Proceedings of SALT 35: 437–457, 2025

Degreeless intensification and scale structure: Evidence from Bardi*

Lydia Newkirk
UIUC & Yale University

Tomás Fuchs-Lynch
Yale University

Claire Bowern
Yale University

Abstract Languages vary in whether they grammatically encode scales via degrees of type *d* (Beck, Krasikova, Fleischer, Gergel, Hofstetter, Savelsberg, Vanderelst & Villalta 2009). Previous literature has identified a number of constructions which are unavailable in "degreeless" languages. We propose an additional metric: the absence of selective intensifiers. We argue that since degreeless languages do not grammatically encode scales, lexical items like intensifiers cannot be sensitive to adjectival scale structure. We propose an account of intensification within a Delineation Semantics framework (Klein 1980) that permits intensification with both relative and absolute adjectives, while predicting the lack of attestations of scale-structure sensitivity for intensifiers in degreeless languages. We use Bardi (Nyulnyulan, Australia) as a case study as well as showing how this analysis fits published data for another degreeless language, Washo.

Keywords: degrees, scale structure, degreelessness; pragmatic halo, Australian languages

1 Introduction

As identified by Beck et al. (2009), languages vary in whether they grammatically encode scales via degrees of type *d*. Previous literature has identified a number of constructions which are unavailable in "degreeless" languages, including differential comparatives, measure phrases, and degree questions. We propose an additional metric which can be used to diagnose the status of degrees in a language: the absence of selective intensifiers. We argue that since degreeless languages do not grammatically encode scales, lexical items like intensifiers cannot be sensitive to adjectival scale structure.

We propose an account of intensification within a Delineation Semantics framework (Klein 1980) that permits intensification with both relative and absolute adjectives, while predicting the lack of attestations of scale-structure sensitivity for

* We thank Josh Phillips, Larry Horn, and the Bardi elders who shared their language with us.

intensifiers in degreeless languages, with Bardi (Nyulnyulan, Australia) as a case study.

The paper is structured as follows: §2 provides background on adjectival scale structure, degreelessness, and the Bardi language. Burnett's (2014) DelTCS framework, which we apply in our analysis, is laid out in §3; §4 discusses our proposal for intensification in degreeless languages. We apply our analysis to Bardi in §5, introduce additional supporting data from Washo in §6, and conclude in §7.

2 Background

2.1 Scale Structure

Adjectives can be distinguished based on the structures of the scale they reference (Kennedy & McNally 2005; Rotstein & Winter 2004). Adjectives are associated with a scale based on world knowledge about the properties they denote. Relative-Standard Adjectives (**RA**s) like *tall* or *expensive* denote context-sensitive properties. What counts as *expensive* in one context may not in another. Outside of a particular context, there is no fact of the matter for the truth of an RA. Because of this inherent context-sensitivity, RAs have no absolute minimum or maximum value; it is always possible to exhibit the property to a lesser or greater extent. Thus, RAs are associated with unbounded scales.

Absolute-Standard Adjectives (**AA**s) denote properties which, unlike RAs, have an absolute minimum and/or maximum value. A property like *dry* has an upper bound: once there is absolutely no humidity in an object, it is maximally dry: it is not possible for it to be drier. Thus, the scales associated with AAs are bounded on one or both sides. AAs can be further divided into Total and Partial AAs (Rotstein & Winter 2004). The scales associated with Total AAs, like *closed* or *dry*, are upper-bounded; they have a maximum value. The scales associated with Partial AAs, like *bent* or *wet*, are lower-bounded: they have a minimum value. Non-Scalar (**NS**) adjectives, like *prime* or *pregnant*, are not associated with any scale. NSs are neither gradable nor context-sensitive and function as set-denoting predicates.

2.2 Degreelessness

Degreeful languages (e.g. English) can form at least some of explicit comparatives (1a), measure phrases (1b), and differential comparatives (1c), which make explicit reference to points on a scale.[1] Semantically, referencing a point on a scale requires a degree variable of type *d*. In degreeful languages, gradable adjectives are of

1 See Beck et al. (2009) for their degree typology that differentiates among languages that are degreeful ([+DSP]); this work focuses on [−DSP] (or fully degreeless) languages.

type $\langle d, et \rangle$, and the degree variable is saturated via overt morphology (e.g. *-er*), a measure phrase, or a silent operator like POS (Cresswell 1977).

(1) a. Bert is taller than Ernie. (*Explicit Comp.*)
b. Bert is 6 feet tall. (*Measure Phrase*)
c. Bert is 4 inches taller than Ernie. (*Differential Comp.*)

Some languages, including Motu (Beck et al. 2009), Washo (Bochnak 2015), Warlpiri (Bowler 2016), and Kunbarlang (Kapitonov 2019), cannot form the constructions in (1). Such languages have been argued to be degreeless—they do not use type d in their grammars at all. Whether scale structure in general exists in degreeless languages is less studied: Kapitonov (2019) suggests that different types of scale structure may be parametrically present or absent, while e.g., Israel (2006) proposes that scalarity is a universal of human experience and cognition, and should therefore be present in some capacity across languages.

Degreeless languages cannot access scales linguistically, but this is a question of grammaticalization and lexicalization rather than cognition. There is no evidence that suggests that speakers of degreeless languages are unable to conceptualize scale structure or ordering. The inherent boundedness of some real-world properties (those denoted by AAs) indicates that scale structure is part of world knowledge and the scalar nature of logical entailment relations strongly implies that scalar reasoning is a universal. The status of other scalar processes such as scalar implicature in degreeless languages is a fruitful area for future research.

Across the literature, degreelessness has been handled in few different ways: Klein (1980) proposed a delineation account of (relative) gradable adjectives based on supervaluations, so that a given entity can be in the positive extension, negative extension, or extension gap of a given gradable predicate depending on the comparison class for that predicate given by the context. Much of the more recent work on degreelessness builds on delineation semantics, including van Rooij (2011); Van Rooij (2011); Burnett (2014); Beltrama & Bochnak (2015); Kapitonov (2019).

