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On the emergence of an aspectual NPI: comparative polysemy & the case of Diyari *marla* *

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Abstract Cross-linguistically, morphological material that expresses comparison (e.g. *more*) appears to be colexified with aspectual ("phasal") adverbs that, under negation, encode the termination of some eventuality (CESSATIVEs, e.g. **(not)... anymore*). Using data drawn from the Diyari language of central Australia, we propose a diachronic trajectory for the lexical item *marla* 'very, truly'. This word first developed a comparative semantics and, subsequently, a cessative reading restricted to negative polar contexts. This proposal moves us towards a lexical entry that permits for the unification of comparative and aspectual readings for items which exhibit this polysemy and—on the basis of robust pragmatic principles—predicts their polarity-sensitive distribution cross-linguistically.

Keywords: comparatives, aspect, NPIs, polarity sensitivity, scalarity, degrees, intensification, adverbs

1 Introduction

The notion of "phase quantification" has attracted considerable attention within semantics/pragmatics and linguistic typology, particularly regarding the meaning contribution of those expressions which realise temporal phase operations (i.e. *phasal adverbs*) and how these semantic domains are lexicalised differently across languages. Operators that perform "phase quantification" are generally modelled as predicates that encode transitions between possible temporal/sequential transitions between the truth and falsity of a predicate along a given scale (i.e. at a given

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time;[1] Löbner 2019: 229, also Horn 1970; Doherty 1973; Muller 1975; van Baar 1997 a.o.). In this paper, we provide a case study of the Diyari (Pama-Nyungan) comparative-cessative *marla* in order to explore the paths by which this polysemy arises and to interrogate why these items appear to exhibit robust polarity sensitivity.

1.1 Background: the meaning of phasal adverbs

Horn (1970) models pairs of phasal adverbs as encoding a *presupposition* (projecting through negation) that some property respectively holds in the future or the past of reference time,[2] and asserts that it holds at reference time. Lexical entries capturing these intuitions are given in (1) and examples (including one demonstrating interaction with negation) provided as (2), and the general principles are schematized in Figure 1.

(1) Horn's lexical entries for (pairs of) phasal adverbs (1970)

a. $[\![\ \textit{already/yet}\ ]\!] = \lambda P \lambda t : \exists t' [t' \succ t \wedge P(t')]\ .\ P(t)$

b. $[\![\ \textit{still/anymore}\ ]\!] = \lambda P \lambda t : \exists t' [t' \prec t \wedge P(t')]\ .\ P(t)$

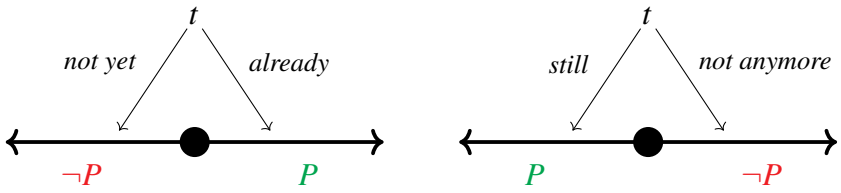
(2) a. $[\![\ \textit{it's already raining}\ ]\!] = \lambda t : \exists t' \left[t' \succ t \wedge [\![\ \textit{it's raining}\ ]\!](t')\right]\ .\ [\![\ \textit{it's raining}\ ]\!](t)$

b. $[\![\ \textit{she doesn't swim anymore}\ ]\!] = \lambda t : \exists t' \left[t' \prec t \wedge [\![\ \textit{she swims}\ ]\!](t')\right]\ .\ \neg [\![\ \textit{she swims}\ ]\!](t)$

An important (if controversial) observation due to Löbner (1986; 1989 *et seq*), is that, as with other quantificational elements in natural language (construed as second-order predicates in the sense of Barwise & Cooper 1981), lexicalisation patterns of phasal adverbs give rise to a (version of a) "square of opposition" with (possible) elements related by internal and external negation (fig. 2). A consequence of this view is a conception of ALREADY- and STILL-type operators as logical DUALS of one another; this follows from the relationship between the sentences in (3). In order to better distinguish metalinguistic labels for these operators from the English lexical items that they correspond to, we adopt the terms IAMATIVE (IAM) and CONTINUATIVE (CNTV).

1 Relevant literature of course additionally discusses the pervasive, additional non-temporal usage of these expressions, e.g. König 1977; Michaelis 1993; Ippolito 2007; Klein 2018; Beck 2020 a.o.

2 Löbner 1989 (178*ff*) provides an interval semantic treatment in order to explicitly restrict the quantificational domains of these operators. On his account, the pair *not yet/already* presuppose an anterior $\neg P$ state whereas *still/not anymore* presuppose an anterior P state.



(a) adverbials targeting an INCEPTIVE scale — ALREADY and YET — are sensitive to the start time of an event

(b) adverbials targeting a DURATIVE scale — STILL and ANYMORE — are sensitive to the end time of an event

Figure 1 Temporal schemata representing the meaning contribution of phasal adverbs, freely adapted from Löbner (1989: 174–5) and incorporating insights from Israel (1997).

(3) A unified treatment of phasal adverbs as related by internal & external negations ($[\![\textit{off}]\!] = \neg[\![\textit{on}]\!]$, translated/adapting from Löbner 1989: 172, 1999: 56ff)

CONTEXT. 'Could you turn the light (back) on?'

a. *the light's* ***already*** *on* — IAM$P(x)$

b. *the light is****n't*** *off* **anymore** — $=$ CESS $\neg P(x)$

c. $\neg\big[$ *the light is****n't*** *on* ***yet*** $\big]$ — $= \neg$CUNC$P(x)$

d. $\neg\big[$ *the light's* ***still*** *off* $\big]$ — $= \neg$CNTV$\neg P(x)$

As we suggest above, this treatment of the semantics & pragmatics of phasal adverbs—*viz.* that the meanings of these four items relate to each other in terms of an Aristotlean square of opposition—has run up against significant problems (e.g., Klein 2018; Mittwoch 1993 a.o.). Significantly, van der Auwera (1993) claims that it is unclear that the entailment relation between, for example (3a) and (d), is symmetric: a crucial prediction of the duality hypothesis. In effect, van der Auwera's claim relies on the observation that, within the A corner (see Fig. 2), *already* competes with adverbs like *finally* (3e).[4]

3 The Vietnamese item *na* is available only on an ADDITIVE reading ('I want more eggs') *to the exclusion* of a COMPARATIVE one ('She's more intelligent than him'). For the purposes of the current paper, we conflate these two categories (although see Thomas 2018).

