lambda P.\mathbf{max}(\lambda t'.P(t')) \succeq t$

b. $[\![\textit{wata marla}]\!] = \lambda t \lambda P.\lambda t'(P(t')) \not\supset \lambda t''(P(t'') \wedge t'' \prec t)$

$= \lambda t \lambda P.\lambda t'(P(t')) \subseteq \lambda t''(t'' \prec t)$

$= \lambda t \lambda P.\mathbf{max}(\lambda t'.P(t')) \not\succ \mathbf{max}(\lambda t''.P(t'') \wedge t'' \prec t)$

$= \lambda t \lambda P.\mathbf{max}(\lambda t'.P(t')) \not\succeq t$

The truth conditions for *marla* without negation given in (58a) require that the set of times at which P obtains (henceforth, P times) be a proper superset of the set of P times prior to reference time t. A logical consequence of this is the requirement that the set of P times not be equal to or a subset of the set of times prior to reference time t. Figure 3.7 provides a visualization of possible temporal configurations for the obtainment of some eventuality which meet this requirement. Both requirements can be reformulated as scalar relations; the latter, relevant for our analysis, requires that the maximal element of the set of P times (i.e., the endpoint of the eventuality) equate or succeed the reference time t.

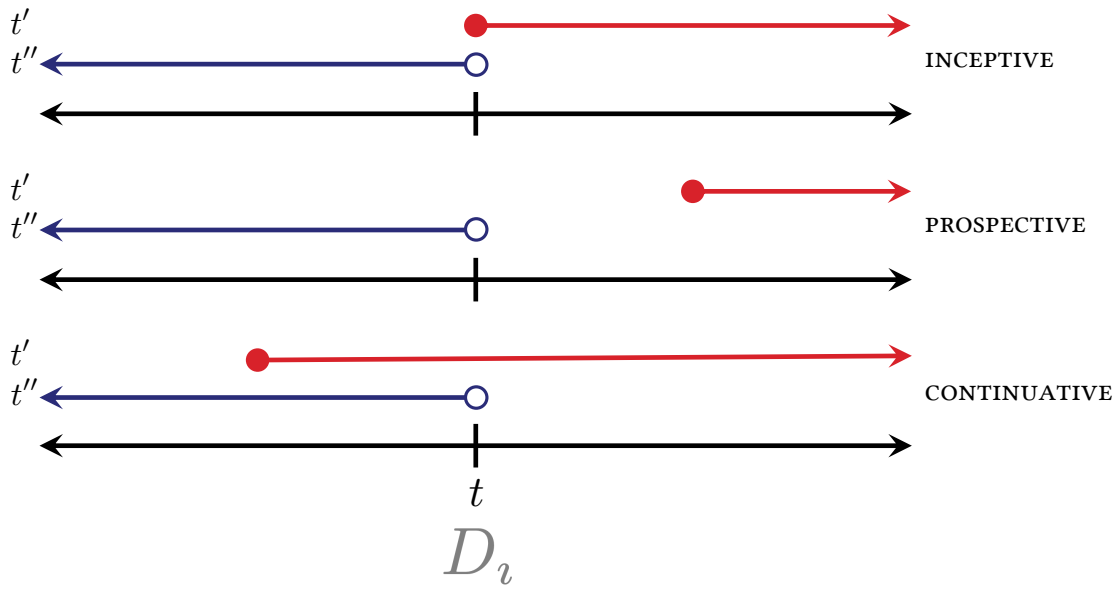


Figure 3.7: Temporal configurations which verify *marla*

The truth conditions for *wata marla* in (58b) are the negation of those for *marla*; the relevant requirement is that the set of P times be equal to or a subset of the set of times prior to reference time t, as visualized in figure 3.8. The relevant reformulation is the requirement that the maximal P time (i.e., the endpoint of P) not equate or succeed t.

