

## DEGREE MODIFICATION IN BRAZILIAN PORTUGUESE AND IN KARITIANA

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**ABSTRACT:** The aim of this paper is to discuss degree modification in Brazilian Portuguese (BP) and in Karitiana, looking for commonalities that may point out to semantic universals. Karitiana is a language of the Tupi family, Arikén branch, spoken in the Northwest of Brazil. In Karitiana, as well as in Brazilian Portuguese, Gradable Adjectives (GAs) show the very same scale types or standards of comparison proposed by Kennedy and McNally (2005), suggesting that a universal typology of Gradable Adjectives is attainable. However, it is not that easy to spot universals in degree semantics when it comes to Degree Modifiers. In Brazilian Portuguese, *muito* does not have selectional properties as *very*, *much* and *well* in English do. Nevertheless, the sensitivity to scale typology does arise in Brazilian Portuguese, but regarding the products of GA modification. *Muito* + GA will convey an open scale, while *todo* + GA will convey a scale that is closed in the upper end. Similarly, in Karitiana, the modifier *pita(t)* does not have selectional properties regarding the GA properties. However, the meaning of the modified phrase depends on the scale properties of the modified GA. Our main claim is that the languages differ about where to respond to scale structure: (i) in the selection of GAs yet to modify (English); (ii) in the type of phrase each DM produces (BP) with the already modified GA or; (iii) in the final meaning of the construct (Karitiana).

**Keywords:** degree modification; scalar semantics; gradable adjectives.

### 1. INTRODUCTION

This paper focus on degree modification both in Brazilian Portuguese (BP) and in Karitiana. Its main goal is to describe and explain their degree modifiers properties, looking for commonalities that may point out to semantic universals. A brief excursion on the

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literature on English Degree Modifiers will help us to establish later if the English characterization is or is not extensive to Brazilian Portuguese and/or to Karitiana. Besides, the English facts provide empirical arguments for analyzing GAs in terms of scale types and parameters that are worth revising, since we intend to capture the effects of those theoretical artefacts in other natural languages.

As Kennedy and McNally (2005) pointed out, in English, the distribution of the degree modifiers (DMs) *very*, *much* and *well* modifying participles cannot be explained by syntactical properties. The authors claim that this distribution is due the scale structure and the standard nature of the modified predicates.

- (1) a. Al was *very* (?*well*?*much*) surprised by the results of the election.  
b. Their vacation was *much* (?*well*?*very*) needed.  
c. Martin Beck was *well* (?*much*?*very*) acquainted with the facts of the case.  
(Kennedy and McNally, 2005: 345)

GAs are analyzed as implicit comparatives. The gradable property of a GA is evaluated with a standard of comparison. There are two possible natures for a standard of comparison: or the predicate is absolute or it is relative to a context. Kennedy & McNally (2005) claim that scale structures are related to standards of comparison. Closed scale adjectives do not introduce a context-dependent standard. Minimum standard GAs simply require their argument to show a non-zero level of the property. For instance, a bent road will need to be only somewhat bent, in any possible context. Maximum standards GAs always require their argument to exhibit or zero or a hundred per cent level of the property. A closed door needs to be completely (100%) closed, while an empty glass needs to exhibit no contents at all (holding a zero degree of the relevant property). Context changes do not affect those requirements. Open scales, on the other hand, do not have minimal nor maximal elements. Therefore, the standards of open scales GAs are fixed contextually (*tall* may be true of a given individual in a context and false in another).

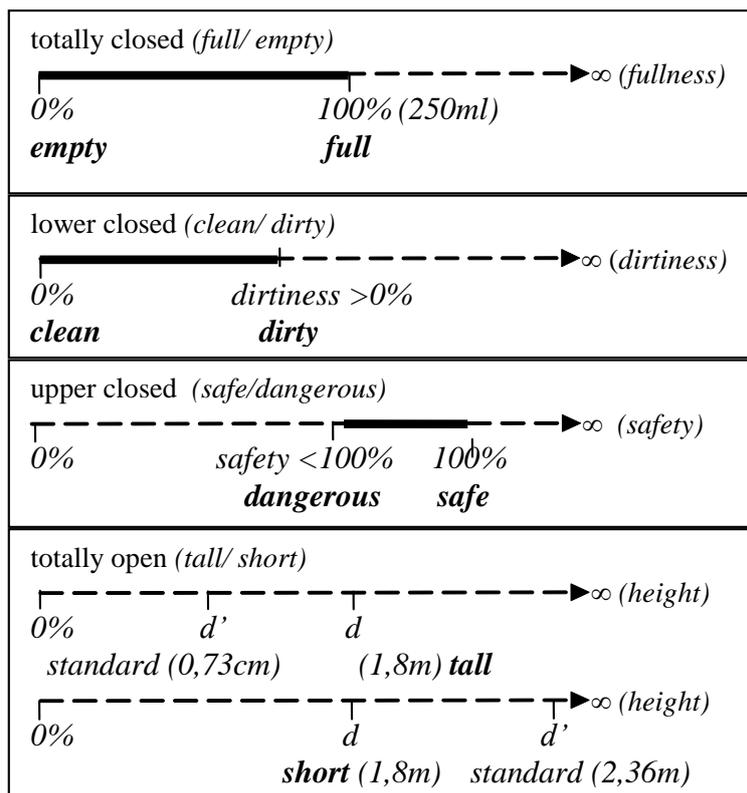
Kennedy and McNally (2005) claim that, although *very*, *much* and *well* modify GAs, each of them is specialized on particular scale structure and standard nature. *Very* modifies adjectives that are relative to a standard of comparison and are associated to open scales. *Well* in turn only modifies adjectives that introduce a context-dependent standard and are associated to scales that have both minimal and maximal parts. *Much* on the other hand is used with adjectives that show a non-zero level of the property and thus are minimum

standard GAs. Their proposal will be presented in more details in section 2. Given the semantic treatment of gradable predicates, invoked to explain the English Degree Modifier distribution, one can wonder if it is universal among natural languages. The aim of this paper is seeking an answer to this question by testing if the DMs in BP and in Karitiana give the same results. Section 2 reviews the scale types proposed by Kennedy & McNally (2005); section 3 explores the distribution of DMs in BP; section 4 discusses the facts about *pita(t)*, the best studied DM in Karitiana; section 5 compares some properties of DMs in Brazilian Portuguese and in Karitiana; section 6 presents some conclusions.

## **2. SCALE STRUCTURE FOR ADJECTIVES**

Kennedy and McNally (2005) offer a typology for gradable adjectives based on their distribution and on general properties of comparative and degree constructions. According to the authors, gradable adjectives (GAs) can be distinguished from non-gradable adjectives because only the former accept insertion in comparative constructions and also accept degree modification (intensification). It is well established in the literature that *very*, *much* and *well* can modify only gradable adjectives. Nevertheless, each of those degree modifiers can only modify a subset of gradable adjectives, due to the fact that GAs have distinct scalar properties and not the same standard nature.

Firstly, GAs are associated to different scales. More specifically, scales associated to GAs can be: (i) fully open (with no minimum or maximum value); (ii) fully closed (with a minimum and a maximum values); or (iii) partly closed (with only a minimum or a maximum value). Figure (1) represents the four logical types of scales: (i) totally closed (with a minimal and a maximal degrees); (ii) lower closed (no maximal degree); (iii) upper closed (no minimal degree); and (iv) open scales (no minimal nor maximal degree).



**Table 1:** Types of Scales

Moreover, GAs can be divided according to the nature of their standard of comparison. Absolute GAs have fixed standards of comparison whereas the relative ones are evaluated by picking a standard of comparison from the context. All open scale adjectives have relative standards. Kamp and Partee's famous examples illustrate the fact that what counts as *a tall snowman* varies a lot, showing that adjectives like *tall* are vague and context-dependent:

- (2) a. My two-year-old son built a really tall snow man yesterday.
- b. The DU fraternity brothers built a really tall snowman last week.