4 A similar observation about the distribution of French aspectual adverbs pairs *toujours/encore* and *déjà/enfin* is found in Muller 1975.

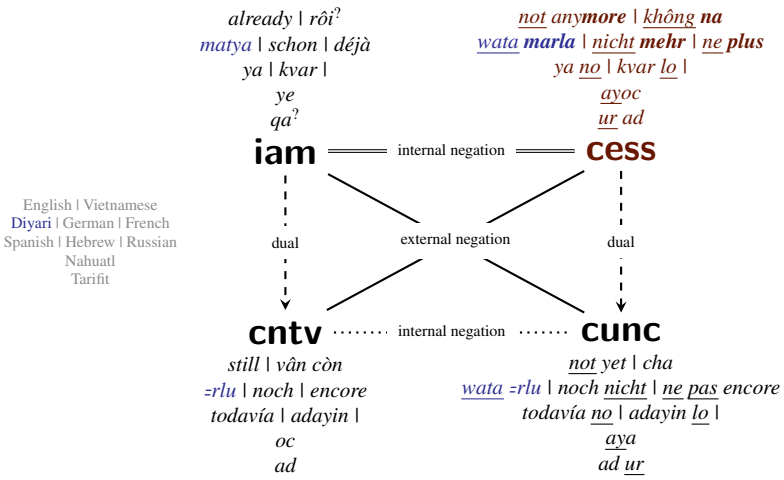


Figure 2 Opposition relations between phasal adverbials and differences in lexicalisation patterns across a number of languages—each line represents a different strategy for organizing this semantic domain.
Negative elements are underlined, comparative elements in bold face.[3]

(3) e. *the light's **finally** on* $\overrightarrow{\not\leftarrow}$ $\neg\text{CNTV}\neg P(x)$

For van der Auwera, then, while (a) and (e) *both* entail (3d), the reverse entailment doesn't hold, evincing an asymmetry in their meanings—namely an additional meaning component in *already/finally* that is absent in *still*.

In response to these data, van der Auwera's formulation of a "double alternative" hypothesis (1993)[5] locates the additional meaning component in an appeal to some salient "counterexpectational" situation: the distinction between *already* and *finally* is basically that the predicate is understood to obtain earlier than expected in the former case, as opposed to later in the latter case. A similar distinction in the continuitive domain exists in a number of languages of Europe (e.g. *(pas) ncore* vs. *toujours (pas)* in French, *not yet* vs *still not* in English).

Van der Auwera goes on to suggest that the considerable amount of cross-linguistic variation in terms of lexicalisation strategies can be predicted on the basis

5 Van der Auwera adduces other data in his dismantlement of the duality-square view of phasal adverbials, including a claim that ALREADY-type items additionally encode *inchoativity* — that is, *contiguity* between a negative and positive phase — and thus contrast with the *continuitive* semantics of STILL/YET/ANYMORE-type items. This is challenged in van Baar (1997: 36*ff*). Additionally, it is pointed out that, cross-linguistically, the derivation of CUNCTATIVE (*not yet*-type) marking from CONTINUITIVES (as in the Nahuatl situation, fig 2) is reported to be extremely rare (see also van Baar 1997), a fact not apparently predicted by the Duality Hypothesis (van der Auwera 2021).

of divergent "ways of conceiving of the phasal domain" (van der Auwera 1998: 59).

1.2 The scalar model of polarity

Of especial relevance for the current analysis, the 'Scalar model of polarity'—as formulated by Israel (2011, in addition to his and others' earlier work)—provides crucial additional insights. This treatment focuses on nature of the lexical domain occupied by phasal adverbs (his "aspectual operators") as an "inherently scalar domain [in that it] depends on the way an eventuality is construed with respect to time, [...] itself a scalar phenomenon," (Israel 2011: 151).

On this style of analysis, then, sentences involving phasal operators 'involve the evaluation of an *overtly expressed* text proposition [in the sense of Kay 1990] with respect to a presupposed *scalar norm* or background expectation' (Israel 1998: 125, italics added). These propositions are related with respect to an INCEPTIVE scale—ordering them in terms of relative earliness of the start time of the eventuality being described—or a DURATIVE scale—which orders them in terms or the lateness of their endtimes (compare Fig. 1).

Israel's scalar model account hinges on conceptualising propositions with respect to (a) their position along a given scale—their Q-values; in addition to (b) their notional INFORMATIVITY: construed as proportional to the number of propositions within the model that they entail—their -values (Israel 2011: 81). Particular expressions, then, can be understood as conventionally encoding a high I-value (*emphatics*, marking a proposition that entails the scalar norm) or a low one (*attenuators*, marking a proposition entailed by the scalar norm), effectively situating their prejacent within a scalar model.

On an Israel-style analysis, then, *still* and *anymore* both situate their prejacent high on a *durativity* scale—*i.e.* the eventuality described is marked as "lasting later" than some scalar norm. The difference between these items is located in a difference in their informativity—emphatic *still* is licensed when the prejacent entails some contextual norm, whereas attenuating *anymore* is licensed when it is entailed by the norm. For Israel, these features of the items' lexical semantics predict their polarity sensitivity behaviour:

> ...in order for its [prejacent] to count as emphatic, *still* requires a context allowing inferences from high to low Q -values; *anymore*, in order for its [prejacent] to count as [attenuating], requires a context in which inferences run from low to high Q-values. (Israel 1997: 223)

This contrast—and how it relates to the polarity sensitivity of these expressions—is shown in (4–5) below. In (6), the felicity of both adverbs is expected, given the non-monotonic entailing behaviour of questions.