Across these accounts, gradable adjectives in degreeless languages are defined as set-denoting predicates of type $\langle e, t \rangle$ evaluated with respect to a comparison class X. While degreeful languages hard-wire gradability, degreeless languages derive it from adjectives' inherent vagueness or context-sensitivity.

Instead of forming *explicit* comparatives, where points on a scale are measured against each other, degreeless languages form *implicit* comparatives (Kennedy 2007) by restricting the comparison class such that P holds of the target of comparison, but not of the standard (or vice versa). Implicit comparatives are often expressed as antonymic conjoined comparatives (2a), or as conjunctions where one conjunct is intensified (2b), as in the Washo sentences below:

(2) **Washo Conjoined Comparatives** (Bochnak 2015: 14–15)

a. t'eːliwhu de-ʔil-kaykay-iʔ k'-eʔ-i daʔmoʔmoʔ
man NMLZ-ATTR-tall-ATTR 3-COP-IPFV woman
delkáykayiʔéːs k'áʔaš
NMLZ-ATTR-tall-ATTR-NEG 3-COP-AOR-SR
'The man is taller than the woman.'
(Literally: 'The man is tall, the woman is not tall.')

b. wíːdiʔ ʔil-k'únk'un-iʔ-aʔ-š wíːdiʔ ʔil-k'únk'un-iʔ
this ATTR-bent-ATTR-AOR-SR this ATTR-bent-ATTR
šemu-eːs-aʔ
really-NEG-AOR
'This one is more bent than that one.'
(Literally: 'This one is bent, that one is not very bent.')

These constructions exemplify the dependence on context-sensitivity: the comparison arises because in the context, *P* holds of one party but not of the other. Following the Consistency Constraints identified in Klein (1980); Van Benthem (1982), which state that the relative ordering of two entities remains constant across comparison classes, the truth conditions entail that one member of the comparison exceeds the other in terms of *P*. The sentence in (2a) can be expressed semantically as follows:

(3) $[\![\textit{Tall}(\iota x.\ \textit{Man}(x))]\!]_X \wedge \neg [\![\textit{Tall}(\iota y.\ \textit{Woman}(y))]\!]_X$
Where *X* is a contextually-supplied comparison class.

Case-marked comparatives are another strategy employed by degreeless languages in which the standard of comparison occurs in a particular grammatical case. While these constructions appear closer in structure to comparative constructions in degreeful languages, they notably lack a comparative morpheme. Warlpiri (Pama-Nyungan, Australia) forms dative-marked comparatives in addition to forming conjoined comparatives:

(4) **Warlpiri Case-Marked Comparative** (Bowler 2016: 5)

Napaljarri=ji ngula=ju kirrirdi=jiki, Nakamarra-ku=ju.
Napaljarri=TOP that=TOP tall=JUKU Nakamarra-DAT=TOP

'Napaljarri is taller than Nakamarra.'
(Literally: 'That Napaljarri is tall for/to Nakamarra.')

Semantically, case-marked components have two parts: the first asserts that the predicate in question (e.g. *tall*) holds of the target of comparison, while for Bowler the second part restricts the comparison class to include only the case-marked standard in addition to the target:

(5) $[\![\text{Tall(Napaljarri)}]\!]_X \wedge \neg [\![\text{Tall(Nakamarra)}]\!]_X \wedge \text{X} = \{\text{Napaljarri, Nakamarra}\}$.

Because RAs are context sensitive, if there are only two members of a comparison class which are distinguishable in terms of *P*, one must fall into the positive extension of *P* and the other into the negative, yielding identical truth-conditions to the conjoined comparative; this is Klein's (1980) Informativity Constraint.

It is also possible to form implicit comparatives in English, which resemble case-marked comparatives and similarly use the positive form of the adjective.

(6) **English Implicit Comparative**
The woman is tall compared to the man.

While most prior work on degreelessness has focused on comparatives, some work has been done on the semantics of degreeless intensification (Klein 1980 on English; Beltrama & Bochnak 2015 on Washo and Italian). However, this work either focuses on RAs like *tall*, which are sensitive to comparison class (Klein 1980) or presupposes an unspecified context-dependent parameter affecting the truth of the predicate (Beltrama & Bochnak 2015). In either case, they effectively presuppose that the modified predicate is already context-sensitive in a way relevant to gradability (which presents an puzzle when it comes to AAs; see §3).

2.3 Bardi as a degreeless language

It is currently unknown how many languages may show properties of degreelessness, and because language documentation and formal semantics have only started to strongly inform one another in the last 20 years (cf. Matthewson 2004). Because degree constructions are highly context-sensitive and diagnosing degreelessness depends in large part on negative evidence, investigating this question from earlier documentation work is difficult.

Bardi is a Nyulnyulan (non-Pama-Nyungan) language, one of about 400 Indigenous languages spoken prior to the European invasion of Australia (Bowern 2023). The documentary history includes sporadic lexical material since 1910, a large text collection from 1928, and regular documentation by linguists since 1970. Bowern (2012) is a reference grammar based on about 150 hours of textual material and elicitations. Metcalfe (1975) is an earlier publication on the same language. Bardi elders invited Gedda Aklif to produce language documentation materials in 1989 and Bowern continued that project. Elders requested a dictionary and toponym documentation (Aklif 1999), narrative collection (Bowern 2002), and learner's guide (Bowern, Kling, Lanz & Katten 2010). The process of researching and producing those materials has led to a large general purpose documentation collection involving structured, semi-structured, and unstructured language activities. The third author conducted fieldwork at One Arm Point between 1999 and 2012.