(Kamp and Partee, 1995: 142)

The expression *a really tall snowman* may refer to very different individuals: either to a 3,5ft (2a) or to a 9ft snowman (2b). What is considered really tall for a small child is not considered really tall for young adults. Contextual information plays a big role on the truth judgments of sentences containing open scale adjectives, which are vague.

Closed scale adjectives, on the other hand, are not context-dependent, and therefore not vague. A sentence like *This is a full glass of water* is false or true regardless of any context

changes, since the comparison holds between the state of the object (how much the glass is filled) and a property of the object (the glass retaining capacity). There is room for a small variation in judgments, due to the fact that a person may be more tolerant than the other about how close the contents level in the relevant situation has to come of the maximum glass capacity. That kind of variation is due to imprecision (tolerance for exception), not to vagueness (Kennedy, 2007). Absolute adjectives show imprecision, but are not vague. Vagueness is a property of open scale/relative predicates, since they are context dependent.

Therefore, the structure of scales and the standard types are deeply tied: the comparative parameters, the noun-pronounced terms of the implicit comparison, are only context dependent for open scales. So, the complementary distribution of *very*, *much* and *well* can be explained by the typology proposed above.

(3) *very* → open scales

(*very surprised*)

*much* → scales closed in the lower end

(*much needed*)

*well* → totally closed scales

(*well acquainted*)

*Very* has been described as a standard booster (Kennedy and McNally, 2005). *Very* calculates the standard of comparison based on the property denoted by the GA (Klein, 1980), which produces a standard rising for relative adjectives. Therefore, *very surprised* means “surprised in a degree far above the comparison parameter calculated based only on surprised individuals”. *Very* modifies open scale adjectives. *Much* GA also requires a higher degree of the relevant property than plain GA, but *much* modifies only minimum-standard absolute adjectives. *Needed* for example has no maximal degree but requires a minimum degree of necessity in order to be applied. The following entailment test<sup>3</sup> is designed to check if the

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<sup>3</sup> Thorough this article, we will employ tests from Kennedy and McNally (2005). Entailment tests distinguish between relative/open scale GAs, on one hand, and absolute adjectives that correspond to the edge or to the closed end of a scale, on the other hand. Open scale GAs (e.g. *tall*) do not require any fixed degree of the property, and, therefore, cannot entail that the GA argument has zero property (as, e.g., *empty* does) nor that it has 100% of the property (as, e.g., *full* does). However, open scale GAs, as well as minimum degree absolute GAs, require their argument to show some positive amount of the property. Entailment tests would show the same results for minimal standard absolute GAs and relative GAs. So a different test is needed to differentiate one from the other. The best test measures the context dependence. As relative GAs must be above some contextual standard, the same statement may be true of an object in context A and false of the same object in context B. For instance, John may be tall for a jockey and John may not be tall for a basket player. The truth value of statements containing minimal degree GAs is impervious to context changes. John

predicate in evaluation is a minimum-standard one.

- (4) a.  $x$  is not  $A$   $\models x$  has no amount of  $A$ -ness at all  
 b.  $x$  is not needed  $\models x$  has no amount of necessity at all

*Well* in turn modifies only adjectives associated to totally closed scales as *acquainted* for example. A test to check if an adjective has a totally closed scale is the acceptability with proportional modifiers.

- (5) They are half/mostly acquainted of the difficulties.

The table below resumes the distribution of *very*, *much* and *well* in English according to the scales and standards properties.

		STANDARDS	
		RELATIVE	ABSOLUTE
SCALE TYPES	TOTALLY CLOSED	---	<i>well</i>
	PARTIALLY CLOSED	---	<i>much</i> (lower closed)
	TOTALLY OPEN	<i>very</i>	---

Table 2: English DM Selection

The typology proposed for gradable predicates explains the English Degree Modifier distribution. However, DMs in BP and in Karitiana do not behave alike. Next section presents the relevant facts regarding the distribution of DMs in Brazilian Portuguese.

### 3. BRAZILIAN PORTUGUESE

At first sight, testing DMs in BP does not support a universal typology for gradable predicates. Many peculiarities arise in comparison to English. We will briefly describe and analyze them. Let us start by looking at the GAs. BP GAs (the bare adjectives, without modifiers) behave exactly like English GAs, in the sense that they all show the same scale structure and the same standard nature given to their own English translation. According to Kennedy and McNally (2005)'s tests, each BP GA belongs to the same scale type assigned to its English translation. *Vazio* ('empty') and *cheio* ('full') participate in a fully closed scale;

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will be found dirty if he has any amount of dirtiness on him, regardless the context.

therefore, manipulation of the context does not affect the truth judgments of sentences with them. These adjectives also require the compared degrees to be the same, as equality comparisons do; therefore, they cannot hold on entities after the degree of the property go up or down:

- (6) Meu copo está vazio, #e ficará mais vazio ainda depois de outro gole.  
My glass is empty, #and it will be even emptier after another sip.

Open scale adjectives, on the other hand, behave like superior or inferior comparatives, accepting increases / decreases on the property degree. So a *boneco de neve alto* ('a tall snow man') may get even bigger:

- (7) Meu filho de dois anos construiu um boneco de neve alto, mas a fraternidade universitária construiu um mais alto ainda.  
'My two-year-old son built a tall snow man, but the DU fraternity brothers built an even taller one.'

(A variation for BP of Kamp and Partee, 1995: 142)

For partially closed scales, like dirtiness, the close end adjective *limpo* ('clean') does not hold of the object any more if its degree of the property changes, while *sujo* ('dirty'), which is the opened end adjective in the scale, does hold for any degree of dirt. GAs whose default interpretation only requires their argument to exhibit some non-zero degree of the denoted property are termed *minimum standard* adjectives. *Dirty* is an example. Something *dirty* has some non-zero amount of dirt.

In short, for any test given in the literature, Brazilian Portuguese (BP) Gradable Adjectives (GAs) behave exactly like their English translations. Therefore, a universal typology of GAs seems to be attainable.

However, when it comes to Degree Modifiers (DMs), English and BP come apart. A first observation is that the category selection pointed by Kennedy and McNally (2005) for *much* and *well* does not show in BP.<sup>4</sup> Typically, BP DMs behave like English *very*, modifying

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<sup>4</sup> Those English DMs modify participles (*well know* x *\*well tall*). Brazilian Portuguese DMs modify participles and plain adjectives as well (*bem conhecido* = 'well know' x *bem alto* = *\*well tall*). That is what we meant by category selection. English DMs are restricted to operate over some class of words (participles), while BP DMs are not. Off course, semantically, any DM, in any language, selects gradable

indifferently participle GAs (8a) and non-participle GAs, the so called positive forms (8b,c,d):

- |     |    |                    |             |
|-----|----|--------------------|-------------|
| (8) | a. | bem/muito/bastante | preocupado  |
|     |    | DMs                | worried     |
|     | b. | bem/muito/bastante | alto/baixo  |
|     |    | DMs                | tall/short  |
|     | c. | bem/muito/bastante | sujo/limpo  |
|     |    | DMs                | dirty/clean |
|     | d. | bem/muito/bastante | cheio/vazio |
|     |    | DMs                | full/empty  |

So, unlike their English counterparts, BP DMs are not in complementary distribution in terms of GA selection. The examples above show that *bem*, *muito* and *bastante* can modify any scale structure: *alto/baixo* ('tall'/'short') are in an open scale, *sujo/limpo* ('dirty'/'clean') are in a partially closed scale, and *cheio/vazio* ('full'/'empty') are in a fully closed scale.

How to cope with that? Does it mean that scale structure does not matter for BP grammar? If so, the fact could be used as an argument against a universal typology for gradable predicates in natural languages. We will claim, on the contrary, that BP data supports Kennedy and McNally (2005)'s GAs typology. The sensitivity to types of scale does arise in BP, although not at the same spot as in English. While BP DMs do not specialize in a single scale type, each of them only produces complex phrases of a single scale type. So they specialize in a scale type regarding the product of the GA modification.

