

Warlpiri similatives*

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1. Introduction

- Beck et al. (2009) propose a parameter of crosslinguistic semantic variation called the Degree Semantics Parameter (DSP).
 - This states that languages can vary as to whether or not their property concept words (*big, tall, short*) take a degree argument.
 - Property concepts are adjectives in English but can be verbal or nominal in other languages (Thompson 1989).
- (1) Property concepts of +DSP languages:
 $\llbracket \text{tall} \rrbracket = \lambda d \lambda x. \text{tall}(x, d)$ $\langle d, \langle e, t \rangle \rangle$
- (2) Property concepts of –DSP languages:
 $\llbracket \text{tall} \rrbracket^c = \lambda x. \text{tall}(x) \text{ in } c$ $\langle e, t \rangle$
- Beck et al. (2009) argue that languages with a negative setting of the DSP should exhibit a cluster of properties resulting from the absence of degrees, including:
 - Lack of an explicit comparative morpheme (English *-er/more*; *Mary is taller than Susan*)
 - Lack of measure phrases (*Mary is 6ft tall*)
 - Lack of degree questions (*How tall is Mary?*)
 - Bowler (2016) argued that Warlpiri (Pama-Nyungan, Ngumpin-Yapa; Australia) is a language with a negative setting of the DSP: It has conjoined comparatives and lacks

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explicit comparative morphology, measure phrases, differential comparatives, degree questions, and all other degree constructions.¹

The puzzle:

- My most recent fieldwork (Aug-Oct 2019) investigated some expressions that pose a challenge to the –DSP analysis of Warlpiri.
- These data points involve the nominal suffixes *-piya* and *-kanjayi*. In this talk, I'll primarily discuss *-piya*.
- Warlpiri expressions with *-piya* and *-kanjayi* are given as translational equivalents of the following English degree expressions:
 - Degree equatives: *Mary is as tall as Ruth.*
 - Degree questions: *How tall is Mary?*
 - Degree demonstratives: *Mary is yea tall.* (accompanied by a gesture)
 - (Quasi-measure phrases: *The grass is knee-high.*)
- These expressions are typically analyzed using degrees (Cresswell 1976; Kennedy 1999; Beck et al. 2009; Rett 2014, 2015, a.o.), presupposing a +DSP setting.

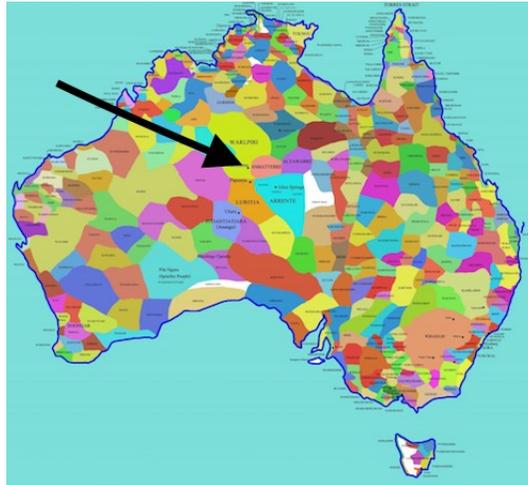
⇒ This talk: **Does this data require reanalyzing Warlpiri as a +DSP language?**

- The Warlpiri suffix *-piya* can (and in fact, should) be analyzed without degrees.
- The Warlpiri suffix *-kanjayi* is less clear-cut, but can also be analyzed degreelessly.
- I analyze both Warlpiri suffixes as similatives, expressing similarity between eventualities.
- This talk broadens our understanding of degreeless strategies that languages can use to encode meanings that are degreeful in other languages.

¹Other languages that have been argued to be –DSP: Washo (isolate; USA; Bochnak 2013, 2015), Motu (Austronesian; Papua New Guinea; Beck et al. 2009), Fijian (Austronesian; Fiji; Pearson 2010) (but see Hanink 2019), ʔayʔajuθəm (Salish; Canada; Reisinger and Lo 2017) (but see Davis and Mellesmoen 2019), Nez Perce (Sahaptian; USA; Deal and Hohaus 2019), and American Sign Language (Koulidobrova et al. 2021).

2. Background on Warlpiri

3,000 speakers, mostly in the Northern Territory of Australia.
Hale (1983), Nash (1980), Simpson (1991).



- Very flexible word order
- Widespread pro-drop
- Split-ergative; ergative/absolutive case marking on nouns
- Warlpiri property concept words are nouns
- No overt definiteness/indefiniteness marking on nouns
- Non-verbal predicates can co-occur with a copular postural verb²

(3) Kapirdi wirijarlu.
older.sister big
'The older sister is big.'³ (WDP)

(4) Kuwarlija=ji ka nyina wiri.
poisonous.snake=TOP AUX.PRES sit big
'Kuwarlija is big.' (WDP)

Data in this handout is primarily from the Warlpiri Dictionary Project (indicated with WDP; Laughren et al.) and from fieldwork with five native speakers in 2014-2015 and 2019.

²Postural verbs that are used as copulas: *nyinami* 'to sit', *karrimi* 'to stand', *ngunami* 'to lay'.