(4) Emphatic *still* requires that its prejacent entail some contextually-retrieved "lateness" norm (adapting from Israel 1997: 224)

a. *Sam was **still** cooking at midnight.*
PREJACENT. Sam was cooking as late as midnight
⇓
NORM. Sam was cooking as late as 9 [*sc.* some more reasonable endtime]

b. **Sam wasn't **still** cooking at midnight.*
PREJACENT. Sam wasn't cooking as late as midnight
⇓̸
NORM. Sam wasn't cooking as late as 9

(5) Attenuating *anymore* requires that some contextually-retrieved "lateness" norm entails its prejacent

a. **Will was asleep **anymore**.*
PREJACENT. Will was asleep as late as noon
⇑̸
NORM. Will was asleep as late as 9

b. *Will wasn't asleep **anymore**.*
PREJACENT. Will wasn't asleep as late as noon
⇑
NORM. Will wasn't asleep as late as 9

Importantly, the contrast that obtains between the sentences in (6)—namely that (a) is reported as encoding a degree of mirativity (or judgmentalism) that is absent in (b)—can be understood as a function of *still*'s emphatic character: the lateness of Gladys's pot-smoking is taken to outstrip some contextual norm.[6]

(6) Felicity of *still* and *anymore* in questions (Israel 1997: 224)

a. *Does Gladys smoke pot **still**?*

b. *Does Gladys smoke pot **anymore**?*

2 Data: comparative/cessative colexicalisation

According to the considerable amount of typological work on phasal polarity, expressions that encode comparison represent perhaps the most productive source

6 Israel (1997: 226) further supports this claim with the observation that *anymore* (and *yet*) appear to be degraded under factive adversatives, unlike their emphatic counterparts: *it's surprising that Gladys smokes (still/*?? *anymore)*.

of cessatives cross-linguistically (see van Baar 1997; van der Auwera 1998; Vandeweghe 1986).The colexicalisation of COMP and CESS expressions is exhibited in languages from many different families, including Albanian, Dutch, French, Georgian, Irish, Lingala, and Vietnamese (some examples are given in figure 2). In many (most?) of these languages—including English and French—a CNTV reading of this morphology is unavailable. That is, the aspectual reading of comparative morphology is restricted to negative polar contexts. This is illustrated for French in (7–8) below (see also van der Auwera 1998: §4.3.1 for a range of examples from other European languages):

(7) *plus* in additive function

a. *J'en veux* ***plus***
1s=PART want more
'I want (some) more'

b. *Je (n')en veux* ***plus***
1s NEG=PART want more
'I don't want (any) more.'

(8) *plus* in aspectual function (unavailable in positive polar environments)

a. # *Je crois* ***plus***
1s believe more
✗'I still believe.'

b. *Je (ne) crois* ***plus***
1s NEG believe more
'I don't believe #(any)more.'

In other languages, comparative morphology is "liberated" from these licensing conditions. For example, Romanian comparative *mai* (from Latin *magis* 'more, greater') has a cessative function (e.g. when co-occurring with *nu* 'NEG') but can also occur in positive contexts as a continuitive. Durative (as opposed to additive/iterative) uses seem to emerge when the interpretation is stative (Donazzan & Mardale 2010: 257).[7]

(9) Durative uses of Romanian comparative *mai* are polarity insensitive

a. *Ion (nu)* ***mai*** *merge la bibliotec*
John NEG *mai* go to library
'John still goes to the library (doesn't go to the library anymore).'

b. *Ion (nu)* ***mai*** *e bolnav*
John (NEG) *mai* is sick
'John is still sick/isn't sick anymore.' (Donazzan & Mardale 2010)

7 Li 2023 and Thomas 2018 represent different proposals for a formal typology of COMP–ADD–CNTV polysemy.

Similar diachronic trajectories (in which cessative morphology loses polarity sensitivity and develops a continuitive use) are reported for Albanian, Tongan, Bauzi and Ewe in van Baar 1997 (190–1).

Additional examples come from van der Auwera (1998: 51, 100), who cites cross-linguistic evidence to argue for a cycle where comparative morphology is recruited to encode cessative meanings before apparently developing an IAMATIVE (*already*-type) function in positive contexts (e.g. for numerous Balkan languages, see also van Baar 1997: 184–7).[8]

A final example come from English "positive *anymore*"[9] for relevant dialects of US English (as investigated by e.g. Horn (1970); Hindle & Sag (1973) a.o, see also van der Auwera 1998: 32). In these varieties, *anymore P* appears to assert that *P* holds at reference time *t*, while giving rise to a presupposition that $\neg P$ at a time prior to *t* (a schema that resembles our IAMATIVE semantics).

3 Understanding Diyari *marla*

The Karnic subgroup of Pama-Nyungan comprises approximately 10 languages spoken in the Lake Eyre Basin region of Central Australia (Bowern 2023: lxxxviii, see also Breen 2007). In the 19th Century, German Lutheran missionaries "[chose] Diyari as their language of evangelisation" (Hoffman 2008: 44). Diyari's adoption as a "mission language" by missionaries in Bethesda and Hermannsburg had as consequences both the development of vernacular literacy among the indigenous population in addition to a significant amount of structural standardisation and concomitant grammatical and lexical change, relative to pre-contact varieties. Further, given its extended contact history, Diyari is unusual in the Australian context for being the subject of descriptive and sociolinguistic attention dating back to the middle of the nineteenth century; see Kneebone 2005; Stockigt 2016; Moore 2019 for recent historiographical work.

Language data is drawn from several sources. Austin (1981) is a reference grammar—a publication of his 1978 dissertation and substantially updated in 2011 on the basis of new material. It draws on a combination of work with older sources and fieldwork with Diyari speakers, particularly Ben Murray. In the 19th Century, descriptive materials, including a dictionary and comparative grammar, were com-

8 In Serbian for example, *ve* 'already'— apparently deriving from a older Slavic comparative—has displaced the common Slavic iamative **(ju)-e*. Subsequently, an innovative comparative—*vie* 'more, taller' (cf. proto-Slavic **vyj* 'higher')—has been recruited into cessative function (e.g. ***Vie*** *o tome* ***ne*** *govorimo.* 'We don't speak about that anymore.')

9 That, is the use of *anymore* in sentences like %***Anymore****, we eat a lot of fish.* or %*The streets of the city are very crowded* ***anymore***. These uses are also attested in Irish Englishes (which have been hypothesised as potential sources for the expansion of positive *anymore* through the midwest.)

piled and distributed as Reuther & Strehlow (1897).[10]

We identify three major functions for *marla*; labelled here as the INTENSIFIER (shown in 10), the COMPARATIVE (11) and the CESSATIVE (12) uses.

(10) As an intensifier, commonly translated as 'truly' or 'very'

nhani-ya *mankarra* *ngumu* ***marla***
3sfsdx-near girl.NOM good *marla*

'This girl is very good.'

(11) In comparative constructions, meaning 'more'

ngakarni *kinthala* *pirna* ***marla*** *yingkarna-nhi*
1s.DAT dog.NOM big *marla* 2s.DAT-LOC

'My dog is bigger than yours.'