The composites DM + GA are the ones in complementary distribution in BP. *Bastante* composes solely absolute readings, while *muito* composes exclusively relative readings. Quadros Gomes (2010) claims that the impairment is due to differences between English and BP that extend as well to nominal domain. For instance, BP determiners in general make no distinction at all between mass or count nouns, while most English determiners does (*much salt*, \**much boys*; \**many salt*, *many boys*). If one considers the sensibility of operators (determiners and DMs) to scale, there is, to the lexical (un)boundeness of their arguments (mass or count nouns, closed or open scale GAs) as a parameter, English and BP will fall apart. Nevertheless, in both languages, GAs show the scale structure claimed by Kennedy and McNally (2005). They only differ regarding where the sensitiveness to scales shows up in

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expressions to modify.

composition. In any case, the influence of scale types will be tangible somewhere for both of them.

Let us start by exploiting some interesting exceptions in Brazilian Portuguese, before complying to the disturbing more general facts. A number of BP DMs do select the GAs they modify. Some DMs are dubbed diminishers (or reducers or minimizers) in the literature because they are attenuators. They require the GA argument to have a degree of the property just a bit above a minimum degree. This results in a very low degree of the property. It is well established that modification with *slightly* or *a little* in English requires an interpretation as a nonmaximal degree (Syrett, Kennedy and Lidz, 2009). English minimizers select minimum standard GAs, i.e., they modify only the open end of a partially closed scale (Kennedy and McNally, 2005). Experiments like the one conducted by Bogal-Allbritten (to appear) confirmed that English speakers do not accept minimizers modifying closed ends of scales (*\*little empty*), but do accept them modifying the open end of a partially closed scale (*slightly dirty*). Unexpectedly, modification of open scales by diminishers was also accepted (*slightly tall*). Bogal-Allbritten afterward ran a processing study (to appear). Based on her findings, she proposed the following coercion endpoint hypothesis: “minimizers can coerce  $d_{min}$  on otherwise open scales”. She relies on Pylkänen and McElree (2006) to expect that coercion implies increased processing costs. In fact, an increasing in reading time was found with open scale GAs, sustaining that their original scale structure has no minimal degree, and therefore they do not meet promptly diminishers’ selection, but instead are coerced in the presence of a diminisher to an interpretation other than their primary meaning.

A parallel experiment was conducted in BP (Oliveira and Quadros Gomes, 2015). Brazilian informers did not accept diminishers modifying maximal degree GAs (*\*ligeiramente vazio* 'slightly empty'). In this aspect, the acceptability judgments in both languages converge. The modification of open scale GAs is a blur area also in BP, with half of the participants accepting things like *pouco alto* ('little tall') and the other half completely rejecting such constructions. Modification of minimum degree GAs by diminishers was judged fully acceptable in BP. Processing costs were not measured for BP yet, but certainly there are similarities between the two languages that allow for an investigation of a possible universal rejection of the modification of max degree GAs by diminishers. A promising generalization will be that diminishers in fact select minimal GAs, and that some accommodation (through coercion) may occur to avoid a clash, if the GA structure is less than the required. Therefore, it would be possible to “add” a minimal point to an open scale, but impossible to turn a maximal degree GA into a minimal degree GA. To verify such a

generalization, more investigation is required. Nevertheless, it is safe to say that BP diminishers clash with maximal degree GAs, as observed for English diminishers. It would be hard to explain such a fact without the postulate of a universal scale structure.

Now let us examine the second exception to the general DM behavior in BP. Adjective phrases with modifiers like *slightly* appear to be sensitive to whether the adjective has a maximum or a minimum standard. English DMs like *completely* are also sensitive to whether the adjective has a maximum or minimum standard (Kennedy and McNally, 2005; Rotstein and Winter, 2004). When combined with minimum standard adjectives (*completely dirty*) they lead to a maximum standard reading for the whole expression. Therefore they are termed maximizers. They are reinforcers, the opposite of attenuators. In BP, *todo* is a maximal degree charger (Quadros Gomes, 2012), or a modifier that enforces maximality (Lima, 2013).

*Todo*'s selection resembles the one described by Kennedy and McNally (2005) for *much*. Like diminishers, *much* combines with minimum degree GAs (something is *needed* with any positive degree of need). *Todo* also combines with minimum degree GAs (like *sujo* 'dirty'), but being a maximal degree charger, *todo* produces modified phrases with maximal degrees (something *todo sujo* is something completely dirty), producing maximal degree modified phrases (something *todo sujo* can't get dirtier than it already is). *Todo* is incompatible with maximal degree GAs (*Comprar pela internet é (\*todo) seguro* = 'Buying from the internet is (\*todo) safe' – meant to express the idea that shopping in the net is completely safe – notice that a version of the same sentence using *bastante/muito/bem* is fully acceptable). *Todo* is also incompatible with open scale adjectives: it cannot modify *alto* ('tall') or *baixo* ('short'). At this point, it seems that *todo* selects GAs by scale structure exactly as described for *much* by Kennedy and McNally (2005), differing only in terms of category selection (*much* is restricted to participles, while *todo* also modifies non participial adjectives). However, other facts do not fit this analysis: *todo* also modifies emotional expressing GAs, as pointed out by Pires de Oliveira (2003):

(9) O menino está todo triste.

'The boy is fully sad.'

Nevertheless, *todo* still fits in a maximizer analysis (Quadros Gomes, 2009; Lima 2013), since *todo triste* means sad at the maximum degree. We conclude that only diminishers and maximizers specialized in selecting a single scale structure and/or in a single standard type of GA in BP. It would be a long shot to say that minimizers/diminishers and maximizers share

the exact same selection in English and Portuguese, calling for a universal candidate. However, we can at least sustain that maximizers and minimizers as the blurring areas in two different languages. Those are the DMs that show exceptional selection, both in English and in BP.

We may now address the BP DMs pattern: most of them combine with any GA, showing no sensitivity for scale types in terms of GAs selection. However, it does not mean that scale structure only matters for one or other DM in BP. If we compare the meaning of any phrase created by modifying a GA, we will see that each DM creates always a particular, unique scale type. Therefore, the sensitive to scale structure in BP is as grammaticalized as in English. The only difference is where: in English it appears in the input of the operation while in BP it appears in the output of the modification. If examining exclusively the correspondences between adjectives and types of scale structure, equally found in both languages, one may postulate that scale structure has a lexical nature. When the focus goes on degree modification, the examined languages fall apart; one may see English as still responding to the scale structure as a lexical source, since the DM selection sees the structure of the scale of the GA. Regarding degree modification, Brazilian Portuguese could be described as a compositional language, since the GA scale structure does not interfere in DM's selection but appears as a difference in the nature of the phrase compounded by the modification.<sup>5</sup>

For the sake of space, the examples offered will deal with only one GA, a minimum degree GA. The reader must take our word about the fact that the scale types produced by each DM after modifying any GA type will be consistently the same. We choose a GA accepted even by BP selective DMs, such as minimizers and maximalizers. *Sujo* ('dirty') is a minimum standard GA, requiring a non-zero amount of dirty. So if *não está sujo* ('it is not dirty') is true of something, this thing is necessarily clean. The entailment of the negation of the *min<sub>a</sub>* adjective is its contrary, the adjective in the closed end of the scale, in this case, *limpo* ('clean'), with requires a zero degree of dirt. Something dirty may get dirtier. Keeping that in mind, let us look at the meanings of the complexes DM + *sujo* ('dirty') in BP. Let us look at how this GA meaning is going to change according to the modifier. This small sample will shed light on the BP DM semantics.

(10) a. O carro está muito sujo.

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<sup>5</sup> We are grateful to an anonymous referee for pointing out this correlation to us.

- 'The car is very dirty.'
- b. O carro está pouco sujo.  
'The car is little dirty.'
- c. O carro está bastante sujo.  
'The car is (quite/rather) dirty enough.'
- d. O carro está bem sujo.  
'The car is as dirty as it can get.'
- e. O carro está todo sujo.  
'The car is completely dirty.'