³Abbreviations used in this handout: 1 'first person', 2 'second person', 3 'third person', ABS 'absolutive', AUX 'auxiliary', DAT 'dative', ERG 'ergative', IMPER 'imperative', INFIN 'infinitive', INTENS 'intensifier', LOC 'locative', NPST 'non-past', NSUBJ 'non-subject', PL 'plural', PRES 'pres', PST 'past', SEQ.COM 'sequential complementizer', SIM 'similative', SUBJECT 'subject', TOP 'topic'.

3. Similative #1: *-piya*

- *-piya* is a similative nominal suffix. *N-piya* expressions can be translated as ‘like N’ or ‘in a N-like way’, where N is the noun that *-piya* suffixes onto.
- (5) Wirriya warlkurr-ma-nu jarntu-piya.
 boy bark-do-PST dog-SIM
 ‘The boy barked like a dog.’
- (6) Nakamarra-piya karli-ya.
 Nakamarra-SIM dig-IMPER
 ‘Dig like Nakamarra (is digging).’
- What counts as being *N-piya* varies contextually; for example, in the case of *Nakamarra-piya* ‘Nakamarra-like’, it could refer to digging quickly; forcefully; shallowly; etc.
 - *N-piya* constituents are case-marked. Absolutive case is phonologically null in Warlpiri, while other cases are overtly marked as suffixes.
- (7) Warlu-piya-rlu=ju ka=nganpa janka-mi.
 fire-SIM-ERG=TOP AUX.PRES=1PL.EXCL burn-NPST
 ‘It [the wasp] burns us like fire does.’ (WDP)
- (8) Yiki-nyina-mi ka=rla kurdu wita-piya-ku.
 try.to.warn-NPST AUX.PRES=DAT child little-SIM-DAT
 ‘She tries to dissuade him as though he’s a little child.’ (Simpson 2020, 350)
 ≈ ‘She tries to dissuade him like a child.’
- The use of *-piya* in similatives like (5)-(8) supports a degreeless analysis of it, since there is no motivation to invoke degrees in the semantics of these examples.⁴

Degree equative use

- *-piya* occurs in Warlpiri expressions that are provided as translations of English degree equatives: *Mary is as tall as June*.⁵
- These Warlpiri expressions involve two individuals, A and B, and mean that A and B both instantiate the property concept predicate similarly.
- Here the predicates can be stative property concept words like *kirrirdi(mpayi)* ‘tall’, *wiri* ‘big’, etc., rather than the eventive predicates shown above.

⁴See Simpson (2020) for an LFG analysis of *-piya*, which also does not involve degrees.

⁵Some other ways that Warlpiri speakers translate English degree equatives are by asserting that the predicate holds of both individuals (‘Japaljarri and Jakamarra are short’) and by using the lexical item *jurrku* ‘same’ (‘They are the same, Japaljarri and Jakamarra’).

- *-piya* occurs in translations of property concept equatives ('A is as P as B') as well as quantity equatives ('A has as many N as B').

(9) Prompt: 'Japaljarri is as tall as Jakamarra.'

Japaljarri=ji kirrirdimpayi, Jakamarra-piya.

Japaljarri=TOP tall Jakamarra-SIM

'Japaljarri is tall, like Jakamarra.'

(10) Prompt: 'Jampijinpa has as many dogs as Jakamarra.'

Jampijinpa-rlu ka marda-rni panu maliki, Jakamarra-piya-rlu.

Jampijinpa-ERG AUX.PRES have-NPST many dog Jakamarra-SIM-ERG

'Jampijinpa has many dogs, like Jakamarra.'

- Importantly, the truth conditions of examples like (9)-(10) are not the same as English degree equatives. English degree equatives of gradable predicates are false if the degree to which the subject instantiates the gradable predicate is less than the degree to which the standard instantiates it.

(11) *Japaljarri is as tall as Jakamarra* = true iff Japaljarri's height \geq Jakamarra's height

(12) $\llbracket (11) \rrbracket = 1$ iff $\text{MAX}(\lambda d. \text{tall}(\text{Japaljarri}, d)) \geq \text{MAX}(\lambda d'. \text{tall}(\text{Jakamarra}, d'))$

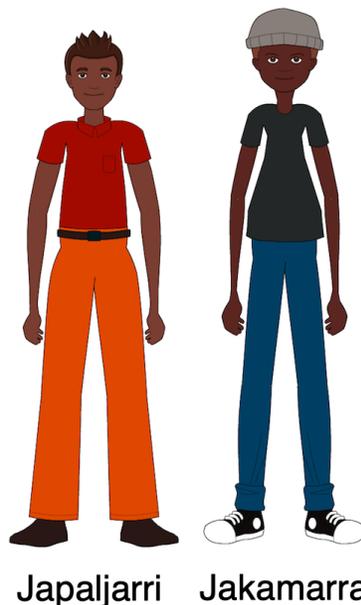


Figure 1: Context in which the English degree equative *Japaljarri is as tall as Jakamarra* is infelicitous (false), but the Warlpiri example in (9) is acceptable.