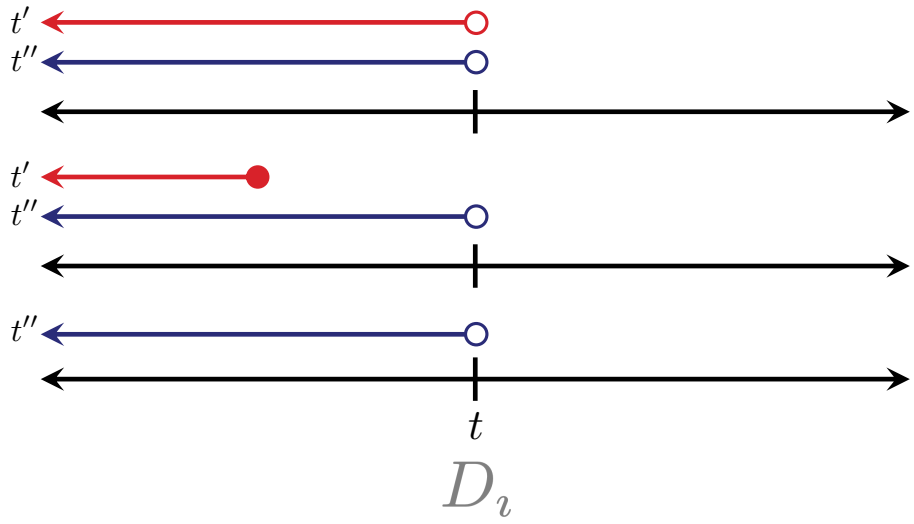


Figure 3.8: Temporal configurations which verify *wata marla*

With these truth conditions explicated, we can offer a pragmatic account of the distribution observed for the phasal adverbial function of *marla*, beginning with its unavailability as an as-

pectual operator outside of negative polar contexts. Returning once more to the semantics for positive *marla* given in (58a) and depicted in figure 3.7, we observe that the restrictions it encodes are weak relative to known aspectual operators.

Per Horn's (1970) analysis of aspectual adverbs, each must encode (i) whether the predicate obtains at reference time and (ii) whether the predicate obtains during some interval preceding or succeeding reference time, utilizing both presupposed and asserted content. The temporal semantics for *marla* in (58a), however, permit configurations in which the predicate does and does not obtain at reference time, as well as those where it does and does not obtain during the interval preceding reference time; that is, *marla* is verified by those configurations corresponding to, for instance, INCEPTIVE, PROSPECTIVE, and CONTINUATIVE aspect, as shown in figure 3.7. The only constant temporal restriction is that the predicate obtain at some time succeeding reference time. We thus argue that the underinformative temporal semantics of positive *marla* preclude the presuppositionalization necessary for the diachronic development of an aspectual adverb.

The temporal semantics of *wata marla*, as shown in (58b) and figure 3.8, are more informative. All those temporal configurations which verify *wata marla* are such that the predicate does not obtain at reference time, recalling Horn's (1970: 321) analysis of the asserted content of English adverbs *yet* and *anymore*. Furthermore, *wata marla* imposes the restriction that, should the predicate obtain at all, it must obtain only within the interval preceding reference time. The semantics are also compatible with particular temporal configuration such that the predicate never obtains, albeit as a consequence of vacuous truth; the empty set is a subset of every set, and the maximal element of the empty set is undefined. We accordingly argue that this temporal configuration is pragmatically blocked, resulting in the presupposition that the set of times of obtainment of the predicate is non-empty, entailing in turn the presupposition that the predicate obtains for some time preceding reference time as well as the assertion that the predicate does not obtain at reference time, as represented formally in (59).

(59) $[\![\textit{wata marla}]\!] = \lambda t \lambda P : \lambda t'(P(t')) \neq \varnothing \,.\, \lambda t'(P(t')) \subseteq \lambda t''(t'' \prec t)$

$= \lambda t \lambda P : \exists t'[t' \prec t \wedge P(t)] \,.\, \neg P(t)$

This final denotation is identical to that given by Horn (1970: 321) for English *anymore*; as such, we have successfully derived the CESSATIVE adverbial meaning of *marla*, as well as its distribution as an NPI, by extending the domain of the scalar relation encoded by its comparative form and restricting its function by way of pragmatic constraints on informativity.