(12) As an aspectual (phasal) adverb, when occurring in negative polar contexts

a. *wata* ***marla*** *nganhi* *yawarra* *yatha-yi*
NEG *marla* 1s language speak-PRS

'I don't speak the language any more.'

b. *karna* *wata* ***marla*** *ngama-yi* *nhingki-rda*
person NEG *marla* sit-PRS here-VICIN

'People don't live here anymore.'

Explicit comparative morphology is all but absent in other Australian languages. Comparative strategies across the continent commonly involve conjoined/juxtaposed clauses (this fact is further discussed below, see also Schweiger 1984/2005). Additionally, a striking result of recent and in-progress work is the near absence of polarity sensitivity in the lexicons of Australian languages. When phasal adverbs are introduced in translation, they tend to correspond with morphology that performs an apparently information-structural function (e.g. focus-marking).

These generalisations extend also to Arabana, a Karnic language spoken in the Lake Eyre Basin and Diyari's western neighbor. Lexical material that is identifiably cognate with *marla* appears to be associated with only the "intensifier"-type

10 This work was translated into English by Philip Scherer in the 1970s and published by the then Australian Institute for Aboriginal Affairs. We gratefully acknowledge Peter Austin's assistance in interpreting the older Diyari materials.

readings shown in (13).[11]

(13) *Ngurku* ***arla*** *nhiki puntyu-kithiya* ... [Arabana: Karnic]
good truly this meat-EMP

'This meat is really excellent...' (Hercus 1994: 174)

3.1 Intensification

As shown in (10) and below in (14), Austin (2011: 40) discusses *marla*'s function as an intensifier for adjectives.[12]

(14) *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)

In light of the observations mentioned above regarding the apparent absence of degree expressions (including explicit comparative morphology) in most Australian languages (see Schweiger 1984; Bowler 2016), we propose a semantics for *marla* on its intensifier reading that is compatible with a negative setting of the degree semantics parameter (DSP)—that is, a "degreeless" semantics (see Beck et al. 2009, Bochnak 2013 a.o.)

In order to implement this proposal, we assume Klein's (1980) "vague predicate" style of analysis, where the extension of a gradable adjective is analysed as a partial function which is evaluated relative to a discourse context, as in (15) below:

(15) $[\![pirna]\!]^c = \lambda x.\mathbf{big}_c(x)$
In a given discourse context c, *pirna* refers to the set of things that count as **big** at c (i.e. the positive extension of **big**, given c)

In (15), the discourse context provides a comparison class (which we notate $\sim_c$) — the set of entities being compared. A given vague predicate P, then, establishes

11 Arabana *arla* also appears multiple times in Hercus 1994 as a stative predicate with an apparent meaning of 'true, visible, manifest'. Arabana has initial nasal deletion as a regular sound change, though the regularity is sometimes obscured by subsequent loanwords. Note that none of the other Karnic languages, to our knowledge, have a cognate of *marla, but that is not particularly surprising given the high turnover of these adverbs across Pama-Nyungan languages.

12 Austin additionally identifies a similar intensifying function for *pirna* 'big' when this item co-occurs with nouns and other predicates.

a partition over $\asymp_c$: a positive and negative extension (both of which must be non-empty) and an "extension gap"—those items in $\asymp_c$ for which it's unclear whether they count as P or not-P.

Intensifier morphemes then are taken to invoke an accessibility relation $\mathscr{R}$ which makes available a set of alternative discourse contexts $\mathscr{R}(c)$.[13] Again following Klein (1980: 25), this can be understood as the set of contexts which make available the positive extension of the predicate at the matrix context as the comparison class—that is $\mathscr{R}_c = \{c' \mid \asymp'_c = \mathsf{pos}_{\mathbf{good}}(c)\}$.

(16) a. $[\![\textit{marla}]\!]^c = \lambda P.\forall c'[\asymp_{c'} = \mathsf{pos}_P(c) \rightarrow P(c')]$

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

Crucially, this "iterative" semantics for intensification captures the intuition that for any arbitrary c, $[\![P]\!]^c \supset [\![\textit{marla } P]\!]^c$. We can now provide truth conditions for (10), on the basis of the "degreeless intensification" semantics for *marla* outlined above.

(17) $[\![\textit{nhaniya mankarra ngumu marla}]\!]^c = \forall c'[\mathscr{R}_c(c') \rightarrow \mathbf{good}_{c'}(\mathbf{this.girl})]$
$= \forall c'[\asymp_{c'} = \mathsf{pos}_{\mathbf{good}}(c) \rightarrow \mathbf{good}_{c'}(\mathbf{this.girl})]$

3.2 Comparison

The semantics for *marla* can be straighforwardly extended to give a degreeless semantics for comparative constructions like shown given in (11), simplified as (18) below (where the possessive NPs *nga-/ying-karni kinthala* 'my/your dog' are replaced with the "names" ***a*** and ***b*** respectively.)

(18) ***a*** *pirna* ***marla*** ***b****-nhi*
a big *marla* **b**-LOC

'A is bigger than B.'

According to the survey of 24 Australian languages in Schweiger 1984, there are several languages for which INTS morphology is co-opted to perform a comparative function. In these languages, as in Diyari, the LOCative case is made available to mark an explicit standard of comparison.

13 Beltrama & Bochnak (2015) and Bowler (2016) make similar proposals for degreeless intensification in Italian, Washo and Warlpiri.

Extending the intensifier analysis to account for the comparative function, we take the locative-marked standard phrase to realise a *contextual modifier* (in the sense of Francez's 2009 analysis of existential predication). That is, the function of LOC is to restrict the accessibility relation introduced by *marla* ($\mathscr{R}$ above) to a doubleton consisting only of the comparandum (α) and the individual denoted by the standard phrase. Truth conditions for (18) are derived in (19) below, where the underlined locative phrase restricts $\mathscr{R}_c$ to the set $\{c' \mid \approx_{c'} = \{\alpha, \mathbf{b}\}\}$.