- A degreeful analysis of equatives enables positing a \geq ordering relation between degrees (e.g. Rett 2015, 44).
- Warlpiri “equatives” with *-piya* have less strict truth conditions. (9) requires only that Japaljarri and Jakamarra have similar, tall heights; i.e., they are similar in their tallness. It is felicitous even if Japaljarri is shorter than Jakamarra, as in Figure 1, unlike (11).
- Warlpiri predicates in examples like (9) are entailed to the positive degree: (9) entails that both Japaljarri and Jakamarra are tall.⁶
- This differs from English degree equatives; *Japaljarri is as tall as Jakamarra* does not entail that either Japaljarri or Jakamarra are tall.⁷
- This truth-conditional difference between English degree equatives and Warlpiri *-piya* expressions in which the vagueness and positive entailment of the gradable predicate is maintained in Warlpiri suggests that a degreeful analysis of *-piya* is unnecessary.

Degree question use

- *-piya* can combine with the Wh-word *nyiya* ‘what’ to ask about properties of individuals:⁸
- (13) Nyiya-piya yimi=ji?
 what-SIM voice=TOP
 ‘What is its sound like?’ (WDP)
- (14) Nyiya-piya ka parnti?
 what-SIM AUX.PRES smell
 ‘What does it smell like?’ (WDP)
- Felicitous answers to these *nyiya-piya* questions are nominal property concept words like *ngurrju* ‘good’, *punku* ‘bad’, etc.
 - *Nyiya-piya* questions can be used to elicit (some of) the same kinds of answers as English degree questions like *How tall is Mary?*, where possible answers are vague predicates like *tall*, *short*, etc.
 - *Nyiya-piya* questions are therefore provided as possible translations of English degree questions, since they can elicit the same kinds of property concept answers.⁹

⁶This is a strong impression that I have, but it should be double checked in the field.

⁷English degree equatives (and other constructions) formed with negative antonyms like *short* and *small* do entail to the positive degree; Rett (2015, 46).

⁸The Wh-word *nyarrpa* ‘how’ is used to ask about manners of eventive predicates.

⁹The other main strategy used to translate English degree questions into Warlpiri is to transform them into polar questions: ‘Is the goanna big?’

- (15) a. Prompt: ‘How big is the goanna?’

Nyiya-piya wardapi=ji?

what-SIM goanna=TOP

‘What is the goanna like?’

- b. Wirijjarlu-nyayirni!

big-INTENS

‘Very big!’

- A significant difference between English degree questions and Warlpiri *nyiya-piya* questions is that the latter are underspecified with respect to the property they are asking about, as as such permit a wider variety of answers than degree questions do.
- For instance, (15-a) could also be answered by *walyawalya* ‘brown’, which is not a felicitous answer to an English degree question.

- (16) How tall is Mary?

a. Tall. / Short. / 6ft.

b. #Brown-haired. / #Angry.

- Another difference between Warlpiri *nyiya-piya* questions and English degree questions is that *nyiya-piya* questions cannot be answered using measure phrases like *6ft tall*, since Warlpiri lacks measure phrases (Bowler 2016).¹⁰

The suffix *-piya* expresses similarity. It can be used to translate English degree equatives, and can combine with the Wh-word *nyiya* ‘what’ to translate English degree questions.

However, neither Warlpiri expression has the same semantics as their counterparts in English, suggesting that they do not need to be analyzed using degree semantics.

4. Similative #2: *-kanjayi*

- The nominal suffix *-kanjayi* is used much less frequently than *-piya*, but has a very similar distribution in that it also expresses similarity.
- Unlike *-piya*, *-kanjayi* is dimensionally restricted in that it can only refer to similarity in distance. It is underspecified for vertical or horizontal distance.¹¹

¹⁰I suspect, but am not certain, that *6ft* would be felicitous if the speaker answering the question code-switched to English. This raises interesting issues regarding the compositionality of code-switches between degreeful and degreeless languages.

¹¹This underspecification exists elsewhere in Warlpiri; the property concept word *kirrirdi* can mean both ‘tall’ and ‘long.’

- *N-kanjayi* expressions can be roughly translated as ‘N-far’ or ‘N-distant’, where ‘far’ / ‘distant’ is underspecified for vertical or horizontal distance. However, this does not require that N be ‘far’ or ‘distant’ in the positive sense.

(17) Ka-nja-rla yinya-kanjayi kala yirra-rnu purturlu-rla.
 carry-INFIN-SEQ.COMP there-KANJAYI AUX.PST put-PST crest-LOC
 ‘After carrying it as far as that he put it down on high ground.’ (WDP)
 ≈ ‘After carrying it there-far he put it down on high ground.’

(18) Kuja-kanjayi purrparlu-ka-ngu kurlarni.
 thus-KANJAYI heavy.fall-carry-PST south
 ‘At that distance it fell with a thud to the south.’ (WDP)
 ≈ ‘It fell with a thud that-far to the south.’

Quasi-measure phrase use

- *N-kanjayi* expressions can be translated into English as quasi-measure phrases.

(19) Marna=ju mirriji-kanjayi.
 grass=TOP shin-KANJAYI
 ‘The grass is shin-high.’