Our diachronic analysis of Diyari *marla* is thus complete; we have accounted for its functions as an intensifier, comparative, and aspectual NPI by exploiting the formal correspondence therebetween (namely, the proper superset relation $\supsetneq$ which is encoded in the semantics of each synchronic stage) and identifying those contexts and utterances which have permitted reanalysis of its meaning throughout its unique trajectory.

We will now proceed to a brief discussion of possible cross-linguistic implications of our analysis and directions for further research before offering a few concluding thoughts.

4 Consequences and conclusion

In the previous section, we proposed a diachronic analysis for Diyari *marla* which illustrates the formal correspondence between intensive, comparative, and adverbial (CESSATIVE) semantics. We theorize that particular elements of our proposal may have consequences for the analysis of cross-linguistic semantic phenomena. Specifically, we relate the recruitment of the Diyari comparative lexeme to perform CESSATIVE adverbial work in negative contexts to similar functional reanalyses in other languages. We also consider the formal implications which the ontological status of degrees may have on NPI distribution. We will end with a brief conclusion.

4.1 Comparative recruitment

Diyari is not alone in its recruitment of the comparative for CESSATIVE aspectual work. We will present data from several languages which comport with our analysis for Diyari *marla* as well as that from other languages which may prove problematic.

4.1.1 Cross-linguistic correlates

There are a number of languages, including English (60), German (61), and French (62), which exhibit polysemy between some comparative lexeme and an aspectual NPI like *marla*.

(60) English [*any*]***more***

a. He likes linguistics **more** than me.

b. He doesn't like linguistics any**more**.

c. *He likes linguistics any**more**.

(61) German ***mehr***

a. *er isst* ***mehr*** *als ich*

3sg eat *mehr* than 1sg

'He eats more than I do.'

b. *er lebt nicht* ***mehr***

3sg live NEG *mehr*

'He isn't alive anymore.'

c. **er lebt* ***mehr***

3sg live *mehr*

Intended: 'He is still alive.'

(62) French ***plus***[16]

a. *j'en veux* ***plus***

1sg.PART want *plus*

'I want (some) more.'

b. *je ne crois* ***plus***

1sg NEG believe *plus*

'I don't believe anymore.'

c. #*je crois* ***plus***

1sg believe *plus*

Intended: 'I still believe.'

Pending a further synchronic investigation (or, using a methodology impossible for Diyari, a diachronic corpus study), it is appealing to tentatively observe that our analysis for comparative

[16] Thanks to Josh Phillips for the French sentences and glosses.

and CESSATIVE *marla* could be adapted to these languages with relative ease, as the distribution of the relevant lexemes is remarkably similar. To our knowledge, no other diachronic account of this polysemy has been presented. Vandeweghe (1986) comes the closest by far, writing:

> The comparative semantically operates much like an existential quantifier, in that it quantifies over moments for which p holds, but its comparative morphology indicates that they are to be seen in relation to comparable moments which have preceded the observation point t_0. (Vandeweghe 1986: 228)

His account, however, does not offer a compelling explanation as to why such adverbials should so frequently be restricted to negative polar contexts.

Wegner et al. (2022) note the influence of German on Diyari (as is also characterized in §1.3.2); though not elaborated here, subsequent research could more closely investigate the role which language contact may have played in the semantic and structural changes we have posited, particularly that uniting comparative and CESSATIVE function (in view of the German data in 61).

4.1.2 Potentially problematic items

There are related comparative constructions in some languages and dialects for which our present diachronic analysis does not seem to make the correct predictions.

In some languages, the lexeme which is recruited for CESSATIVE function is not the general comparative, but the comparative form of a gradable adjective which encodes a specific property; examples from Vandeweghe (1986: 228) include Serbian *виши* 'higher' and Russian *больше* and Romanian *mai*,[17] 'bigger'. This is also seen with the English construction [*no*] *longer*. In order to account for the aspectual uses of such words, we will need to revise our analysis of the extension from the domain of degrees (D_d) into times ($D_\imath$), perhaps using bridging contexts wherein the verbal predicate varies along the relevant scalar dimension (e.g., HEIGHT, SIZE, LENGTH).