Naturally all the statements in (10) require a degree of dirt above zero and all of them entail that the car is not clean. Since *sujo* ('dirty') requires a minimum degree of the property, all DMs will require a degree of dirty above the minimum. How far above, as well as other truth conditions, changes sensibly from DM to DM, as will be discussed right now.

*Muito sujo* ('very dirty'), in (10a) may be true of a car that is only slightly dirty. If the owner wants to impress someone with a spotless, immaculate car, than a stain in the glass is enough to pronounce (10a). The truth of that sentence requires the degree of dirtiness of the car to be above some other degree of dirty, a contextual comparison parameter. Therefore, *muito sujo* is an open scale. In the given context, (10b), (10c), (10d) and (10e) are inappropriate.

*Pouco sujo* ('little dirty') in (10b) may be true of a car that is less dirty than expected. If it was parked in a very open area, and the owner was expecting a very messy appearance when (s)he came back for the car, (10b) may express that the actual degree of dirtiness is not so bad as anticipated. The truth of that sentence requires a degree of dirtiness bellow some contextual comparison parameter. Therefore, *pouco sujo* is an open scale as *muito sujo* is, but with the reverse ordering. In the given context, (10a), (10c), (10d) and (10e) are infelicitous.

As established by the literature for open scales, the truth of (10a) and (10b) may be achieved with a wide range of degree values. They are both vague gradable expressions. A car with the same amount of dirtiness can be described as *muito sujo* or as *pouco sujo*, as long as the relevant ordering relation is satisfied. The latter gradable expression needs the comparison parameter to be the highest degree, while the former, inversely, requires the GA argument to be the lowest degree in the comparison. As the comparison parameter is freely taken from the context, both the truth of (10a) and (10b) are context dependent.

We will now examine the other DMs and see that they produce closed scales with the GAs they modify. The scale produced by *bastante* is partially closed, while the ones produced by *todo* and *bem* are totally closed, whereas only the one produced by *todo* is closed on the maximal degree. *Bem* requires an overlapping between the actual degree of the property and some ideal standard, which does not need to be the maximal degree in the scale. In other words, BP totally closed scale DMs differ on the value of the degree closing the scale and on the nature of the comparison standard: while *todo* is extensional, *bem* is intensional. Although neither of the BP closed scales gradable expressions are vague, each of them have a peculiar meaning, as we hope to be able to highlight.

*Bastante sujo* ('dirty enough') in (10c) may be true of a car that shows some degree of dirtiness equal or greater than a certain degree considered sufficient for some purpose. If John wants to trick Mary into believing that he spent the afternoon in a park, and he usual gets there by car, he may spread some dust over the vehicle. If the car was immaculate, Mary would never believe that it left the garage. In order to avoid Mary suspicions about his staying at home, sleeping, that car has to be minimally dirty. After giving the car that dust shower, John could say (10c) to convey that the car is dirty enough to convince Mary that he drove out in the afternoon. After the dust shower, the car no longer exhibits the zero degree of dirtiness which will betray the fact that it stayed put into the garage all day long. That minimum degree of dirtiness necessarily acquired by going out is now reached or surpassed. So the actual degree of dirtiness of the car is now sufficient to trick Mary. This idea, of equality to a minimum degree or its overcoming (there is only a lower limit, not an upper limit) could not be expressed by (10a), (10b), (10d) or (10e). Therefore, *bastante sujo* is a partially closed scale, or a scale closed only in the lower end. There is a low limit: less dirty than that would not do the trick. Of course more is not a problem.

*Bem sujo* in (10d) may be true of a car if it gets as dirt as expected. Imagine that someone only gets his/her car washed anytime it is in a particular state, never less dirty. According to the owner's will, whenever the car gets at such an exactly point of dirtiness it is time to wash it again. So sentence (10d) may express that the car has reached that specific (previously established) degree of dirtiness. The truth of that sentence requires the degree of dirtiness of the car to be equal to that regulatory degree, as in equality comparatives. Therefore, *bem sujo* is a closed scale. In the given context, (10a), (10b), (10c) and (10e) would be infelicitous. So *bem* + GA means roughly "as GA as in some control degree".

It is worth to say a little more about how *bastante* + GA and *bem* + GA get apart. The difference between *bastante* GA and *bem* GA is parallel to the contrast between an *at least*

comparative and an equality comparative. *Tall* is an open scale adjective: the sentence *Peter is tall* means that Peter is taller than some contextual standard. It will not be true if Peter and the comparison parameter exhibited the same degree of height. In turn, the sentence *Peter is at least as tall as Mary* will be true if he is taller than her, and even if they measure the same. Peter's height must be identical to Mary's height or go beyond for him to be considered at least as tall as her. *Pedro é bastante alto* ('Peter is tall enough') also requires a minimum degree to be replicated or surpassed by the GA argument, as in *at least* comparison. Both *at least* (explicit) comparatives and *bastante* + GA (implicit comparatives) accept a range of values for the degree of tallness associated to Peter, provided the degree is never below the comparison parameter (Mary, in the explicit comparison). The nature of the comparison parameter for *bastante* + GA may be more abstract, as a requirement to be able to do something. For instance, one may say *Peter é bastante alto para alcançar o livro em cima do armário* ('Pedro is tall enough to reach the book on the wardrobe'). In such a situation, it is sufficient that, if Peter really stretches his arms, he grabs the book, but there is no harm in Peter being even taller and able to grab the book with relaxed arms.

Now let us exam *bem* + GA. As mentioned before, *bem* is like a comparative of equality. In order to be as tall as Mary, Peter must have exactly the same degree of height that she has. Therefore, only one degree value can be assigned to the GA argument. *Pedro é bem alto* ('Peter is *bem* tall') also requires Peter to have exactly the same degree of height as the unpronounced parameter, no more, no less<sup>6</sup>. The intensional nature of the standard is *bem*'s distinctive mark. So *Peter é bem alto* states that Peter reached a target; the standard is a goal to be achieved, as in Peter being as tall as a healthy boy of his age could get to be. Of course in the future, Peter can become taller than he is, but in present, at this age, he hit the highest mark he could hit.

Now we can get back to the modification of *sujo*. *Todo sujo* ('completely dirty') (10e) may be true of a car that cannot get any dirtier than it already is. The truth of that sentence requires the degree of dirtiness to be maximal. Or all the parts (of the surface) of the

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<sup>6</sup> We are once again grateful to an anonymous referee for the observation that equality comparisons are subject to pragmatic halos. We would like to add that the regulatory/control comparison parameter that needs to be emulated by the degree hold by the individual predicated by *bem* + GA will not necessarily be a single point. It may also be an interval, between a minimal and a maximum degrees; it is the case, for instance, when only people between age limits (above 30 and below 45) are entitled to certain health care insurance plans. Or the relevant degree may be a cutting point, sectioning the scale in two, and all the above degrees are good (as it is for drinking permits, holding to people with ages equal or above 21), or all degrees below are good (as it is the case for maximal velocity limits in highways). In any case, *bem* will still require the degree exhibited by the GA argument to easily fit into that ideal interval, composing an equality comparison.

individual car (windows, doors, top etc.) are dirty or the degree of dirtiness is the highest. Therefore, *todo sujo* is a closed scale. Sentences (10a), (10b), (10c) and (10d) are all compatible with some further increase of the degree of dirtiness, but (10e) is not.

Recall that non-maximal scale GAs (Kennedy and McNally 2005) refer to a degree below the maximum in closed scales. Therefore, the property degree referred in *bem* + GA and *bastante* + GA can still increase. Since open scales have no maximal degree, both *muito* + GA and *pouco* + GA may also refer to a degree that supports enhancement. Therefore, there is no contradiction in (11a), where *muito* can be replaced by *pouco*, *bem* or *bastante*. Only gradable expressions with a maximum standard degree would raise contradictions in sentences with continuations that establish a further increase of degree. *Todo* + GA in (11b) means that the GA's argument has reached the maximal degree of dirtiness, clashing with a continuation saying that the degree is below the maximal. Therefore, (11b) is contradictory.