(20) Pikilyi-kanjayi.
 Pikilyi-KANJAYI
 ‘As far away as Pikilyi.’ ≈ ‘Pikilyi-far.’ (WDP)

- I call these quasi-measure phrases because they do not specify a particular degree of height/distance, unlike true measure phrases like *6ft*. They intuitively seem to maintain the vagueness of relative gradable property concept words like *tall*; for instance, one could imagine borderline cases of something being ‘shin-high’.

Degree demonstrative use

- *-kanjayi* combines with the demonstrative *kuja* (a demonstrative of manner like English *thus*) to yield expressions that can be translated as degree demonstratives like English *John is yea tall*.

(21) Japaljarri kuja-kanjayi.
 Japaljarri thus-KANJAYI
 ‘Japaljarri is this tall.’ (accompanied by gesture)

- Unlike English degree demonstratives, Warlpiri *kuja-kanjayi* expressions do not require a property concept word (**John is yea*). The dimension of height/distance is contributed by *-kanjayi* itself.

- *Kuja-kanjayi* expressions can only refer to height or distance; for instance, (21) cannot mean ‘Japaljarri does something like this/in this manner.’
- I do not currently know whether *kuja-kanjayi* expressions are vague, or if they require that the individual’s height/distance be exactly the indicated degree.¹²

Like *-piya*, *-kanjayi* expresses similarity. It is dimensionally restricted to similarity in distance, whether horizontal or vertical.

As such, it can be used to form quasi-measure phrases and degree demonstratives.

5. Analysis

5.1. Analysis of *-piya*

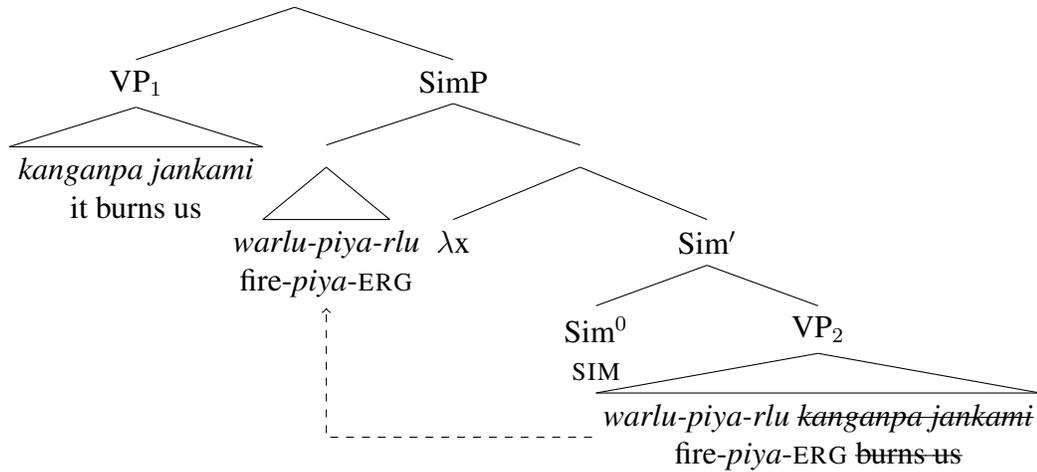
- I propose that *-piya* expressions involve ellipsis of repeated material:

(22) Wirriya warlkurr-ma-nu jarntu-piya.
 boy bark-do-PST dog-SIM
 ≈ ‘The boy barked like a dog barked.’

(23) Warlu-piya-rlu=ju ka=nganpa janka-mi.
 fire-SIM-ERG=TOP AUX.PRES=1PL.EXCL burn-NPST
 ≈ ‘It [the wasp] burns us like fire burns us.’ (WDP)

- *-piya* is base generated low in the structure with the noun it attaches to; the *N-piya* constituent then moves out of an elided phrase into the specifier of a Similative Phrase (SimP). I assume lambda-binding of the remaining variable.

¹²Rett (2015, 110) analyzes English degree demonstratives like *yea/that* as picking out a specific degree; i.e., not vague.

(24) Syntax sketch:¹³

- This accounts for the case marking on *N-piya* expressions. *Warlu-piya* ‘fire’ in (23) has ergative case marking because it originates as a subject in the specifier of an elided VP.
- *-piya* contributes the syntactic requirement that the noun it combines with moves to Spec,SimP (analogous to how Wh-words with a +Q feature must move to Spec,CP).
- The actual similative semantics is contributed by the head of the Similative Phrase, SIM, which is silent in Warlpiri.¹⁴
- I assume a Davidsonian semantics of predicates (Davidson 1967), and follow Bach (1986) in treating both events and states as eventualities of type v , variable e .¹⁵
- I analyze property concept words like *wiri* ‘big’ as taking an eventuality argument (Fults 2006; Wellwood 2015; Baglini 2015; Glass 2019, a.o).

(25) $\llbracket \textit{warlkurr-mani}$ ‘to bark’ $\rrbracket = \lambda x \lambda e. \textit{bark}(e,x)$ $\langle e, \langle v,t \rangle \rangle$ (26) $\llbracket \textit{wiri}$ ‘big’ $\rrbracket = \lambda x \lambda e. \textit{big}(e,x)$ $\langle e, \langle v,t \rangle \rangle$

- SIM takes two predicates of eventualities and encodes a similarity relation between two eventualities \approx . What it means for two eventualities to be similar can vary contextually.