While formal semantic questions were not explicitly part of the investigation of Bardi, the documentary materials were designed to be "multi-faceted" across a range of syntactic and semantic questions. As a result, the corpus of Bardi data allows some investigation of semantics for a variety of constructions. The focus on narrative data in particular means that many utterances have clearly defined discourse contexts. However, because no systematic semantic elicitation was conducted, there are crucial gaps that limit conclusions. The balance of elicitation and unprompted speech also means we have both positive and negative evidence for a range of topics.

While there was no specific elicitation of degrees, constructions such involve degrees in languages like English were part of the documentation collection. Elicitation of degreeful constructions were unsuccessful. Attempts to elicit explicit comparatives, measure phrases, and NPIs, were repeatedly met with English paraphrases, rephrasing that avoided degree constructions, or puzzlement.

When it occurs, comparison in Bardi is expressed via case-marked comparatives, with the standard of comparison marked with ablative case. These constructions are difficult to elicit and do not occur in spontaneous speech (Bowern 2012), but are an additional data point indicating that Bardi is [−DSP] in the terminology of Beck et al. (2009). Adjectives have no overt comparative morphology, but the general intensifier =*gij* 'very' can be used in context, as illustrated in (7b):

(7) **Bardi comparatives** (Bowern 2012)

a. jalnggoon boordij=amba niwarda-go
   Jalnggoon big-THUS niwarda-ABL
   '*Jalnggoon* oysters are bigger than *niwarda* oysters'

b. boordiji giija baawa
   big very child
   'the bigger kid (the really big kid)'
   (when there are two children who could be described as 'big')

Bardi also has several other words and clitics which glossed as intensifiers, including =*(j)angarr* and *ngarri* (Bowern 2012), *giija*/=*gij* is the most general. It appears most frequently in its clitic form =*gij*, which occurs on both relative and absolute predicates, as illustrated in (8):

(8) **Bardi intensification** (Bowern 2012: pp. 173, 340)

a. gorna=gij=arr irr baawa
   good=VERY=3PL 3PL child
   'Those children are very good'

b. loomi=gij booroo. arra. dalboon=kij boor=a
abandoned-VERY place. NEG dried.up-VERY place=PRED
'It's a place that hasn't been looked after. No, it's just dried out.'

This makes Bardi a useful case study for analyzing intensification and scale structure in a degreeless language, as well as providing a test case for using information from archival and multipurpose documentation for studying semantics. We return to Bardi in §5, following the explanation of our proposal for degreeless intensification.

3 Absolute adjectives and delineation semantics

3.1 Absolute-standard adjectives

Absolute-standard adjectives pose a puzzle for delineation approaches to degreelessness due to the fact that their comparative forms are gradable, but their bare forms are relatively context-independent. The comparative forms of AAs pattern with RAs in terms of gradability, and act differently than NS:

(9) **English**

a. Ernie is taller than Bert (though both are tall) (RA)

b. My glass is emptier than yours (though neither is empty) (AA)

c. # France is more geographical than Spain (NS)

However, as, Syrett, Kennedy & Lidz (2010) and Burnett (2014) observe, the bare forms of RAs and AAs behave differently with regard to definite descriptions; while *tall* can be used in (10a) even if all objects in the context are definitively short, (10b) is infelicitous if no object is particularly close to being empty, just as (10c) is infelicitous is no object is made of glass (data from Burnett 2014).

(10) a. Pass me the tall one (RA)

b. # Pass me the empty one (AA)

c. # Pass me the glass one (NS)

The bare forms of AAs thus pattern with NSs, rather than RAs. This contrast illustrates the main difference between RAs and AAs: in their bare forms, RAs exhibit a radical context-sensitivity that AAs do not.

Degree-based analyses, such as Kennedy & McNally (2005), account for the gradability of AAs by modeling them as relations between individuals and degrees, just like RAs (11). They account for the facts in (10) by claiming that, unlike RAs, which are evaluated against a comparison class (12), the standards of AAs are instead set relative to an endpoint of the appropriate scale S_A.

(11) **Degreeful absolute standard adjective phrases**
(Kennedy & McNally 2005)

a. $[\![\text{AP}_{min}]\!] = \lambda x.\exists d[d \succ min(S_P) \wedge \mu_P(x) = d]$

b. $[\![\text{AP}_{max}]\!] = \lambda x.\exists d[d = max(S_P) \wedge \mu_P(x) = d]$

(12) **Degreeful relative standard adjective phrase**
(adapted from Kennedy & McNally 2005)
$\lambda x.\exists d[standard(d)([\![P]\!])(C) \wedge [\![P]\!](d)(x)]$
Where C determines the comparison class.

However, classic delineation accounts like Klein (1980) are unable to account for the contrast between the comparative forms in (9) and the positive forms in (10).

(13) **Delineation semantics relative adjective** (adapted from Klein 1980)
$\lambda x.[\![P(x)]\!]_X$
Where X is a contextually-supplied a comparison class

The core of the issue is that delineation semantics inherently links context-sensitivity with gradability; an adjective like *tall* is about being tall on a comparison class, and the existence of such a set is what allows both the comparative form in (9a) and the positive form in (10a) to be felicitous. On this type of account, an adjective should behave similarly in comparative and positive contexts (including with intensifiers); the inconsistent behavior of AAs thus poses a fundamental problem for delineation approaches.

3.2 DelTCS

In order to address the fact that Absolute Adjectives are **gradable** yet relatively **context-independent** without needing to utilize degrees, Burnett (2014) incorporates Tolerant, Classical, Strict (TCS), a non-classical logic developed by Cobreros, Egré, Ripley & Van Rooij (2012), into delineation semantics to create the DelTCS framework. The central intuition is that although AAs are not as radically context-sensitive as RAs, their meaning is not completely context-independent, as the contrast in (14) illustrates:

(14) a. Only two people came to opening night; the theatre was empty.

b. Two people didn't evacuate; the theatre wasn't empty when they started fumigating. (Burnett 2014: 4)

The difference between the two contexts in (14) can be thought of as a question of precision: the standard of precision in (14b) is much stricter than that in (14a). This notion of precision is quite similar to a Pragmatic Halo (Lasersohn 1999).