- (11) a. O carro está muito sujo, mas vou esperar que fique mais sujo ainda para poder lavar.  
'The car is very dirty, but I will wait until it gets dirtier to wash it.'
- b. # O carro está todo sujo, mas vou esperar que fique ainda mais sujo para poder lavar.  
'#The car is completely dirty, but I will wait until it gets dirtier to wash it.'

Table (3) summarizes the complementary distribution of BP DMs + GAs in terms of types of scale.

SCALE	TYPE	ORDERING / CLOSING	DM
	TOTALLY OPEN	ordering: above the parameter	<i>muito</i> + GA
	TOTALLY OPEN	ordering: below the parameter	<i>pouco</i> + GA
	TOTALLY CLOSED	closed on some equality comparison	<i>bem</i> + GA
	TOTALLY CLOSED	closed on maximal degree	<i>todo</i> + GA
	PARTIALLY CLOSED	closed on minimal degree	<i>bastante</i> + GA

Table 3: Portuguese DM + GA

So, despite the fact that maximal and minimum degree DMs may be selective, the majority of BP DMs will combine with any GA. Any modification of a particular DM will consistently produce the same scale type in BP, no matter what kind of GA is being modified, as illustrated in table (3).

Therefore, we claim that the sensitivity to scale typology does arise in BP, but

regarding the products of GA modification. I.e., the composites DM + GA are the ones in complementary distribution in BP.

#### 4. KARITIANA

This section focuses on the modifier *pita(t)* in Karitiana that can be used in a range of domains with different possible translations. Karitiana is a Tupian Language spoken by 320 speakers in an Indian reservation on north-western of Brazil (Storto and Van der Velden 2005). We will start discussing the behavior of *pita(t)* modifying adjective, when it displays the form *pita*. Unlike the distribution of DMs in English, the adverb *pita* can be used to modify any type of gradable adjective. Nevertheless, the result meaning changes according to the modified GA<sup>7</sup>.

Sentence (12a) and (12b) shows *pita* modifying open scale adjectives *se'a* ('good') and *ty* ('big'). In these sentences, the adverb can be translated by *very* in English. In (12c) and (12d), on the other hand, *pita* is used with adjectives associated to closed scales (*osyk* 'full' and *piyywyp* 'empty') and is translated to *completely* in English.

- (12) a. [Ōwã se'a pita] i-otam-Ø.<sup>8</sup>  
 boy good pita PART-arrive-ABS<sup>9</sup>  
 'The/A very good boy arrived.'
- b. Ōwã ty pita i-otam-Ø.  
 boy big pita PART-arrive-ABS  
 'The/A very big boy arrived.'
- c. Ombi osyk pita i-ywym-Ø.  
 basket full pita PART-disappear-ABS  
 'The/A completely full basket disappeared.'
- d. Ombi piyywyp pita i-ywym-Ø.  
 basket empty pita PART-disappear-ABS  
 'The/A completely empty basket disappeared.'

<sup>7</sup> Due to this variance we are not translating *pita* on the glosses' line of the examples.

<sup>8</sup> Sentences with intransitive verbs usually occur in a construction with a nominalized verb. See Storto 2010 for an analysis of this construction.

<sup>9</sup> Abbreviations used: ABS = absolutive; ADV = adverbializer; DECL = declarative; IMP = imperfective; NFUT = non-future; PART = participle; VT = thematic vowel.

The use of *pita* with adjectives can be described as follows: (i) when it is used with open scale adjectives it means that the property is applicable in a degree above the normal degree (similar to *very* in English); and (ii) when it is used with closed scale adjectives, it means that the property reaches the maximum degree (similar to *completely*). This very behavior of *pita* serves as evidence that the open/closed scales typology has a role in Karitiana Grammar. However its role is not to determine the distribution of DMs as in English or in influencing the scalar properties of the final construct as in BP but in affecting the meaning of the modified phrase.

In (13a) *pita* + a relative GA composes an open scale expression, that is, the basket is heavy in a degree above the normal but it can become even heavier. In (13b), on the other hand, *pita* + an absolute GA compose a closed scale expression. The expression without *pita* already means that the door is closed. In these contexts, *pita* is a slack regulator in the terms of Lasersohn (1999) and increases the approximation to the truth. The difference between (13b) and (13b') is that (13b') allows a greater 'slack' than (13b) in asserting how close to the truth is close enough for pragmatical purposes.

- (13) a. *sepa pyti pita*  
basket heavy *pita*  
'a very heavy basket'
- b. *karamã akydno pita*  
door closed *pita*  
'a well closed door'
- b'. *karamã akydno*  
door closed  
'a closed door'

Based on this behavior and inspired by the analysis given by Kennedy (2007) to the silent morpheme assigned to the positive form of GAs, we offer the following lexical entry to *pita* in the contexts discussed above.

$$(14) \quad \llbracket pita \rrbracket = \lambda G_{\langle d, \langle e, t \rangle \rangle} \lambda x. \exists d [ G(d)(x) \ \& \ d \geq d_s ]$$

In (14),  $d_s$  is the appropriate degree in relation to the standard of comparison. If the

adjective has an open scale  $\mathbf{d}_s$  is the normal degree and  $\mathbf{d} > \mathbf{d}_s$ . If in turn the adjective has a closed scale  $\mathbf{d}_s$  is the maximum degree of the scale and  $\mathbf{d} = \mathbf{d}_s$ .

So as we can see the difference on the scale properties of the modified adjectives are not important to select different DMs in Karitiana as it is in English. Nevertheless, it does not mean that the scales typology is irrelevant in Karitiana. On the contrary, the scale structure of the modified GA will be reflected in the meaning of the whole modified phrase. As we saw, it is possible to give a unified lexical entry to *pita* and leave the variable that affects the result meaning to be the scale property of the adjective.

*Pita* behaves like typical DMs and has a cross-domain distribution. Besides being used with adjectives it can also occur with nouns. Inside NPs *pita* behaves as an adjective and can be translated to something like 'real', 'true'.

- (15) a. Taso pita i-otam-Ø.  
 man pita PART-arrive-ABS  
 'The real man arrived.'  
Context: a valiant man / a hunter
- b. João i-amy-t kinda'o pita.  
 João PART-buy-ABS fruit pita  
 'João bought a real fruit'  
Context: a good fruit

In those contexts, *pita* behaves as the adjective *verdadero* in Spanish analyzed in Masià (2013).

- (16) Paloma es una verdadera artista.  
 Paloma is a true artist  
 'Paloma is a true artist' (Masià, 2013: 106)

In order to capture this use, Masià (2013) assumes that nouns can be associated with a scale of precision (cf. Morzycki, 2011). Following the analysis proposed to Spanish, we assume that a noun like *kinda'o* ('fruit') can have a gradable form associated to a closed scale that represents the precision. In order to generate the gradable form for nominals we propose a **DegN** described in (18). **DegN** can be described as a type shifting rule that turns nouns in

gradable predicates.<sup>10</sup>

- (17) a.  $[[\textit{kinda'o}]] = \lambda x. \textit{fruit}(x)$  TRADITIONAL  
 b.  $[[\textit{kinda'o}_{deg}]] = \lambda d \lambda x. \textit{fruit}(x) \ \& \ \text{“precision}_{man}”(x) = d$  GRADABLE FORM
- (18)  $[[\textit{DegN}]] = \lambda P_{\langle e,t \rangle} \lambda d \lambda x. P(x) \ \& \ \text{“precision}_p”(x) = d$

With this denotation, *pita* can have the same semantics when it applies to nouns than when it applies to adjectives. Since the precision scale is a closed scale, the degree selected is the maximum degree of the scale. Then a *kinda'o pita* ('real fruit') is a fruit that reaches the maximum degree in the scale of precision for fruits.

$$(19) \quad [[\textit{pita}]] = \lambda G_{\langle d, \langle e, t \rangle \rangle} \lambda x. \exists d [ G(d)(x) \ \& \ d \geq d_s ] \quad = (14)$$

Besides nouns and adjectives, *pita* can also modify verbal predicates. In this case it displays a  $\{-t\}$  morpheme that has been glossing by *ADV* (adverbializer) because of the adverbial properties in the language. As the examples in (20a) to (20d) show, adverbs and adverbial clauses in Karitiana exhibit a  $\{-t\}$  suffix.