In other languages, the aspectual adverb derived from the comparative is not an NPI. Turkish

[17] Bende-Farkas (2021) observes that the particle *még* in Transylvanian varieties of Hungarian exhibits a similar distribution and attributes this to contact with Romanian.

artık and Armenian *aylevs* contribute CESSATIVE and INCEPTIVE aspect in negative and positive polar contexts, respectively (Vandeweghe 1986: 288). Interestingly, these items exhibit the semantics given by Horn (1970: 320) for the "non-polarity" *anymore* observed in certain dialects of English. In such cases, the negation appears to scope over both the asserted and presupposed content of the adverb; further research might develop a diachronic account to explain the synchronic differences in polarity sensitivity across languages and dialects.

4.2 Degrees and polarity

As discussed previously, a study by Phillips et al. (forthcoming) of Australian reference grammars has thus far identified only two NPIs, Diyari *marla* and Jingulu negative polarity demonstrative *nyambakini*. That NPIs should be so sparsely distributed among the languages of an entire continent, especially in view of claims in the literature about their universality or near-universality across languages of the world, is a fascinating typological observation.

It may be merely coincidental that Diyari, one of the two languages with documented NPIs, is also typologically unique among Australian languages in its parametric diagnosis as [+DSP] (§1.2.2). We are inclined to argue, however, that this is no coincidence at all, particularly in view of the requisite presence of ontological degrees for the later stages of our analysis for *marla*.

We connect this preliminary hypothesis to work by Israel (1997, 1998, 2011) in which he posits a "Scalar Model of Polarity" whereby NPIs are taken to encode scalar values; their licensing is a function of the scalar inferences permitted by different environments (as discussed in §1.2.3).

Perhaps there is a broader typological correlation between ontological degrees (i.e., the overt semantic realization of scalar properties) and the phenomenon of polarity sensitivity. Further research could investigate this possibility through a diagnosis of the DSP setting for Jingulu, which we would expect to be positive (unlike most Australian languages) if degree semantics are required for the presence of NPIs. Under a different approach, we could build upon ongoing work by Phillips et al. (forthcoming) by searching for evidence of NPIs in languages previously

diagnosed as [–DSP] (i.e., Motu by Beck et al. 2009; Fijian by Pearson 2009; Washo by Bochnak 2013; Warlpiri by Bowler 2016). We could also supplement the diachronic corpus study by Hohaus (2018) wherein she posits a shift from [–DSP] to [+DSP] by investigating whether any changes in its polar lexicon occurred alongside or following the parametric switch.

Evidently, there remain numerous opportunities to further investigate the cross-linguistic correspondence between the degree arguments introduced by comparative morphology, the temporal restrictions encoded by aspectual adverbs, and the scalar properties of polarity sensitivity.

4.3 Conclusion

This thesis has proposed a formal semantic analysis accounting for the unique functional polysemy of the Diyari word *marla*. In order to illuminate its diachronic pathway, we first reviewed the semantic concepts (§1.2) and the genetic and sociohistorical facts concerning Diyari (§1.3) which would prove relevant to our analysis. We then offered data from Diyari (and other Australian languages) to illustrate (and situate) the three primary functions of *marla* as an intensifier (§2.1), comparative (§2.2), and aspectual NPI (§2.3). Subsequently, we told our diachronic story for *marla* (§3), identifying formal bridges between its attested synchronic meanings. Finally, we signaled the need for further research exploring the robust, cross-linguistic polysemy of comparative and aspectual lexemes (§4.1) and the proposed semantic kinship between degrees and polarity (§4.2).

We hope this thesis is but the first element in a new domain of semantic inquiry which will reveal much more about the meaning of *more* in languages across Australia and around the world.

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