DelTCs uses this **pragmatic context-sensitivity** to derive the gradability of AAs without needing degrees.

DelTCS distinguishes three notions of satisfaction: Classical, Tolerant, and Strict. The Classical denotation of a predicate is its semantic denotation. RAs are semantically context-sensitive: their Classical denotations shift according to comparison classes. AAs are semantically non-scalar: the boundary between *P* and not-*P* does not vary across contexts (there is a context-independent cutoff for something to count as classically *wet*/*dry*/*empty*/*full* etc.)

The Tolerant denotation can be understood as *approximately P* and is typically more permissive than the Classical denotation. Its logical dual, the Strict denotation, can be understood as *really P*, and is typically more restrictive than the Classical denotation. Tolerant and Strict interpretations might be used instead of the Classical interpretation in appropriate pragmatic circumstances, as in (14) above.

Tolerant and Strict denotations are related to the Classical denotation via an indistinguishability relation ($\sim_P^X$). A predicate *P* **tolerantly** applies to some *x* iff there is at least one *y* indistinguishable from *x* on the relevant comparison class for *P* in the context such that *y* is in the Classical denotation of *P* (15a). Likewise, a predicate *P* **strictly** applies to *x* iff every *y* indistinguishable from *x* is in the Classical denotation of *P* (15b). Tolerant interpretations thus can (but do not necessarily, depending on the indistinguishability relation) expand the set denoted by *P*, while Strict interpretations can restrict it (15c)

(15) **DelTCS Tolerant and Strict interpretations** (adapted from Burnett 2014)
For $X \subseteq D$, a comparison class, P a predicate:
a. $[\![P]\!]^t_X = \{x : \exists y \sim^X_P x : y \in [\![P]\!]_X\}$
b. $[\![P]\!]^s_X = \{x : \forall y \sim^X_P x : y \in [\![P]\!]_X\}$
c. $[\![P]\!]^t_X \supseteq [\![P]\!]^c_X \supseteq [\![P]\!]^s_X$

In DelTCS, the gradability of AAs is derived from the context-sensitivity of their Tolerant/Strict denotations, while the data in §3.1 is explained by their non-scalar Classical denotations.

The Total/Partial AA distinction can also be framed in terms of DelTCS rather than the upper-bounded/lower-bounded scales of the degree framework. Total AAs, like *dry*, have a context-sensitive **Tolerant** denotation, but identical context-independent Strict and Classical denotations. Partial AAs, like *wet*, have a context-sensitive **Strict** denotation, but identical context-independent Tolerant and Classical denotations.

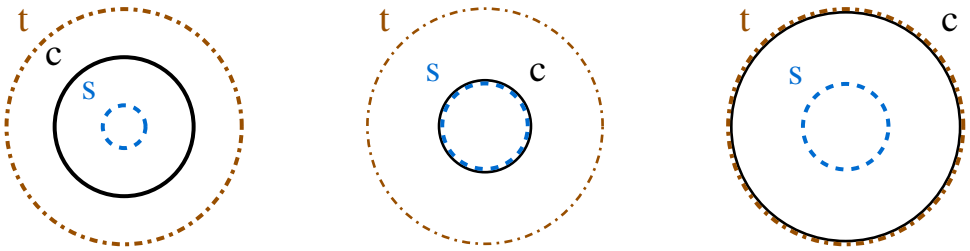

Figure 1 Scale Structure and DelTCS

4 Proposal: What degreeless intensifiers can and cannot do

4.1 Delineation intensification

For both degreeful and degreeless systems, RAs can be intensified by manipulating the comparison class for the adjective. For example, both degreeful and degreeless approaches to *very* modify the comparison class in order to derive the intensified meaning:

(16) **Degreeful *very*** (Kennedy & McNally 2005)
$[\![very]\!]^{c}_{deg} = \lambda P_{\langle d,\langle e,t\rangle\rangle}.\lambda x_e.\exists d[\textbf{standard}(d)(P)(\lambda y_e.[\![pos(P)(y)]\!]^{c}) \wedge G(d)(x)$

(17) **Degreeless *very*** (Klein 1980)
$[\![very]\!]_X = \lambda P_{\langle e,t\rangle}.\lambda x_e.[\![P(x)]\!]_{X'}$
Where $X' = [\![P]\!]_X$

Both of these definitions (and indeed Kennedy & McNally 2005 model their denotation off of Klein 1980) characterize *very* as a function that takes a relative adjective P, which is already interpreted relative to a contextually-supplied comparison class, and adjusts the comparison class for P to one where everything in that class is already in the positive extension of P. In general terms, both of these approaches take *very tall* (for a person) to mean "tall for a tall person."

Degreeful languages can have intensifiers that target a particular scale structure, such as English *completely* which targets Total AAs:

(18) a. The door is completely **closed** Total AA
b. The floor is #completely **wet** Partial AA
c. Shaq is #completely **tall**. RA

Degree-based approaches distinguish upper-closed/Total AAs (*full*) and lower-closed/Partial AAs (*wet*) from each other and from RAs by whether they have a

maximum or minimum scale point (or neither). *Completely*'s selectivity is due to the fact that its denotation makes explicit reference to a maximum degree. Only Total AAs are able to satisfy this maximum degree presupposition, which remains undefined with other scale structures, yielding the judgments in (18).

(19) $[\![\textit{completely}]\!]_{deg} = \lambda P_{\langle d,\langle e,t\rangle\rangle}.\lambda x_e.\exists d[d = \mathbf{max}(S_P) \wedge P(d)(x)]$
(Kennedy & McNally 2005)

In DelTCS, characterizations of scale structure depend instead on equivalences between the Classical and the Strict (for Total AAs) or Tolerant (for Partial AAs) interpretations (Figure 1). This means that regardless of scale structure, every predicate has a Classical, Tolerant, and Strict interpretation (even if two of them are equivalent). Thus, unlike in the degreeful system, where scales may or may not have a minimum/maximum, DelTCS does not give rise to undefinedness via presupposition failure.