- (20) a. João i-otam-Ø koo-t.  
 João PART-arrive-ABS yesterday-ADV  
 'João arrived yesterday.'
- b. João Ø-naka-tagngã-t gooʃ soaso-t.  
 João 3-DECL-drive-NFUT car fast-ADV  
 'João drives the car fast.'
- c. [Gok ʃonso amang-ã tyki'oo-t] Ø-na-oky-t him taso.  
 [manioc woman plant-VT IMP-ADV] 3-DECL-kill-NFUT meat men  
 'When the woman was planting manioc, the man hanted (the animal)'

(Rocha, 2013: 6)

Similarly to adjectival modification, when it is used on the verbal domain, *pita-t* has a variable interpretation. However, on the verbal modification the variance depends on telicity

<sup>10</sup> A proposal based on type shifting rules may sound *ad hoc*. Nevertheless we would rather make use of this rule, which is broadly used in the literature, than postulate two distinct lexical entrances to *pita*, one modifying adjectives and one modifying nouns.

properties of the verbal predicate.<sup>11</sup> When it is used with atelic predicates such as in (21) it means something related to *a lot* in English. I.e., that some property associated to the event described by the verb reached a degree above the normal degree. Nonetheless, sentences like the ones in (21) tend to be adequate in a bigger range of situations than their translations in English. The sentence (21a) in Karitiana can be used in a situation in which the man worked for many hours (duration property), or in a context in which he worked many times (iterativity property) or even in a situation in which he worked for few hours once but he did it intensively (intensivity property). When a motion verb is modified by *pitat* like in (21b), the properties of distance and speed are added to all the properties of (21a). Thus the sentence is appropriate to describe an event in which: (i) the man ran for a long time; (ii) the man ran many times; (iii) the man ran doing much effort; (iv) the man ran for a long distance; and (v) the man ran in high speed.

- (21) a. Taso Ø-na-pytim'adn-Ø pita-t.  
 man 3-DECL-work-NFUT pita-ADV  
 'The/A man worked a lot.'
- b. Taso Ø-na-pykyn-<a>-t pita-t.  
 man 3-DECL-run-NFUT pita-ADV  
 'The/A man ran a lot.'

On the other hand, when it is used with telic predicates, *pitat* is not associated to a degree above the normal degree in a certain property. In these contexts, such as (22a) and (22b), the sentence is used to assert that the event reached its *telos*. That is the reason for the *indeed* translation. Other possible translation would be 'João did arrive' and 'João did die'.

- (22) a. João i-otam-Ø pita-t.  
 João PART-arrive-ABS pita-ADV  
 'João arrived indeed.'
- b. João i-pop-Ø pita-t.  
 João PART-die-ABS pita-ADV  
 'João died indeed.'

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<sup>11</sup> For a discussion on telicity and verbal classes in Karitiana see Sanchez-Mendes (2014).

This use of *pitat* with telic predicates resembles the use of *pita* with nouns with a confirmation reading. A way to analyze the use of *pitat* with verbal predicates is considering that verbs can also be treated as scalar predicates and then *pitat* can be considered as a DM on this domain too. Telic predicates, for instance, can be taken as closed scale predicates, since they have a final point represented by their *telos*. Atelic predicates, on the other hand, do not have an endpoint degree and can be treated as open scale predicates (cf. Caudal and Nicolas 2005). So as in the case of adjectival modification we are dealing with a variability of interpretations dependent on the scales typology of the modified phrase.

In any case, there is a difference between gradable adjectives scales and the ones associated to verbal predicates. GAs encode lexical scales. For instance, for the adjective *good* there is a *goodness* scale, for *tall* there is a *height* scale, and so on. Verbal predicates in turn can be associated to scales that represent some of their properties such as duration, iterativity, intensity, distance and speed as examples in (21) showed. In this sense we assume that verbal predicates can encode contextual scales (cf. Rappaport Hovav e Levin 2010). Nevertheless, this is a property of atelic predicates only. As presented in the example (22), telic predicates are not associated to contextual scales when are modified by *pita-t*.

In order to formally capture this fact, we assume that there is function **DegV** that turns simple verbal predicates of type  $\langle e, \langle s, t \rangle \rangle$  in gradable ones of type  $\langle d, \langle e, \langle s, t \rangle \rangle \rangle$ . A version of this function is given in (23).<sup>12</sup> **DegV** as **DegN** described above is another instance of the type shifting rule that turn simple predicates in gradable ones.

(23) a.  $\llbracket DegV \rrbracket = \lambda P_{\langle e, \langle s, t \rangle \rangle} \lambda d \lambda x \lambda e. P(x)(e) \ \& \ \mu(e) = d$

In (23)  $\mu$  is a measurement scheme (Nakanishi 2007). It represents the relevant dimension associated to the predicate according to its telicity property. If the predicate is atelic, it is contextual and can be filled by time length, number of occurrences, intensity, speed or distance (those last two are available only for motion verbs). Otherwise, if the predicate is telic,  $\mu$  will be replaced by a dimension represented by the event denoted by the verbal predicate mapped in a scale, and its *telos* will be the maximum degree. In (24) we give the gradable version of the predicates used above. (24a) states that a gradable form of the verb

<sup>12</sup> All intransitive verbs in Karitiana behave like unaccusative verbs (Rocha, 2012). That means that they all have an internal argument. Regarding the transitive verbs, we follow Kratzer's proposal (Kratzer, 2006) that the external argument is not present in the verbal denotation but is inserted by a voice function. The result is that both intransitive and transitive verbs have the type  $\langle e, \langle s, t \rangle \rangle$  and it is possible to provide a unified lexical entry to DegV.

*pytim'adn* denotes a relation among degrees **d**, individuals **x** and events **e** such as **x** works in **e** and the event **e** is mapped to a degree **d** in a contextual measure function **μ**. (24b') in turn represents the denotation of *otam* as a relation among degrees **d**, individuals **x** and events **e** such as **x** arrives in **e** and the event **e** is mapped to a degree **d** in a scale represented by the event denoted by *otam* 'arrive'.

- (24) a.  $\llbracket pytim'adn_{deg} \rrbracket = \lambda d. \lambda x. \lambda e. work(x)(e) \ \& \ \mu(e) = d$  ATELIC  
 b.  $\llbracket otam_{deg} \rrbracket = \lambda d. \lambda x. \lambda e. arrive(x)(e) \ \& \ \mu(e) = d$  TELIC STEP 1  
 b'.  $\llbracket otam_{deg} \rrbracket = \lambda d. \lambda x. \lambda e. arrive(x)(e) \ \& \ 'arrive'(e) = d$  TELIC STEP 2

Finally, we propose the following lexical entry to *pitat*:

- (25)  $\llbracket pitat \rrbracket = \lambda G_{\langle d, \langle e, \langle s, t \rangle \rangle \rangle} \lambda x_e \lambda e_s. \exists d [ G(d)(x)(e) \ \& \ d \geq d_s ]$

Given the analysis proposed to *pita* modifying adjectives and nouns and *pitat* modifying verbal predicates it is possible to offer a lexical entry to the morpheme  $\{-t\}$  that makes possible to derive *pitat* from *pita*.

- (26)  $\llbracket -t \rrbracket = \lambda M_{\langle \langle d, \langle e, t \rangle \rangle, \langle e, t \rangle \rangle} \lambda G_v \lambda x_1 \lambda e_1 . M(\lambda d_1 \lambda x_2. G_v(d_1)(x_2)(e_1))(x_1)$ <sup>13</sup>

In (26), **M** represents the modifier *pita* of type  $\langle \langle d, \langle e, t \rangle \rangle, \langle e, t \rangle \rangle$ . **G<sub>v</sub>** represents the gradable verb of type  $\langle d, \langle e, \langle s, t \rangle \rangle \rangle$ . We give the derivation in (27), where **G<sub>A</sub>** is the gradable adjective of type  $\langle d, \langle e, t \rangle \rangle$ .