(19) $[\![\textbf{\textit{a}}\ \textit{pirna marla}\ \underline{\textbf{\textit{b}}\textit{-nhi}}]\!]^c = \forall c'[\mathscr{R}_{c_{\textbf{\textit{b}}}}(c') \rightarrow \mathbf{big}_{c'}(\mathbf{a})]$
$= \forall c'[\approx_{c'} = \{\mathbf{a}, \mathbf{b}\} \rightarrow \mathbf{big}_{c'}(\mathbf{a})]$

In effect, the truth conditions in (19) guarantee that any context in which ***b*** counts as big will also be a context in which ***a*** does—$\lambda c.\mathbf{big}_c(\mathbf{a}) \supsetneq \lambda c.\mathbf{big}_c(\mathbf{b})$—effecting a comparison of the two dogs' sizes.

However, in addition to translating comparisons of vague, adjectival predicates, *marla* also occurs in comparisons of verbal and nominal predicates, examples given in (20).

(20) a. *nhandru nguyama-yi* ***marla*** *ngakungu*
3sgf.ERG know-PRES **more** 1sg.LOC

'She knows more than me.' (Austin 2011: 112)

b. *nhulu* ***marla*** *nganthi marapu thayi-yi akau*
3sgnf.ERG **more** meat much.ABS eat-PRES 1sg.LOC

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

We take this to be a subsequent development in the distribution of *marla* as a comparative morpheme (vis-à-vis its intensifier use and its usage in comparing gradable predicates), as well as generating a need to appeal to a domain of degrees in order to properly model its semantic contribution (that is the DSP is "switched on", see Hohaus 2018 for a similar trajectory in Samoan).

That is, we model gradable predicates as functions from degrees to individuals (21a)[14] and we model *marla*-comparatives as directly comparing the degree to which the objects being compared realise a particular predicate; this is derived in (21b–e).

14 That is, we follow Cresswell's (1976) analysis of English comparative constructions.

(21) a. $[\![\textit{pirna}]\!]_{\langle d,et\rangle} = \lambda x \lambda d.\textsc{size}(d)(x)$

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

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

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

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

On this re-analysis, then, (18) is true iff those size-degrees realised by **a** are a proper superset of those realised by **b**: $\lambda d.\textsc{size}(d)(\mathbf{a}) \supsetneq \lambda d'.\textsc{size}(d')(\mathbf{b})$. Crucially, the degreeless (19) and degreeful (21e) analyses for (18) are understood to be truth-conditionally equivalent. The semantics for *marla* can then be restated as (22) below:

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

3.3 Phasal polarity

A property of many dynamic, durative predicates is a direct relation between the temporal stage of a given eventuality and the degree to which it has been effected. For the predicate 'gather more eggs' in (23) for example, the gathering of more eggs entails a greater duration for the event. We formalise this property–conceptualised as a correspondence between degree (effected) and runtime– as (24) below.

(23) *kapi ngato* ***marla*** *kampala ngana*
egg 1s.ERG more gather.FUT prs

'I shall gather more eggs.' (Reuther 1899)

(24) **A property of dynamic predicates: degree-time (dt) monotonicity**
A predicate P is dt-monotonic iff, for any two times in the runtime $\tau(e)$ of some eventuality $P(e)$,

$$\mathbf{max}(\lambda d.P(d)(t_1)) \succ \mathbf{max}(\lambda d'.P(d')(t_2)) \rightarrow t_1 \succ t_2$$

We take sentences like the scopally ambiguous (25) to represent a plausible "bridging context" (in the sense of Eckardt 2006).

(25) ***wata*** *ngato* *ngantjai* ***marla*** *tajila*
NEG 1s.ERG want.PRS more eat.IMPL$_{SS}$

'I don't wish to eat anymore.' (Reuther 1899)

a. I want that [**cess** (I eat)]

b. **cess** (I want that [I eat])

Where *wata marla* is interpreted as a modifier of the subordinate clause, (25) permits of an additive/comparative reading, similar to those described in the previous section: namely that the speaker desires that there be no increase to the degree of eating/amount eaten. A dt-monotonic predicate, this implies that the speaker desires that there be no time later than reference time at which the eating obtains.

Conversely, if *wata marla* is interpreted as a modifier of the matrix attitude predicate—as in the logical representation in (25b)—a temporal reading is more plausible. That is, the speaker asserts there is no time subsequent to the reference time at which the predicate ('I want to eat') holds.

We suggest, then, that predicates which exhibit dt-monotonicity provide a possible context for the reanalysis of *marla* in its comparative function to an aspectual operator. A lexical entry is given as (26).

(26) **Pre-final semantics for aspectual *marla***
$[\![marla_{\text{ASP}}]\!] = \lambda t \lambda P_{\langle i,t \rangle} . \left(\lambda t' . P(t')\right) \supsetneq \left(\lambda t'' . P(t'') \wedge t'' \prec t\right)$
Given a reference time t and predicate P, the times at which P is instantiated are a proper superset of instantiation times that are prior to reference time.

In (27), we derive truth conditions for the example sentence in (12) above, given this lexical entry for the phasal-*marla*.

(27) a. $[\![$ ***marla*** *nganhi yawarra yathayi* $]\!]$
$= \lambda t' . \text{I.SPEAK.Diyari}(t') \supsetneq \lambda t'' . \text{I.SPEAK.Diyari}(t'') \wedge t'' \prec \textbf{now}$

b. $[\![$ ***wata marla*** *nganhi yawarra yathayi* $]\!]$
$= \lambda t' . \text{I.SPEAK.Diyari}(t') \not\supseteq \lambda t'' . \text{I.SPEAK.Diyari}(t'') \wedge t'' \prec \textbf{now}$
In words, the times at which I speak Diyari are not a superinterval of past times at which I spoke Diyari

In (27b), present tense marking provides **now** as reference-time. *wata marla*, then restricts the instantiation of the predicate (speaking-times) to the past (times before speech time).

3.4 Polarity sensitivity and "pragmatic pressures"

The lexical entry in (26)—*marla* asserts that the instantiation time of P is a superinterval of the intersection of its instantation time prior to t—implies that the P is not a subinterval of $(\infty,t]$; i.e. it is not restricted to the past of t). This can be rephrased equivalently—as in (28b)—as imposing a requirement that the *latest point* of P's instantiation time is at or after t.

(28) Consequences/equivalences of (26) — the truth conditions of *marla*

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

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

Given that—according to this semantics—the only truth condition that *marla* imposes is that the endpoint of P is not in the past of t, any of the configurations schematised in figure 3 are predicted to verify *marla P*.