Since the presuppositions which determine scale-structure sensitivity are never undefined in DelTCS, we therefore expect to only find "general use" intensifiers in degreeless languages, rather than structure-specific intensifiers like *completely*. As we discuss in §5, this prediction is borne out empirically, at least for Bardi.

In a degreeless system, DelTCS is required to derive the gradability of AAs. Once this is accomplished, however, intensification can occur via the same Kleinian intensifier in (17) above. As Burnett (2014) notes, most uses of Total AAs will be cases of "speaking loosely" (Lasersohn 1999), which fall into the Tolerant denotation. Likewise, most uses of partial AAs will use the Strict interpretation in the interests of informativity. That is, we are usually happy to call a towel *dry* even if it has a small amount of moisture on it, and will not typically call a rod *bent* unless it has a significant bend in it, despite the fact that even a very small bend is enough to qualify as bent. While the Classical denotations of AAs are not sensitive to comparison class, the Tolerant and/or Strict denotations are. As such, they can be intensified by manipulating the comparison class much as if they were RAs.

In DelTCs, the Classical denotation of an AA is independent of comparison class; that's what it means to be an AA. However, the Tolerant or Strict interpretations do have this sensitivity (§3.2). This means that an intensifier like *very* can have an effect on the Strict or Tolerant interpretation.

Consider first a partial AA like *bent*. The Classical denotation of *bent* includes all those entities that are not absolutely, perfectly straight; any amount of bend is sufficient to be bent. Pragmatically, however, we will instead only consider "bent" those objects which are significantly (strictly) bent, based on whatever comparison set we have in the context ("Unmodified Partial AA" in Figure 2). Especially if the comparison set does not include any perfectly straight objects, the contextual interpretation of *bent* will include only the strictly bent objects.

Unmodified Partial AA Intensified Partial AA

Figure 2 Comparison set sensitivity for Partial AAs

When such an adjective is intensified, *very* will shift the comparison class to just those entities that are already in the positive extension of (the Strict interpretation of) *bent* in the context. When interpreted on this new comparison set X', the Strict interpretation of *bent* becomes stricter yet. This is summarized visually in Figure 2 and formally in (20) below.

(20) $[\![very]\!]_X([\![bent]\!]^s_X)$
$= \lambda P_{\langle e,t\rangle}.\lambda x.[\![P(x)]\!]_{X'}(\{x : \forall y \sim^X_{\mathsf{bent}} x : y \in [\![bent]\!]_X\})$, where $X' = [\![bent]\!]^s_X$
$= \{x : \forall y \sim^{X'}_{\mathsf{bent}} x : y \in [\![bent]\!]_{X'}\})$, where $X' = \{x : \forall y \sim^X_{\mathsf{bent}} x : y \in [\![bent]\!]_X\}$

Because Partial AAs are already interpreted pragmatically according to their Strict interpretation, which is comparison-class–sensitive in the relevant way, a Kleinian intensifier manipulating that comparison class allows for intensification in the same as as for RAs.

Now consider a Total AA, like *straight*. In this case, the adjective is interpreted according to its Tolerant interpretation, rather than the Strict one, as we may not have perfectly (= classically = strictly) straight objects in the context. But that interpretation is likewise sensitive to the comparison class, as illustrated in Figure 3.

(21) $[\![very]\!]_X([\![straight]\!]^t_X)$
$= \lambda P_{\langle e,t\rangle}.\lambda x.[\![P(x)]\!]_{X'}(\{x : \exists y \sim^X_{\mathsf{straight}} x : y \in [\![straight]\!]_X\})$,
where $X' = [\![straight]\!]^t_X$
$= \{x : \exists y \sim^{X'}_{\mathsf{straight}} x : y \in [\![straight]\!]_{X'}\})$,
where $X' = \{x : \exists y \sim^X_{\mathsf{straight}} x : y \in [\![straight]\!]_X\}$

Once the interpretation of *straight* is shifted to the Tolerant one, intensification works like anywhere else: an object is considered "very straight" if it is (toler-

Unmodified Total AA Intensified Total AA

Figure 3 Comparison set sensitivity for Total AAs

antly) straight even when its comparison class is just those things we were already considering straight.

While this kind of intensification with *very* is often considered degraded in English, it's noted in Kennedy & McNally (2005) that it's not impossible, even with Total AAs.

(22) a. This towel is very dry.

b. The glass is very full.

This suggests that even in degreeful languages, such pragmatic coercion is possible, even if it is dispreferred in favor of using a dedicated AA-selecting intensifier. We propose that degreeless languages lack such selective intensifiers, and so there is nothing to block the use of a (delineation) *very*-like intensifier in those languages.

4.2 The non-selectivity of DelTCs intensifiers

As Partial AAs, Total AAs, and RAs can be distinguished in DelTCS, it would be theoretically possible to create a *completely*-like selective intensifier by hard-wiring a presupposition that (for example) the Strict denotation must be equivalent to the Classical Denotation. One possible denotation is as follows:

(23) **A hypothetical delineation semantics selective intensifier**
$[\![\textit{completely(P)}]\!]_X := [\![\mathrm{P}]\!]^s_X = [\![\mathrm{P}]\!]_X . [\![\mathrm{P}]\!]^s_X$
For X a comparison class

This intensifier presupposes that the Strict denotation of a predicate P is identical to its Classical denotation (i.e., it presupposes that P is a Total AA), and then shifts the interpretation of P to its Strict/Classical denotation.

There are two reasons to maintain that this kind of intensifier is impossible or at the very least strongly dispreferred. Firstly, this presupposition would be effectively meaningless; in a degreeful *completely*, the presupposition arises as part of the

intensification: the assertion that a predicate holds to the maximal degree *is* the intensification. A degreeless *completely* would require stapling a presupposition to an otherwise unselective intensifier, and would have no effect on the mechanics of the intensification. This sort of arbitrary presupposition seems unlikely to either develop or be preserved through language change.