(27) Derivation

1.  $\llbracket -t \rrbracket = \lambda M \lambda G_v \lambda x_1 \lambda e_1 . M(\lambda d_1 \lambda x_2. G_v(d_1)(x_2)(e_1))(x_1)$

LEXICON

2.  $\llbracket pita \rrbracket = \lambda G_A \lambda x_3. \exists d_2 [ G_A(d_2)(x_3) \ \& \ d_2 \geq d_s ]$  LEXICON

3.  $\llbracket pitat \rrbracket = \llbracket -t \rrbracket (\llbracket pita \rrbracket)$  FUNCTIONAL APPLICATION

$$= [\lambda M \lambda G_v \lambda x_1 \lambda e_1 . M(\lambda d_1 \lambda x_2. G_v(d_1)(x_2)(e_1))(x_1)] (\lambda G_A \lambda x_3. \exists d_2 [G_A(d_2)(x_3) \ \& \ d_2 \geq d_s])$$

$$= \lambda G_v \lambda x_1 \lambda e_1 . [ \lambda G_A \lambda x_3. \exists d_2 [G_A(d_2)(x_3) \ \& \ d_2 \geq d_s ] ] (\lambda d_1 \lambda x_2. G_v(d_1)(x_2)(e_1))(x_1)$$

$$= \lambda G_v \lambda x_1 \lambda e_1 [ \lambda x_3. \exists d_2 [ \lambda d_1 \lambda x_2. G_v(d_1)(x_2)(e_1) ] (d_2)(x_3) \ \& \ d_2 \geq d_s ] (x_1)$$

<sup>13</sup> For clarity, we are numbering the variables to differentiate between them.

$$= \lambda G_v \lambda x_1 \lambda e_1 [ \lambda x_3. \exists d_2 G_v (d_2)(x_3)(e_1) \ \& \ d_2 \geq d_s ] (x_1)$$

$$= \lambda G_v \lambda x_1 \lambda e_1 . \exists d_2 [ G_v (d_2)(x_1)(e_1) \ \& \ d_2 \geq d_s ]$$

This section showed that in Karitiana the scale typology is part of the Karitiana grammar. Nevertheless, it does not determine the distribution of DMs as in English. It also does not define the scale type of the modified phrase, as it does in BP. In Karitiana the scale properties of the modified phrase influences the semantics of the modified result. The table below resume the properties of *pita(t)*.

Modified Phrase		Type of the Scale	Approximate Translation of the Modified Result
Adjectives	Relative	Open	<i>very ADJ</i>
	Absolute	Closed	<i>completely ADJ</i>
Nouns		Closed	<i>real NOUN</i>
Verbs	telic	Open	<i>VERB a lot</i>
	Telic	Closed	<i>VERB indeed</i>

**Table 4:** Properties of *pita(t)*

## 5. COMPARING BRAZILIAN PORTUGUESE AND KARITIANA

Last section showed that *pita(t)* in Karitiana can occur with nouns, adjectives and verbs. When it occurs with nouns or adjectives, it has the form *pita*, and when it occurs with verbs, it has the form *pitat*. *Pita(t)* seeks for a scale to modify, and it does not matter what is the type of the scale provided. It has no categorial or semantic selection restrictions. In all domains the meaning of the modified phrase is determined by the scale properties of the modified predicate. When modifying open scale predicates the semantic contribution of *pita(t)* is that some property associated to the predicate is applicable in a degree above the normal degree. When it is used with closed scale predicates, *pita(t)* means that some property related to the predicate reaches the maximum degree. These properties can be the scale lexically associated to GAs or properties contextually available for nouns and verbal predicates.

Considering the categorial selection, *pita(t)* distribution is not so exceptional: *muito* (BP) is also found in verbal (28a), adjectival (28b) and nominal domain (28c).

- (28) a. João dormiu muito.  
'João slept a lot.'
- b. O João é muito inteligente.  
'João is very intelligent.'
- c. Muitos alunos vieram.  
'Many students came.'

However, on the verbal domain *muito* never has a confirmation reading as *pita* modifying telic predicates has. Consider the contrast below with the accomplishment predicate 'cross Sete de Setembro street' in Karitiana (29a) and in BP (29b).<sup>14</sup>

- (29) a. João i-kokot-Ø pita-t Sete de Setembro dewota kyyn.  
João PART-CROOS-ABS pita-ADV Sete de Setembro other.side to  
'João crossed Sete de Setembro street indeed.'
- b. João atravessou muito a rua Sete de Setembro.  
'João crossed Sete de Setembro street a lot of times.'

Nevertheless *sempre* 'always' in European Portuguese (EP) can have both a temporal and a confirmation reading (Ambar et al. 2004).

- (30) a. O João vai sempre a Paris (EP/BP)  
'John always goes to Paris.'
- b. O João sempre foi a Paris (EP)  
'John really/indeed went to Paris.'

This confirmation reading is similar to the one found when *pita* modifies nouns in Karitiana and also can be found in sentences with *perfeito* 'perfect' + NP in BP, with similar behavior in English.

- (31) a. João i-amy-t [ti'y pita].

<sup>14</sup> The examples have a proper name for the street for two reasons. Firstly because this is the only way to guarantee that this is an accomplishment in Karitiana since NPs headed by common nouns are always bare and have number neutral denotations (see Sanchez-Mendes 2014 for discussion). Secondly, in BP a proper name can avoid the modifier *muito* to attach to the NP instead of the VP.

João PART-buy-ABS food *pita*

'João bought real food.'

b. João é um perfeito idiota.

'João is a perfect idiot.'

In (31a) the sentence means that João bought an instantiation of food that has a maximum degree of precision, that is, he bought proper food. In turn, (31b) states that the GA is really adequate to describe the individual it applies to. It is not amplifying the degree of “idioticity”, but rather stating how very appropriate the GA is as a description for that particular person. Similarly in (31a) *pita* means that the description of that object as food is particularly very accurate. Therefore, such a thing deserves to be called food more than many others.

On the adjectival domain, last section showed that *pita* may modify any GA in Karitiana, like the BP DM *muito* does. So *pita* does not select a particular type of scale in the GAs to modify, unlike English DMs (e.g., *much* modifies only GAs with scales closed on the minimal degree). Nevertheless, *muito* + any GA will produce one specific scale, while *pita* responds to the type of scale it modifies, preserving the type of the input. The differences are summarize in table (5).

Language	Modifier	Properties		
		Selects a particular type of scale	Produces one specific scale	Produces a meaning depending on the scale
English	<i>much</i>	✓	✗	✗
Brazilian Portuguese	<i>muito</i>	✗	✓	✗
Karitiana	<i>pita</i>	✗	✗	✓

**Table 5:** Comparing GA modifiers in English, BP and Karitiana

## CONCLUSIONS

This paper discussed degree modification in Brazilian Portuguese and in Karitiana. The facts of those two so unrelated languages in terms of gradable expressions reinforce the idea that scale structure universally affects degree modification. The shape of the effect and where it shows up across languages seems to vary widely. The exam of degree modification in

Karitiana and Brazilian Portuguese favors the "Obligatory Scale" hypothesis (Frazier, Clifton and Stolterfoht, 2008; Kennedy, 2007) contra analysis of GAs that dispense scales (Neeleman, Van de Koot and Doetjes, 2004; Husband, 2011). The "Obligatory Scale" hypothesis clearly predicts that scalar types interfere in the processing of the sentence, and therefore the meaning of modified gradable adjectives will reflect scale structure.

A wide range of data in both languages suggests that the scales typology adopted in the literature is universal. What varies is the role of the typology for degree modification. In English it influences the selection of gradable adjectives. As brought about in the introduction, Kennedy and McNally (2005) showed that *very*, *much* and *well* have a complementary distribution in terms of GA selection, reflecting the scale type of the modified GA. In BP on the other hand the scale typology affects the type of phrase each degree modifier produces with the already modified gradable adjective. In Karitiana in turn the scales typology has an effect on the final meaning of the construct.