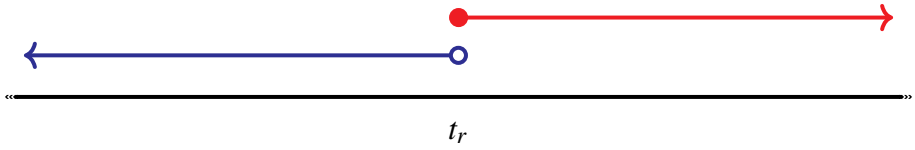
The negation of *marla P*, then, imposes a converse requirement: namely that P be instantiated prior to reference time (equivalently, that the latest time at which P is instantiated precedes t_r).

The core meaning contribution of aspectual adverbs, as described in §1, is the encoding of information about shifts in "phasal polarity" relative to a reference time. Figure 3 shows that, given its compatibility with inceptive, prospective and continuitive configurations, the lexical entry that we have proposed for *marla* is aspectually underinformative in positive polar environments.

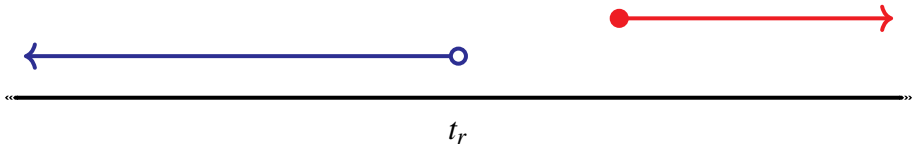
As shown in figure 4 on the other hand, under negation, *marla* appears to effect a stronger requirement, requiring the endpoint of its prejacent's instantiation time to be located (at or) prior to reference time. Figures 4(a–b) both capture temporal configurations that involve switching from a prior positive state for P to a subsequent negative one (at or before t_r).

Conversely, the schema in 4(c)—where P is instantiated at the empty interval—is also predicted to vacuously verify *(wata) marla*'s truth conditions: $\varnothing \subseteq [\infty,t_r)$. We take this configuration, then, to be pragmatically blocked. This can be understood as arising due an economy constraint (e.g. Horn's (1984) formulation of the "R-principle": *say no more than you must*) — in these cases, the contribution of *wata marla* would be equivalent to that of *wata* 'NEG' simpliciter. We take this blocking effect to be conventionalised as a presupposition that P is (non-trivially) instantiated; this is represented in (29).

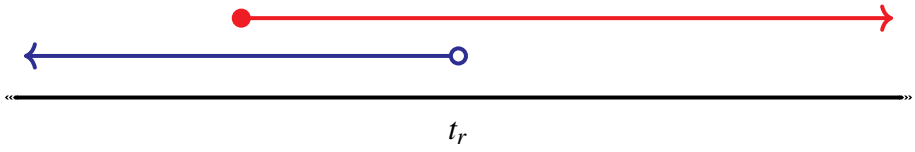
According to (29a), *(wata) marla* $(P)(t)$ presupposes that P *is* nontrivially instantiated at some time prior to t. In effect, the "classical" semantics proposed by Horn (1970) are implied by these conditions, *viz.* a presupposition of anterior instantiation and an assertion that the prejacent (doesn't) hold at reference time.



(a) An INCEPTIVE schema: P begins at reference time



(b) A PROSPECTIVE schema: P is instantiated after reference time



(c) A CONTINUITIVE schema: P is instantiated beyond reference time.

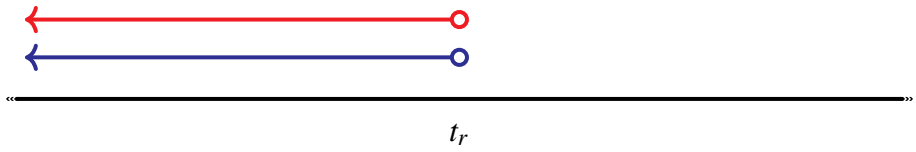
Figure 3 Three temporal configurations predicted to be compatible with *marla P* — *i.e.* those where the latest time that P is instantiated is non-past relative to a reference time t_r. Red lines represent the instantiation time of P—$\left(\lambda t' \,.\, P(t')\right)$. Blue lines represent times prior to the reference time t_r — $\left(\lambda t'' \,.\, t'' \prec t_r\right)$

(29) ***wata marla* encoding cessative semantics**

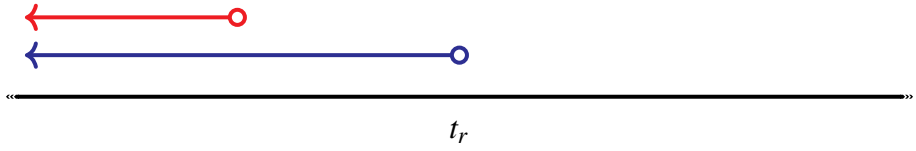
a. $[\![\textit{wata marla}]\!] = \lambda t \lambda P : \left(\lambda t' \,.\, P(t') \neq \varnothing\right) \,.\, \left(\lambda t' \,.\, P(t')\right) \subseteq \left(\lambda t'' \,.\, t'' \prec t\right)$

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

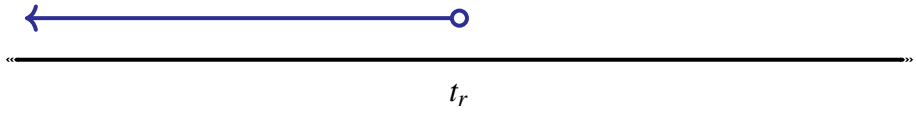
In this section, we have seen how the availability of an 'intensifier' particle in composing implicit comparative constructions appears to have permitted for the reanalysis of *marla* as a comparative morpheme. We take its broad distribution (co-occurrence with a wide range of predicates) as evidence of this reanalysis and the availability of a degree semantics.



(a) A CESSATIVE schema: P concludes at reference time



(b) A(nother) CESSATIVE SCHEMA: P concludes prior to reference time



(c) Trivially CESSATIVE? P is not instantiated

Figure 4 Three temporal configurations predicted to be compatible with *wata marla P* — *i.e.* those where the latest time that P is instantiated is located in the past relative to a reference time t_r.

In Diyari—as in an array of other languages (§2)—comparative morphology appears to have been recruited to fulfil the function of a phasal adverb. We showed how ambiguity between an comparative/additive reading and an aspectual one (arising when modifying dt-monotonic predicates) furnished a possible bridging context from which a comparative morpheme can be associated with an aspectual reading.