(27) $\llbracket \textit{SIM} \rrbracket = \lambda P_{\langle v,t \rangle} \lambda Q_{\langle v,t \rangle} \lambda e_v. Q(e) \wedge \exists e' [P(e') \wedge e' \approx e]$ $\langle \langle v,t \rangle, \langle \langle v,t \rangle, \langle v,t \rangle \rangle \rangle$

¹³I omit the contribution of the topic clitic =*ju* here and elsewhere in the handout. This clitic is not well understood.

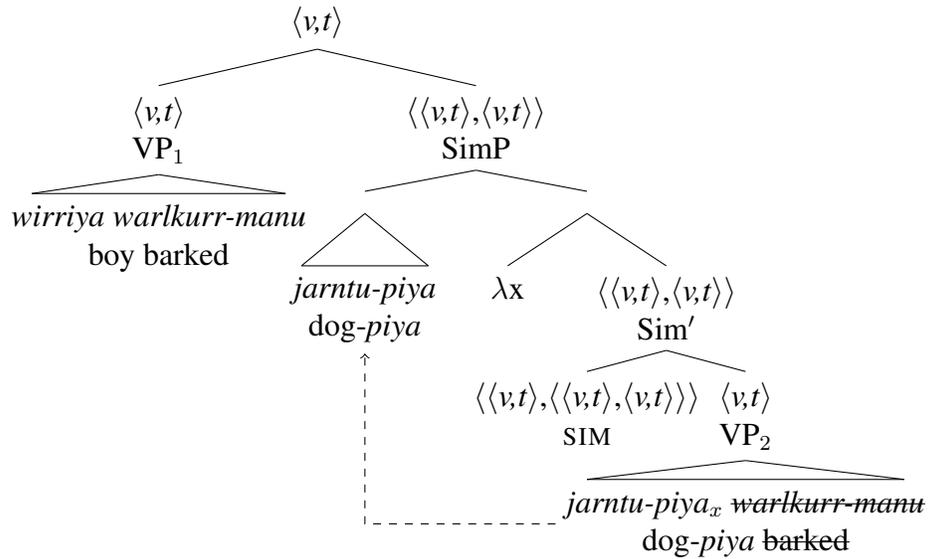
¹⁴SIM could be overtly realized as *as* in English similatives: *Mary sang as June did*.

¹⁵I omit the contribution of tense/aspect throughout this handout. I assume a Davidsonian rather than neo-Davidsonian semantics to save space; this analysis could also be couched in neo-Davidsonian terms.

- SimP is a modifier of predicates of eventualities; it is of type $\langle\langle v,t\rangle,\langle v,t\rangle\rangle$. This reflects its status as an adverb.

5.2. Basic similative use

- (28) Wirriya warlkurr-ma-nu jarntu-piya.
 boy bark-do-PST dog-SIM
 ‘The boy barked like a dog.’



$$(29) \quad \llbracket \text{SimP} \rrbracket = \lambda Q_{\langle v,t \rangle} \lambda e_v. Q(e) \wedge \exists e' [\text{bark}(e', \text{dog}) \wedge e' \approx e]$$

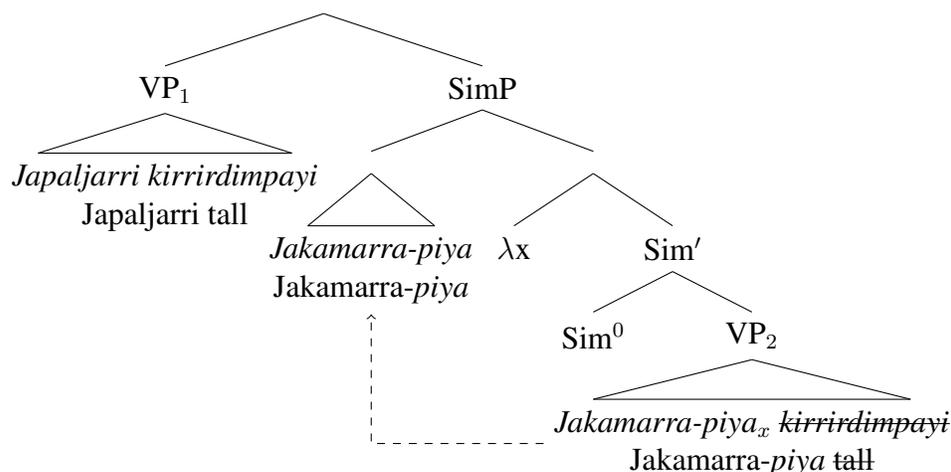
$$(30) \quad \llbracket (28) \rrbracket = 1 \text{ iff } \exists e [\text{bark}(e, \text{boy}) \wedge \exists e' [\text{bark}(e', \text{dog}) \wedge e' \approx e]]$$

- (28) is true if the event of the boy barking is similar to an event of a dog barking.

5.2.1 Use in translations of degree equatives

- In Warlpiri translations of English degree equatives, SimP modifies a set of stative eventualities.¹⁶

(31) Japaljarri=ji kirrirdimpayi, Jakamarra-piya.
 Japaljarri=TOP tall Jakamarra-SIM
 ‘Japaljarri is tall, like Jakamarra.’