## REFERENCES

1. AMBAR, Manuela; GONZAGA, Manuela; NEGRÃO, Esmeralda. Tense, Quantification and clause structure in EP and BP. Evidence from a comparative study on *sempre*. In: BOK-BEBBEMA, Reineke; HOLLEBRANDSE, Bart; KAMPERS-MANHE, Brigitte; SLEEMAN, Petra (eds.) *Romance Languages and Linguistic Theory 2002*. Groningen: John Benjamins Publishing Company, 2004.
2. BOGAL-ALLBRITTEN, Elizabeth. Slightly coerced: Processing evidence for adjectival coercion by minimizers. To appear in *Proceedings of the 48th Meeting of the Chicago Linguistic Society: Parasession on Meaning and Cognition*. Chicago: Chicago Linguist. Soc.
3. CAUDAL, Patrick; NICOLAS, David. Types of degrees and types of event structures. In: MAIENBORN, Claudia; WÖLLSTEIN, Angelika. *Event Arguments: Foundations and Applications*. Tübingen: Niemeyer, 2005.
4. FRAZIER, Lyn; CLIFTON, Charles; STOLTERFOHT, Britta. Scale structure: Processing minimum standard and maximum standard scalar adjectives. *Cognition* 106(1), 2008.
5. HUSBAND, Edward Matthew. Severing scale structure from the adjective. In *LSA Annual Meeting Extended Abstracts*, 2011.
6. KAMP, Hans; PARTEE, Barbara. Prototype theory and compositionality. *Cognition* 57 129-191, 1995
7. KENNEDY, Christopher. Vagueness and Grammar. The Semantics of Relative and Absolute Gradable Adjectives. *Linguistics and Philosophy* 30.1, 2007.

8. KENNEDY, Christopher; MCNALLY, Louise. Scale Structure, Degree Modification, and the Semantic Typology of Gradable Predicates, *Language* 81, 2005.
9. LASERSON, Peter. Pragmatic halos. *Language* 75, 522–551, 1999.
10. LIMA, Suzi. Maximality and distributivity in Brazilian Portuguese. *Revista Linguística* 9, 2013.
11. MASIÀ, Melania S. What veracity does to imprecision: the case of Spanish *verdadero*. *Proceedings of the ESSLI 2013 Student Session*, Düsseldorf, Germany, 2013.
12. MORZYCKI, Marcin. Metalinguistic comparison in an alternative semantics for imprecision. *Natural Language Semantics* 19(1), 39-86, 2011.
13. NAKANISHI, Kimiko. *Formal Properties of Measurement Constructions*. Berlin: Mouton de Gruyter, 2007.
14. NEELEMAN, Ad; VAN de KOOT, Hans, & DOETJES, Jenny. Degree expressions. *Linguistic review* 21(1), 1-66, 2004.
15. OLIVEIRA, Laís; QUADROS GOMES, Ana Paula Experimenting on Brazilian Portuguese Diminishers. Manuscript, 2015.
16. PIRES DE OLIVEIRA, Roberta Pires. O menino tá ‘Todo’ triste: uma reflexão sobre a quantificação universal no PB. *Revista Letras*, 61, 2003.
17. PYLKKÄNEN, Liina; McELREE, Brian. The syntax-semantic interface: On-line composition of sentence meaning. In: TRAXLER, Matthew J.; GERNSBACHER, Morton Ann. *Handbook of Psycholinguistics*. NY: Elsevier, 2006.
18. GOMES, Ana Paula Quadros. *O efeito grau máximo sobre os domínios: como 'todo' modifica a relação argumento-predicado*. PhD Thesis. Universidade de São Paulo, 2009.
19. QUADROS GOMES, A.P. The Structure of Gradable Adjectives in Brazilian Portuguese. In: LIMA, Suzi. SULA 5: SEMANTICS OF UNDER-REPRESENTED LANGUAGES IN THE AMERICAS, 2010, Cambridge, MA. *Proceedings of Sula 5: Semantics of Under-Represented Languages in the Americas*. Amherst, MA: GLSA - Graduate Linguistics Students Association, v. 41. p. 49-66. 2010.
20. QUADROS GOMES, Ana. Modificadores de adjetivos de grau em PB. In: Anais do III SIMELP - Simpósio 5: O Português falado no mundo: Investigações sobre a oralidade da Língua Portuguesa., 2012, Macau (CHN). III SIMELP: A formação de novas gerações de falantes de português no mundo. Macau (CHN): Universidade de Macau, 2012. p. 5-1-5-11.
21. RAPPAPORT HOVAV, Malka; LEVIN, Beth. Reflections on Manner/Result Complementarity. In: DORON, Edith; RAPPAPORT HOVAV, Malka; SICHEL, Ivy (eds.) *Syntax, Lexical Semantics, and Event Structure*. Oxford: Oxford University Press, 2010..
22. ROCHA, Ivan. Valência Verbal e núcleos aspectuais em orações subordinadas em Karitiana: o caso das relativas e adverbiais. Paper presented at II Workshop de Línguas Indígenas da USP, 2013.
23. ROTSTEIN, Carmen; WINTER, Yoad. Total adjectives vs. partial adjectives: Scale structure and higher order modifiers. *Natural Language Semantics* 12, p. 259–288, 2004.

24. SANCHEZ-MENDES, Luciana. Verbal Classes in Karitiana: evidence for telic and atelic distinction. Paper presented at the Workshop on Morphology and Interpretation at Universidade de São Paulo, São Paulo, Brazil. 2014.
25. STORTO, Luciana. Copular Constructions in Karitiana: a case against case movement. In: LIMA, Suzi. (ed.) *University of Massachusetts Occasional Papers 41: Proceedings of SULA 5: Semantics of Under-Represented Languages in the Americas*. Amherst: GLSA/The University of Massachusetts, 2010.
26. STORTO, Luciana; VANDER VELDEN, Felipe Ferreira. *Karitiana*. 2005. [<http://pib.socioambiental.org/pt/povo/Karitiana/385>].
27. SYRETT, Kristen; KENNEDY, Christopher; LIDZ, Jeffrey. Meaning and context in children's understanding of gradable adjectives. *Journal of semantics*, 2009.

**RESUMO:** Este artigo discute a modificação de grau em português brasileiro (PB) e em Karitiana, buscando semelhanças que apontem na direção de universais semânticos. A língua Karitiana, da família Tupi, tronco Arikén, é falada no Noroeste do Brasil. Tanto em Karitiana quanto em português brasileiro, Adjetivos de Grau (AGs) apresentam os mesmos tipos de escala e os mesmos parâmetros de comparação propostos por Kennedy e McNally (2005), o que sugere a viabilidade de uma tipologia universal para Adjetivos de Grau. Não obstante, em se tratando de Modificadores de Grau, universais semânticos estão longe de ser óbvios. Em português brasileiro, *muito* não apresenta as propriedades seletivas notadas em *very*, *much* e *well* (inglês). Ainda assim, a sensibilidade à estrutura da escala aparece em PB, no que diz respeito aos produtos da modificação do AG. *Muito* + AG compõem uma expressão complexa de escala aberta, enquanto a expressão composta por *todo* + AG apresenta escala fechada no grau máximo. O modificador *pita(t)* (Karitiana) também não seleciona os AGs que modifica por suas propriedades escalares. Entretanto, o significado do produto da modificação varia conforme as propriedades de escala do AG modificado. Nossa hipótese central é a de que as línguas variem quanto ao ponto em que os modificadores de grau são sensíveis à estrutura da escala: (i) na seleção dos AGs por modificar (inglês); (ii) no tipo de escala do sintagma produzido por meio da modificação do AG (PB) ou; (iii) no significado do produto da modificação (Karitiana).

**Palavras-chave:** modificação de graus; semântica escalar; adjetivos de grau