Further, we showed that the presuppositionalisation of a felicity condition of *marla*—namely that the set of times (interval) at which the prejacent obtains is non-empty. In concert with the instantiation time being restricted to times anterior to reference time, the comparative semantics for *wata marla*, extended into the temporal domain, end up converging with the meaning contribution of phasal adverbs like *anymore* as proposed in, e.g., Horn 1970.

4 Conclusions

Drawing on data from Diyari and comparative and typological evidence, we have advanced a hypothesis about a trajectory of meaning change and emergent polysemy for the Diyari lexical item *marla*. In the main part of this paper, we proposed a diachronic semantics for *marla*, seeking to understand (and semantically motivate) the colexification of its three apparent primary functions: as an *intensifier*, a *comparative* and a marker of *cessative* aspect (when occurring under negation). Three observations emerge from this analysis:

i Comparative semantics are naturally extensible to the aspectual domain: a fact perhaps predicted by previous work which has treated phasal adverbs as scalar operators (e.g., Israel 2011: §6.4 cited above, see also Michaelis 1993).

Here, a standard comparative semantics—which involves relating entities relative to a scale—is extended to the temporal domain: relating propositions in terms of how late the state they describe obtains.

ii Related to this conception of phasal adverbs (where they are taken to encode scalar operators) is the prediction that they are prone to polarity sensitivity. For Israel (2011), polarity sensitivity is broadly understood as a lexically encoded feature (his Q-/I-values).

Here, we have suggested that the fact that an aspectual reading of *marla* is only available in negative polar contexts is a consequence of its emergence out of comparative morphology. Specifically, the "ex-comparative" semantics was shown to be compatible with numerous temporal configurations in positive polar contexts. As a consequence it fails to effectively lexicalise an aspectual operator except under negation, where it is only compatible with configurations where the endpoint of a temporal property precedes reference time—the defining property of cessative semantics.

This gives rise to the (strong) hypothesis formulated in (30):

(30) COMPARATIVE CESSATIVE HYPOTHESIS. Aspectual operators/phasal adverbs that arise from comparative morphology will (initially) be negative polarity items.

Languages where aspectual readings of an erstwhile comparative have been "liberated" from negative polar contexts (such that CONTINUITIVE, IAMATIVE or *nowadays*-type readings are available, see §2) are taken to be the result of subsequent semantic change. By hypothesis, this may engender functional pressure to recruit novel comparative morphology, instantiating a cycle.

iii Additionally, in (29), we make a related claim that an utterance of *(wata) marla P* presupposes that $\{t \mid P(t)\} \neq \varnothing$, a claim that amounts to existential quantification

over $\mathscr{D}_t$ (thence dovetailing with the phasal semantics of Horn 1970 a.o.). This strengthening can be understood as involving the conventionalisation of an R-implicature (in the sense of Horn 1984).

Further, this observation—and those in (26)—can potentially be taken to be revelatory of the organisation of the temporal domain. That durative adverbs like *anymore* are compatible only with stative predicates (which we assume to refer to sets of times) is a likely prediction of the current proposal.

We leave it to further (and forthcoming) work to provide a more complete, integrated treatment of these observations.

References

Austin, Peter K. 1978. *A grammar of the Diyari language of north-east South Australia*: Australian National University PhD dissertation.

Austin, Peter K. 1981. *A grammar of Diyari, South Australia*. Cambridge; New York: Cambridge University Press. https://search.library.yale.edu/catalog/229719.

Austin, Peter K. 2011. *A grammar of Diyari, South Australia*. London: SOAS University of London 2nd edn.

van der Auwera, Johan. 1993. 'Already' and 'Still': Beyond Duality. *Linguistics and Philosophy* 16(6). 613–653. https://www.jstor.org/stable/25001531. Publisher: Springer.

van der Auwera, Johan. 1998. Phasal adverbs in the languages of Europe. In Johan van der Auwera & Dónall Ó Baoill (eds.), *Adverbial constructions in the languages of Europe*, vol. 3 (Empirical approaches to language typology 20), 25–145. Berlin ; New York: Mouton de Gruyter.

van der Auwera, Johan. 2021. Phasal polarity warnings from earlier research. In Raija Kramer (ed.), *The Expression of Phasal Polarity in African Languages*, 25–38. De Gruyter. doi:10.1515/9783110646290-003.

van Baar, Tim. 1997. *Phasal polarity* (Studies in language and language use 30). Amsterdam: Uitg. IFOTT.

Barwise, Jon & Robin Cooper. 1981. Generalized quantifiers and natural language. *Linguistics and Philosophy* 4(2). 159–219.

Beck, Sigrid. 2020. Readings of scalar particles: *noch/still*. *Linguistics and Philosophy* 43(1). 1–67. doi:10.1007/s10988-018-09256-1.

Beck, Sigrid, Sveta Krasikova, Daniel Fleischer, Remus Gergel, Stefan Hofstetter, C Savelsberg, John Vanderelst & Elisabeth Villalta. 2009. Crosslinguistic variation in comparison constructions. *Linguistic Variation Yearbook* 9(1). 1–66. doi:10.1075/livy.9.01bec.

Beltrama, Andrea & M Ryan Bochnak. 2015. Intensification without degrees cross-linguistically. *Natural Language & Linguistic Theory* 33(3). 843–879. doi:10.1007/s11049-015-9294-8. Publisher: Springer Netherlands.

Bochnak, M Ryan. 2013. *Cross-linguistic variation in the semantics of comparatives*: University of Chicago PhD dissertation.

Bowern, Claire (ed.). 2023. *The Oxford Guide to Australian Languages*. Oxford: Oxford University Press. Series Title: Oxford Guides to the World's Languages.

Bowler, Margit. 2016. The status of degrees in Warlpiri. In *The Semantics of African, Asian and Austronesian Languages 2*, 1–17. Potsdam: Universitätsverlag Potsdam.

Breen, J Gavan. 2007. Reassessing Karnic. *Australian Journal of Linguistics* 27(2). 175–199. doi:10.1080/07268600701522780.

Cresswell, Max J. 1976. The semantics of degree. In Barbara Hall Partee (ed.), *Montague grammar*, 261–92. New York: Academic Press.

Doherty, Monika. 1973. Noch and Schon and their Presuppositions. In F Kiefer & N Ruwet (eds.), *Generative Grammar in Europe* Foundations of Language, 154–177. Dordrecht: Springer Netherlands. doi:10.1007/978-94-010-2503-4_8.