(32) $\llbracket \textit{kirrirdimpayi} \textit{ 'tall'} \rrbracket = \lambda x \lambda e. \textit{tall}(e, x)$

(33) $\llbracket \textit{SimP} \rrbracket = \lambda Q_{\langle v, t \rangle} \lambda e. Q(e) \wedge \exists e' [\textit{tall}(e', \textit{Jakamarra}) \wedge e' \approx e]$

(34) $\llbracket (31) \rrbracket = 1 \text{ iff } \exists e [\textit{tall}(e, \textit{Japaljarri}) \wedge \exists e' [\textit{tall}(e', \textit{Jakamarra}) \wedge e' \approx e]]$

- (31) denotes similarity between two tallness-eventualities.
- ‘Tall’ is a dimensional predicate; as such, for two tallness-eventualities to be similar, this means they denote a similarly tall height.
- (31) is true as long as the tallness-eventualities that Japaljarri and Jakamarra are participating in are similar. It does not require that Japaljarri’s height be greater than or equal to Jakamarra’s. These are the correct truth conditions, as discussed in §3.
- This also correctly accounts for the fact that (31) entails that both Japaljarri and Jakamarra are tall.
- Importantly for the –DSP analysis of Warlpiri, this analysis of (31) is degreeless.

¹⁶Manner adverbial modification of stative predicates in English is subject to semantic/pragmatic restrictions (Ernst 2016); some authors have argued that it is not possible (Maienborn 2005).

5.2.2 Use in translations of degree questions

(35) Nyiya-piya wardapi=ji?
 what-SIM goanna=TOP
 ‘What is the goanna like?’

- I propose that the predicate in (35) is a silent postural verb like *nyinami* ‘to sit’, which can optionally be realized overtly, as in (36) (see footnote 2).

(36) Kuwarlija=ji ka nyina wiri.
 poisonous.snake=TOP AUX.PRES sit big
 ‘*Kuwarlija* is big.’ (WDP)

- The purpose of this silent postural verb is to introduce an eventuality argument for SimP to modify. However, the precise nature of nonverbal predication in Warlpiri is orthogonal to my analysis.¹⁷
- I assume a Hamblin semantics for questions (Hamblin 1973). Questions are modeled as denoting sets of propositions; Wh-words like *nyiya* ‘what’ denote sets of alternatives that combine with the rest of the utterance via pointwise functional application.
- Warlpiri property concept words are nouns, and in/definiteness marking is covert in the language (Bittner and Hale 1995).
- Bare Warlpiri property concept nouns, like other nouns, can be interpreted definitely, indefinitely, or as kinds.

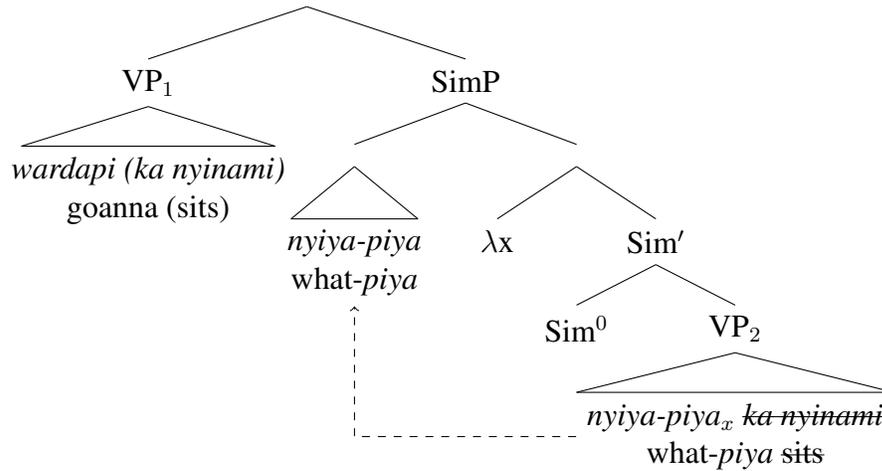
(37) a. $\llbracket \textit{jarntu}$ ‘dog’ $\rrbracket = \exists x[\textit{dog}(x)]$
 b. $\llbracket \textit{wiri}$ ‘big’ $\rrbracket = \exists x[\textit{big}(x)]$

- For *nyiya-piya* questions like (39), the domain of *nyiya* ‘what’ is a set of indefinite property concept nouns.
- I will restrict this domain to just three possible answers, to simplify things, although in principle the addressee could respond by naming any contextually salient property of the goanna.

(38) $\llbracket \textit{nyiya}$ ‘what’ $\rrbracket = \{\exists x[\textit{long}(x)], \exists x[\textit{big}(x)], \exists x[\textit{brown}(x)]\}$

¹⁷The current story suggests that nouns like *wardapi* ‘goanna’ could stand alone as existential utterances; e.g. *wardapi* could mean ‘there is a goanna’. Fieldwork is needed to check this. See Francez (2007, 10) for discussion of the optionality of copulas in existential sentences.

- (39) Nyiya-piya wardapi=ji?
 what-SIM goanna=TOP
 ‘What is the goanna like?’