Secondly, the denotation in (23) is a lexical item that forcibly shifts a particular pragmatic interpretation. While our theoretical framework distinguishes the Classical denotation from the Strict and Tolerant one, these denotations are not necessarily distinguished by the mechanisms of comparison and intensification. Even though RAs have context-sensitive Classical denotations and thus don't require a DelTCS analysis to explain their gradability, we argue that the same set of interpretations are available on RAs and AAs, which is what allows them to be compared and intensified at all. In a degreeless system, comparison and intensification require context-sensitivity. DelTCS simply explains how AAs can be context-sensitive in the requisite way, as a sort of rescue operation. DelTCS is not the process of comparison or intensification itself—that remains the same regardless of scale structure. For this reason, we don't think that an RA-specific intensifier is possible in a degreeless framework, and the available evidence from degreeless languages supports this analysis.

If, contrary to what we propose, a degreeless language can in fact have an RA- or AA-specific intensifier, this may be a pathway for language change—namely the development of AA-specific intensifiers and of degrees (see Hohaus 2018 for an analysis of the development of degrees in Samoan).

5 Case Study: Bardi

While there are several words that are broadly glossed as intensifiers, Bardi does not show evidence of having a dedicated analogue to the degree modifier *completely*, only a general intensifier *=gij*. When a dedicated morpheme translated as "completely" is present, it is adverbial and likely aspectual in nature:

(24) goolyi i-ng-arr-a-na **garrgooy** i-ny-jiibi-na
bowerbird 3PST-PL-be-REM.PST completely 3-PST-die-REM.PST
'They killed the bowerbird dead.'

Adjectival intensification however, occurs via an intensifier *=gij*. This clitic can modify both RAs, where we expect an intensifier parallel to English 'very' (26a), and also AAs, where we expect an intensifier more akin to English 'completely' (26b). This behavior is unexpected if there are multiple specific intensifiers, but expected if *=gij* is a general intensifier in a delineation framework with TCS, which

does not allow the lexicalization of a Total AA-specific intensifier. This is formalized in (17) and repeated below in (25).

(25) $[\![very]\!]_X = \lambda P_{\langle e,t\rangle}.\lambda x_e.[\![P(x)]\!]_{X'}$
Where $X' = [\![P]\!]_X$

(26) **Bardi intensification** (Bowern 2012: pp. 173, 340)

a. gorna=gij=arr irr baawa
good=VERY=3PL 3PL child
'Those children are very good'
$[\![$ Good(those children) $]\!]_{X'}$
Where $X' = [\![Good]\!]_X$

b. loomi=gij booroo. arra. dalboon=kij boor=a
abandoned-VERY place. NEG dried.up-VERY place=PRED
'It's a place that hasn't been looked after. No, it's just dried out.'
$\text{Place}(x_1) \wedge [\![\text{Abandoned}(x_1)]\!]^t_{X'} \wedge [\![\text{Dried.up}(x_1)]\!]^t_{X''}$
Where $X' = [\![Abandoned]\!]^t_X$
and where $X'' = [\![Dried.up]\!]^t_X$

In the case of an RA like *gorna* 'good' in (26a), intensification works in its most straightforward way: *gorna=gij* 'very good' will be felicitous if its argument is good even on a comparison class of things that are already considered good.

For AAs such as *loomi* 'abandoned' or *dalboon* 'dried up', the predicate itself is frequently interpreted on its Tolerant denotation, in a kind of "loose talk" (Lasersohn 1999). However, as shown in §4.1, this allows for context-sensitivity in terms of how Strict or Tolerant we are, and thus allows for intensification by shifting the comparison class for *loomi* or *dalboon* to those things which we already would consider (tolerantly) abandoned or dried up.

This supports our claim that degreeless languages, while they may allow comparative constructions with AAs as well as RAs, are not able to have intensifiers that target a particular standard type or scale structure.

6 Supporting Data from Washo *=šému*

Data from the degreeless language Washo (Hokan/Isolate, Nevada/California) (Bochnak 2015) provides additional support for the DelTCS analysis of degreeless intensification. Washo has a non-selective intensifier *šému* which closely resembles Bardi *=gij*. It modifies both RAs (27a) and AAs (27b), as well as NSAs, nouns, and verbs (Beltrama & Bochnak 2015).

(27) a. t'é:liwhu ʔil-téteb-iʔ **šému**-yi
man ATTR-fat-ATTR **ŠÉMU**-IPFV
'The man is **very** fat.' (*RA*)

b. máʔak ʔil-šíːšib-iʔ **šému**-yi
wood ATTR-straight-ATTR **ŠÉMU**-IPFV
'The stick is **really** straight.' *(AA)*

Like many degreeless languages, Washo forms conjoined comparatives of the form *A is P, B is not P* (Bochnak 2015). With RAs, an unmodified conjoined comparative is felicitous (28). But with AAs, conjoined comparatives (29) are infelicitous without the intensifier *šému* 'really'.

(28) **Washo Relative Adjective Comparative** (Bochnak 2013: ex. 12)

t'eːliwhu de-ʔil-káykay-iʔ k'-éʔ-i šáwlamhu
man NMLZ-ATTR-tall-ATTR 3-COP-IPFV girl
de-ʔil-káykay-iʔéːs k'-éʔ-aʔ-š
NMLZ-ATTR-tall-ATTR-NEG 3-COP-AOR-SR

'The man is taller than the girl.'
(Literally: 'The man is tall, the girl is not tall.')