Donazzan, Marta & Alexandru Mardale. 2010. Additive and aspectual adverbs: Towards an analysis of Romanian *mai*. *Romanian Review of Linguistics* LV(3). 247–69.

Eckardt, Regine. 2006. *Meaning Change in Grammaticalization: An enquiry into semantic reanalysis*. Oxford: OUP.

Francez, Itamar. 2009. Existentials, predication, and modification. *Linguistics & Philosophy* 32(1). 1–50. doi:10.1007/sl0988-009-9055-4.

Hercus, Luise Anna. 1994. *A grammar of the Arabana-Wangkangurru language; Lake Eyre Basin, South Australia*. Canberra: Pacific Linguistics.

Hindle, Donald & Ivan Sag. 1973. Some more on *anymore*. In *Analysing variation in language*, 89–110. Georgetown University: Georgetown University Press.

Hoffman, Dorothea. 2008. *Language Contact in Australia*: Universität Konstanz MA thesis.

Hohaus, Vera. 2018. How do Degrees Enter the Grammar? Language Change in Samoan from [DSP] to [+DSP]. In Elizabeth Bogal-Allbritten & Elizabeth Coppock (eds.), *TripleA 4*, 106–120. Tübingen: Universität Tübingen.

Horn, Laurence Robert. 1970. Ain't it hard (anymore). In *Chicago Linguistics Society 6*, 318–27. Chicago, Ill.: CLS.

Horn, Laurence Robert. 1984. Towards a new taxonomy for pragmatic inference: Q-based and R-based implicature. In Deborah Schriffen (ed.), *Meaning, Form and Use in Context: Linguistic Applications*, Washington, D.C.: Georgetown University Press.

Ippolito, Michela. 2007. On the meaning of some focus-sensitive particles. *Natural Language Semantics* 15(1). 1–34. doi:10.1007/s11050-007-9004-0.

Israel, Michael. 1997. The scalar model of polarity sensitivity: The case of aspectual operators. In Danielle Forget (ed.), *Negation and polarity: syntax and semantics*, 209–29. Amsterdam: Benjamins.

Israel, Michael. 1998. *The rhetoric of grammar: Scalar reasoning and polarity sensitivity*. United States – California: University of California, San Diego Ph.D. ISBN: 9780599115736.

Israel, Michael. 2011. *The Grammar of Polarity: Pragmatics, Sensitivity, and the Logic of Scales*. Cambridge, UNITED KINGDOM: Cambridge University Press.

Kay, Paul. 1990. *Even*. *Linguistics and Philosophy* 13(1). 59–111. doi:10.1007/BF00630517.

Klein, Ewan. 1980. A semantics for positive and comparative adjectives. *Linguistics and Philosophy* 4(1). 1–45. doi:10.1007/BF00351812.

Klein, Wolfgang. 2018. *Looking at Language*. Berlin: De Gruyter.

Kneebone, Heidi-Marie. 2005. *The Language of the Chosen View: the first stage of graphization of Dieri by Hermannsburg missionaries, Lake Killalpaninna 1867-80*. Adelaide, SA: University of Adelaide PhD thesis. https://hdl.handle.net/2440/22316.

König, Ekkehart. 1977. Temporal and non-temporal uses of *noch* and *schon* in German. *Linguistics & Philosophy* 1(2). 181–203. doi:10.1515/9783111681351-012.

Li, Ang. 2023. *Comparing Alternatives*. New Brunswick, NJ: Rutgers PhD dissertation.

Löbner, Sebastian. 1986. Quantification as a Major Module of Natural Language Semantics. In Jeroen Groenendijk, Dick de Jongh & Martin Stokhof (eds.), *Studies in Discourse Representation Theory and the Theory of Generalized Quantifiers* (Groningen-Amsterdam Studies in Semantics 8), 53–86. Dordrecht: Foris. doi:10.1515/9783112420027-004.

Löbner, Sebastian. 1989. German *Schon Erst Noch*: An integrated analysis. *Linguistics and Philosophy* 12(2). 167–212. doi:10.1007/BF00627659.

Löbner, Sebastian. 1999. Why German *Schon* and *Noch* Are Still Duals: A Reply to van der Auwera. *Linguistics and Philosophy* 22(1). 45–107. https://www.jstor.org/stable/25001732. Publisher: Springer.

Löbner, Sebastian. 2019. Dual oppositions in lexical meaning. In Claudia Maienborn, Klaus von Heusinger & Paul Portner (eds.), *Semantics - Lexical Structures and Adjectives*, 201–235. Berlin: De Gruyter. doi:10.1515/9783110626391-007.

Michaelis, Laura A. 1993. Continuity within Three Scalar Models: The

polysemy of adverbial *still*. *Journal of Semantics* 10(3). 193–237. doi:10.1093/jos/10.3.193.

Mittwoch, Anita. 1993. The relationship between *schon/already* and *noch/still*: A reply to Löbner. *Natural Language Semantics* 2(1). 71–82. doi:10.1007/BF01255432.

Moore, David. 2019. *German Lutheran Missionaries and the linguistic description of Central Australian languages 1890-1910*. Perth, WA: Unviersity of Western Australia PhD thesis. doi:10.26182/5dbbb11b9d924.

Muller, Claude. 1975. Remarques syntactico-sémantiques sur certains adverbes de temps. *Français moderne* 43. 12–38.

Reuther, J G. 1899. *The Diari*, vol. I-IV. Canberra: Australian Institute of Aboriginal Studies.

Reuther, J G & C Strehlow. 1897. *Testamenta Marra*. Tanunda: G. Auricht. https://aboriginalbibles.org.au/dieri/.

Schweiger, Fritz. 1984. Comparative: A neglected category in Australian languages? Tech. Rep. 18 SIT Launceston, Tas.

Schweiger, Fritz. 2005. The comparative in Australian languages. Last updated 2007, unpublished ms. for 2005 conference, communicated directly from Prof. Schweiger.

Stockigt, Clara. 2016. *Pama-Nyungan morphosyntax: Lineages of early description*. SA: University of Adelaide PhD thesis. 10.4225/55/5926388950cdc.

Thomas, Guillaume. 2018. Underspecification in Degree Operators. *Journal of Semantics* 35(1). 43–93. doi:10.1093/jos/ffx015.

Vandeweghe, Willy. 1986. Complex aspectivity particles in some European languages. *Groninger Arbeiten zur Germanistischen Linguistik* 27. 220–31.

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