- (40) $\llbracket (39) \rrbracket =$
 $\{ \exists e[\text{sit}(e, \text{the-goanna}) \wedge \exists e' \exists x[\text{sit}(e', \text{long}(x)) \wedge e' \approx e]],$
 $\exists e[\text{sit}(e, \text{the-goanna}) \wedge \exists e' \exists x[\text{sit}(e', \text{big}(x)) \wedge e' \approx e]],$
 $\exists e[\text{sit}(e, \text{the-goanna}) \wedge \exists e' \exists x[\text{sit}(e', \text{brown}(x)) \wedge e' \approx e]] \}$

- The *nyiya-piya* question in (39) denotes the set of propositions in which the eventuality of the goanna sitting/being is similar to the eventuality of a long/big/brown thing sitting/being.
- This set of possible answers overlaps with the set of possible answers to English degree questions, but permits additional answers like *walyawalya* ‘brown’ that English degree questions do not.¹⁸

-*piya* triggers movement of the noun it combines with to Spec,SimP; SIM contributes a similarity relation between eventualities.

This similative relation accounts for the use of *-piya* in translations of English degree equatives and degree questions without invoking degrees.

¹⁸My current understanding is that answers to *nyiya-piya* questions can include *-piya*, but do not have to (as in (15-b)). This is a topic for future fieldwork.

5.3. (Sketch of an) analysis of *-kanjayi*

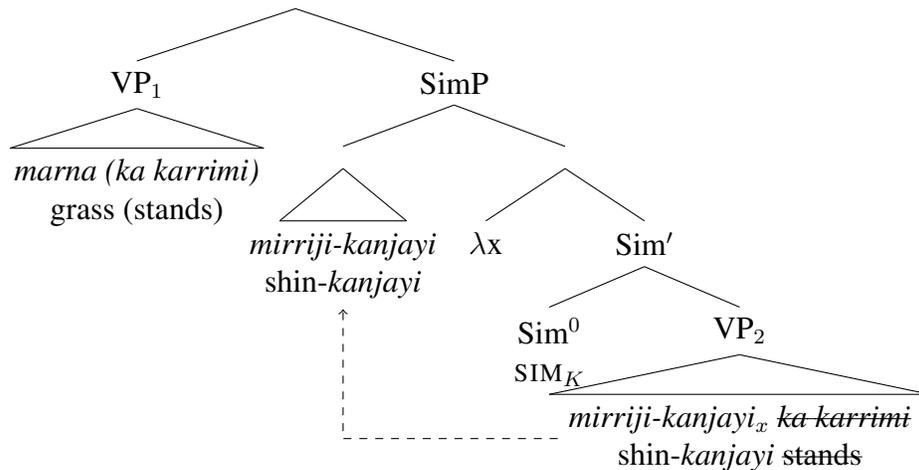
- The available data on *-kanjayi* is more limited than *-piya*; I'll sketch a possible degreeless analysis.
- The syntax of *-kanjayi* is identical to *-piya*: It co-occurs with a Simulative Phrase headed by a silent SIM_K morpheme, and triggers movement of the noun it combines with to the specifier of SimP. Repeated material is elided.
- While SIM encodes a general similarity relation between eventualities \approx , SIM_K encodes a similarity relation between eventualities that is dimensionally specified for location \approx_{loc} .
- Eventualities can be located in space; their location can be specified with prepositional phrases: *Jones buttered the toast in the bathroom* (Davidson 1967).
- \approx_{loc} denotes similarity in location in three-dimensional space. It can denote similarity in location on the x-axis (distance) and/or the y-axis (height).

$$(41) \quad \llbracket SIM_K \rrbracket = \lambda P_{\langle v,t \rangle} \lambda Q_{\langle v,t \rangle} \lambda e_v. Q(e) \wedge \exists e' [P(e') \wedge e' \approx_{loc} e] \quad \langle \langle v,t \rangle, \langle \langle v,t \rangle, \langle v,t \rangle \rangle$$

5.3.1 Use in quasi-measure phrases

- The predicate in (42) is a silent postural verb.¹⁹

(42) Marna=ju mirriji-kanjayi.
 grass=TOP shin-KANJAYI
 'The grass is shin-high.'



¹⁹In the case of objects like grass that stand upright, this verb is typically *karrimi* 'to stand'.

(43) $\llbracket \text{SimP} \rrbracket = \lambda Q_{(v,t)} \lambda e. Q(e) \wedge \exists e' \exists x [\text{stand}(e', \text{shin}(x)) \wedge e' \approx_{loc} e]$

(44) $\llbracket (42) \rrbracket = 1$ iff $\exists e [\text{stand}(e, \text{the-grass}) \wedge \exists e' \exists x [\text{stand}(e', \text{shin}(x)) \wedge e' \approx_{loc} e]]$

- (42) is true if the standing eventuality in which the grass is a participant is similar in location (on the y-axis) to a standing eventuality in which a shin is a participant.
- In this example, the distance is contextually determined to be vertical, but it could also be horizontal distance, as in the following example:

(45) Pikilyi-kanjayi.
Pikilyi-KANJAYI
'As far away as Pikilyi.' \approx 'Pikilyi-far.' (WDP)

- These truth conditions only require similarity in location, and do not pick out any specific degree of height/distance. This correctly predicts the vague meaning of *N-kanjayi* expressions.