(29) **Washo Absolute Adjective Comparatives** (Bochnak 2013: exx. 24b,25)
Context: Two rods, both bent but one significantly more than the other.

a. # wíːdiʔ ʔil-k'únk'un-iʔ-i wíːdiʔ ʔil-k'únk'un-iʔ-eːs-aʔ-š
this ATTR-bent-ATTR-IMPV this ATTR-bent-ATTR-NEG-AOR-SR
Intended: 'This one is more bent than that one'
(Literally: 'This one is bent, that one is not bent')

b. wíːdiʔ ʔil-k'únk'un-iʔ-aʔ-š wíːdiʔ ʔil-k'únk'un-iʔ
this ATTR-bent-ATTR-AOR-SR this ATTR-bent-ATTR
šemu-eːs-aʔ
really-NEG-AOR
'This one is more bent than that one.'
(Literally: 'This one is bent, that one is not very bent.')

DelTCS provides a neat explanation for why intensifiers are required for AA comparatives but not RA comparatives—an asymmetry which parallels the behavior of the positive forms of AAs and RAs in the Definite Description test, as shown above in (10).

Conjoined comparatives are formed by two antonymic propositions. In (29), both objects in the context are bent (noticeably and thus strictly so), and so a conjoined comparative asserting that one is bent and the other is not is infelicitous. Burnett's account predicts that (29a) should be acceptable if one rod can be construed as

strictly bent while the other is not: Adding the intensifier *šemu* in (29b), introduces the requisite (pragmatic) context-sensitivity to make the sentence felicitous.

Like Bardi *=gij*, we can analyse Washo *šému* as an intensifier that relativizes the predicate to a more restricted comparison class. (29a) is infelicitous if the two rods are both noticeably bent, suggesting that on a typical comparison class they are both within the Strict denotation of 'bent', the use of the intensifier *šému* allows the comparison to be shifted to one that consists of things that are already strictly bent, thereby raising the standard for being considered bent. This meaning for (29b) is formalized below.

(29b′) $[\![\,\text{bent}(a)\,]\!]^{s}_{X} \wedge \neg [\![\,\text{bent}(b)\,]\!]^{s}_{X'}$
Where $X' = [\![\,bent\,]\!]^{s}_{X}$

Negating the intensified predicate indicates that while *a* may be considered part of this more highly bent set, *b* cannot be, deriving a (pragmatic) comparative meaning that is not available with the predicates alone.

7 Remaining issues

Though we predict that degreeless languages do not have selective intensifiers, the analysis we propose is not necessarily the only mechanism for intensification in degreeless languages. Constantinescu's (2013) analysis of nominal intensification in English provides two potential alternative strategies. The first is abstract size modification, which applies in cases like (32).

(30) He's a big idiot.

(31) $[\![\,big\ idiot\,]\!] = \lambda x \lambda p.idiot(x,p) \wedge big(p)$

Drawing on Larson's (1998) analysis of non-intersective adjectives, Constantinescu (2013) analyzes nouns like *idiot* as being instantiations of tropes (in this case, the trope of idiocy). On her analysis, tropes have abstract size, and this is what is modified by the size adjective in (30). A similar sort of intensification could occur in degreeless languages, where a term like 'big' could intersectively modify the abstract size of the property the adjective denotes.

The second strategy is epistemic intensification. Constantinescu analyzes cases like (32) as universally quantifying over worlds compatible with the speaker's doxastic alternatives, and asserting that in all of those worlds, *x* is *P*.

(32) He's a real idiot.

(33) $[\![\,real\ idiot\,]\!] = \lambda x \lambda w.\forall w' \in Dox_{w,Holder}[\text{idiot}(x) \text{ in } w']$

This analysis functions quite similarly to the one proposed in this paper by effectively removing peripheral cases of *P* from consideration. It also parallels the

analysis Beltrama & Bochnak (2015) give for *šému* in Washo, which universally quantifies over accessible contexts instead of possible worlds. This sort of analysis might also help explain the common polysemy in Australian languages between intensifiers and words for 'true' or 'truly'.

Our proposal focused on intensification, but its inverse, attenuation, requires a similar treatment. Attenuators are attested in degreeless languages such as Warlpiri:

(34) a. *wita-karrikarri* 'slightly small' (Bowler 2016: 10)
b. *wiri-karrikarri* 'slightly big' (Bowler 2016: 10)

Following Klein (1980), a preliminary analysis for a degreeless attenuator is that its function is to remove the clearest cases of A from the comparison class relative to which a predicate is evaluated:

(35) $[\![fairly]\!]_X = \lambda P_{\langle e,t \rangle}.\lambda x_e.[\![P(x)]\!]_{X'}$
Where $X' = X - [\![very(P)]\!]_X$

Whether or not this analysis can account for all the uses of this attenuator is beyond the scope of this paper, but is an important question for future research.

The analyses presented in this paper make clear predictions about what constructions are or are not available in languages argued to be degreeful, but further semantic fieldwork is necessary to determine whether these predictions hold. The body of research on degreeless languages is growing, but many degreeless languages, especially those of Australia, are seriously understudied from a theoretical perspective. Careful, targeted elicitation on degree topics is required to gather the relevant evidence to identify and further understand degreelessness.

8 Conclusions

In this paper, we delimit the possibilities for intensification and direct reference to scale structure within degreeless languages. Like certain types of comparative expressions and measure phrases, intensifiers that are sensitive to scale structure are apparently absent from degreeless languages. We propose that this is because they, like measure phrases and differential comparatives, reference specific points on a scale, which requires degrees.

We characterize the semantics of these degreeless intensifiers in DelTCS (Burnett 2014), which allows us to define a general delineation intensifier that is compatible with absolute adjectives—an intensifier not expressible in classical delineation semantics (Klein 1980). DelTCS is still a constrained system, however: scale-structure—sensitive intensifiers cannot be defined without additionally proposing a device to shift the pragmatic interpretation of a predicate.