5.3.2 Use in translations of degree demonstratives

- The analysis of the degree demonstrative data proceeds similarly. I again assume the presence of a silent postural verbal predicate.

(46) Japaljarri kuja-kanjayi.
Japaljarri thus-KANJAYI
'Japaljarri is this height.' (accompanied by gesture)

(47) $\llbracket (46) \rrbracket = 1$ iff $\exists e [\text{stand}(e, \text{Japaljarri}) \wedge \exists e' [\text{stand}(e', \text{thus}) \wedge e' \approx_{loc} e]]$

- (46) is true if Japaljarri's standing eventuality is similar in (vertical) location to the area in space that the speaker is indicating.
- I do not currently know whether the truth conditions of Warlpiri *kujā-kanjayi* demonstratives are like English degree demonstratives (*John is yea tall*).
- It is not clear to me whether English degree demonstratives with *yea* are vague or not. If *kujā-kanjayi* expressions are not vague, this would be problematic for an analysis couched in a vague "similarity" relation.

-kanjayi, like *-piya*, is a similative. SIM_k encodes similarity between locations of eventualities.

This can account for the use of *-kanjayi* in translations of quasi-measure phrases and degree demonstratives without invoking degrees.

6. Conclusion

Does *-piya* require reanalyzing Warlpiri as a +DSP language?

- **No.** The truth conditions of Warlpiri expressions with *-piya* are not the same as their degreeful English counterparts.
 - Warlpiri translations of degree equatives do not denote an ordering of degrees, and are interpreted positively.
 - Warlpiri translations of degree questions are underspecified with respect to the property they are asking about, and do not ask about a specific degree.

Does *-kanjayi* require reanalyzing Warlpiri as a +DSP language?

- **Not necessarily.**
 - Warlpiri translations of quasi-measure phrases are vague; this could also be the case for translations of degree demonstratives.
- If *-kanjayi* is analyzed using degrees, it supports arguments against the DSP/degreefulness as a large-scale parameter of cross-linguistic variation (Bochnak et al. 2020; our talk tomorrow).

Future directions

- How to analyze expressions in which *-piya* and *-kanjayi* co-occur?
 - The two morphemes can co-occur in translations of degree questions of distance (*How far away is Alice Springs?*).
 - The current analysis raises the question of why *-piya* occurs in these expressions, since *-kanjayi* is more specific.
- What is the proper analysis of languages with similatives and degree equatives that look superficially like Warlpiri's, but pass tests for degreefulness?
 - Italian forms similatives and degree equatives with *come*, which patterns similarly to Warlpiri *-piya*. However, Italian degree equatives with *come* have stricter truth conditions that suggest degreefulness.
 - Haspelmath and Buchholz (1998) give examples of more languages that could fall into this category.

Thank you!

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Appendix 1: Combining *-piya* and *-kanjayi*

- The least-well-understood expressions are those in which *-piya* and *-kanjayi* co-occur. At present, I only have access to a small number of these expressions.
- The two suffixes can combine with *nyiya* ‘what’ to form degree questions of distance. It is not currently known whether *-kanjayi* can combine directly with *nyiya*, without *-piya*.

(48) *Nyiya-piya-kanjayi* Alice Springs?

what-SIM-KANJAYI Alice Springs
‘How far away is Alice Springs?’

a. *Wurnturu-nyayirni*.

far-INTENS

‘Really far.’

b. *Nganayi-piya-kanjayi*. Sydney.

whatchamacallit-SIM-KANJAYI Sydney

‘Like-whatchamacallit-far. Sydney.’

- *Nyiya-piya-kanjayi* questions can only be used to ask about distance. (48) could not be answered with a property concept word like *wiri* ‘big’ or *punku* ‘bad’, since those property concepts do not describe the distance of Alice Springs.
- As shown in (48-b), *-piya* and *-kanjayi* can also combine in declarative utterances with the ignorative *nganayi* ‘whatchamacallit’. It is unknown if *N-kanjayi* expressions without *-piya* are felicitous answers to questions like (48).
- A proper analysis of *nyiya-piya-kanjayi* ‘how far/distant’ questions is not currently possible given a lack of negative evidence regarding the obligatoriness of *-piya*. The current analysis raises the question of why *-piya* is required, since *-kanjayi* is more specific.

Appendix 2: Italian similatives and degree equatives

- Italian (Romance; Italy) can form similatives and degree equatives with *come* (Haspelmath and Buchholz 1998).

(49) Mangia come un maiale.
 eat.3SG COME a pig
 'He eats like a pig.'²⁰ *similative*

(50) Mia sorella è alta come me.
 my sister is tall COME me
 'My sister is as tall as I am.' *degree equative*

- (49) does not seem degreeful.
- However, (50) is infelicitous in a context which my sister is shorter than I am.
- This is unlike Warlpiri *-piya* expressions, but like English degree equatives.
- Haspelmath and Buchholz (1998, 291-292) list other languages with similatives/degree equatives that might behave similarly: Albanian, Bulgarian, Greek, Serbo-Croatian.

²⁰Thank you to Iara Mantenuto for this Italian data and judgments.