This proposal has two significant outcomes: First, it explains how a general-use intensifier can be used on both relative and absolute adjectives. Second, it suggests an additional diagnostic for determining whether a language is degreeless, and importantly a diagnostic that is easier to deploy in general-use fieldwork and archival data sources. Eliciting complex constructions like differential comparatives (or negative evidence) remains the most reliable method of diagnosing degreefulness, but such constructions are rare to nonexistent in existing grammar sources. Intensifiers like 'very' or 'completely', however, are relatively frequent in textual sources and dictionaries even in low-resource or understudied languages. Information about their distribution is also more likely to have been elicited, even if the focus of language documentation was not semantics. If the proposal here is correct, and intensifiers like 'completely' require degrees, then the presence or absence of such selective intensifiers is a good early diagnostic for degreefulness.

References

Aklif, Gedda. 1999. *Ardiyooloon Bardi Ngaanka: One Arm Point Bardi Dictionary*. Halls Creek, Western Australia: Kimberley Language Resource Centre.

Beck, Sigrid, Sveta Krasikova, Daniel Fleischer, Remus Gergel, Stefan Hofstetter, Christiane 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.

Bochnak, M Ryan. 2013. *Cross-Linguistic Variation in the Semantics of Comparatives*: University of Chicago PhD dissertation.

Bochnak, M Ryan. 2015. The Degree Semantics Parameter and cross-linguistic variation. *Semantics and Pragmatics* 8(6). 1–48.

Bowern, Claire. 2002. *Jiiba nganman jawal*: Stories in Bardi and English from the elders of One Arm Point and Sunday Island. Transcriptions and translations of narratives collected under AIATSIS Grant G2001/6505, awarded to Claire Bowern and Bessie Ejai. MS, Yale University, circulated at One Arm Point School.

Bowern, Claire. 2012. *A Grammar of Bardi*. Berlin: Mouton De Gruyter.

Bowern, Claire (ed.). 2023. *The Oxford Guide to Australian Languages*. Oxford University Press.

Bowern, Claire, Laura Kling, Linda Lanz & David Katten. 2010. A learner's guide to Bardi. One Arm Point School.

Bowler, Margit. 2016. The status of degrees in Warlpiri. *The Semantics of African, Asian and Austronesian Languages (Triple-A)* 2. 1–17.

Burnett, Heather. 2014. A Delineation solution to the puzzles of absolute adjectives. *Linguistics and Philosophy* 37(1). 1–39. doi:10.1007/s10988-014-9145-9.

Cobreros, Pablo, Paul Egré, David Ripley & Robert Van Rooij. 2012. Tolerant, Classical, Strict. *Journal of Philosophical Logic* 41(2). 347–385. doi:10.1007/s10992-010-9165-z.

Constantinescu, Camelia. 2013. Big eaters and real idiots: Evidence for adnominal degree modification? *Sinn und Bedeutung (SuB)* 17. 183–200.

Cresswell, Max J. 1977. The semantics of degree. In Barbara Hall Partee (ed.), *Montague Grammar*, 261–92. New York: Academic Press.

Hohaus, Vera. 2018. How do degrees enter the grammar? Language change in Samoan from [-DSP] to [+DSP]. *Triple-A: Fieldwork Perspectives on the Semantics of African, Asian and Austronesian Languages* 4. 106–120. doi:10.15496/publikation-24546.

Israel, Michael. 2006. The pragmatics of polarity. In Laurence R. Horn & Gregory Ward (eds.), *The Handbook of Pragmatics*, 701–723. Oxford, UK: Blackwell Publishing Ltd. doi:10.1002/9780470756959.ch31.

Kapitonov, Ivan. 2019. Degrees and scales of Kunbarlang. In *TripleA 5: Fieldwork Perspectives on the Semantics of African, Asian and Austronesian Languages*, Universität Tübingen. doi:10.15496/publikation-36875.

Kennedy, Christopher. 2007. Modes of comparison. In *Chicago Linguistic Society (CLS)*, vol. 43, 141–165. Chicago Linguistic Society.

Kennedy, Christopher & Louise McNally. 2005. Scale structure, degree modification, and the semantics of gradable predicates. *Language* 81(2). 345–81.

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

Larson, Richard K. 1998. Events and modification in nominals. *Semantics and Linguistic Theory (SALT)* 145–168.

Lasersohn, Peter. 1999. Pragmatic halos. *Language* 75(3). 522–551. doi:10.2307/417059.

Matthewson, Lisa. 2004. On the methodology of semantic fieldwork. *International Journal of American Linguistics* 70(4). 369–415.

Metcalfe, C.D. 1975. *Bardi Verb Morphology*. Canberra: Pacific Linguistics.

Rotstein, Carmen & Yoad Winter. 2004. Total adjectives vs. partial adjectives: scale structure and higher-order modifiers. *Natural Language Semantics* 12(3). 259–288. doi:10.1023/B:NALS.0000034517.56898.9a.

Syrett, Kristen, Christopher Kennedy & Jeffrey Lidz. 2010. Meaning and context in children's understanding of gradable adjectives. *Journal of Semantics* 27(1). 1–35.

Van Benthem, Johan. 1982. Later than late: On the logical origin of the temporal order. *Pacific Philosophical Quarterly* 63(2). 193–203.

van Rooij, Robert. 2011. Implicit versus explicit comparatives. In Paul Égré & Nathan Klinedinst (eds.), *Vagueness and Language Use*, 51–72. London: Palgrave Macmillan UK. doi:10.1057/9780230299313_3.

Van Rooij, Robert. 2011. Vagueness and Linguistics. In Giuseppina Ronzitti (ed.), *Vagueness: A guide*, 123–170. Dordrecht: Springer Netherlands. doi:10.1007/978-94-007-0375-9_6.

Lydia Newkirk
707 S. Mathews Ave.
Urbana, IL 61801-3625
lnewkirk@illinois.edu

Tomás Fuchs-Lynch
37 Hillhouse Ave.
New Haven, CT, 06520-8366
tomas.fuchs-lynch@yale.edu

Claire Bowern
37 Hillhouse Ave.
New Haven, CT, 06520-8366
claire.bowern@yale.edu