The standard marker in Malayalam encodes comparative semantics[1]

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Abstract In traditional analyses, the semantics of comparison is wholly introduced by the comparative morpheme (*more, -er*), with the standard marker (*than*) merely marking the standard phrase as a semantic argument of the comparative morpheme. I depart from this analysis and provide evidence that both the comparative morpheme and standard marker contribute to the semantics of comparison (similar in spirit to Kennedy 2007, Alrenga et al 2012, Schwarzschild 2014); evidence for my proposal comes from Malayalam.

Keywords Adjectives, Gradability, Comparatives

1. Introduction

Under the standard analysis, gradable adjectives denote relations between individuals and degrees (Seuren 1973, Cresswell 1979 a.o). A gradable predicate, such as *tall*, incorporates the measure function *height*, which when applied to an individual, yields the degree *d* of *height* of that individual.

(1) $[\![\text{tall}]\!] = \lambda d\, \lambda x.$ **height** $(x) \geq d$

In the degree analysis of adjectives, functional morphology such as, measure phrases ('two feet'), positive morphemes (POS), or the comparative morpheme *more* saturate the degree argument. In comparatives, such as (2) the semantics of comparison is encoded in the comparative morpheme (3) and the standard marker *than* is taken to be semantically vacuous.

(2) a. John is taller than Bill (is).
b. John is $[_{AP}[_{DegP}$ -er than Bill] tall]
c. $[_{DegP}$ -er than Bill]$_1$ John is $[_{AP}\ t_1$ tall]

(3) $[\![$-*er*/more$]\!] = \lambda D.\ \lambda D'.$ max D' > max D (Heim 2000)

In this paper, I will argue for an alternative analysis where both the standard marker *than* and the comparative marker *more* encode comparative semantics. Evidence comes from Malayalam comparatives. Malayalam lacks an adjectival category and uses complex property concept expressions to encode adjectival meaning (Menon 2013, Menon and Pancheva forthcoming). In the absence of adjectives, nominal and verbal comparatives are formed using two different kinds of comparatives. The comparative marker is an adnomial degree modifier along the lines of 'in addition to', 'in excess of'. Thus, in Malayalam, the role of the comparative marker is not to saturate the degree argument of the adjective. The comparative semantics is encoded in the

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semantically non-vacuous *than* which functions as a quantifier domain adverbial (similar in spirit to Schwarzschild 2014) whereby it restricts the domain of the degree quantifier *more*. The paper is structured as follows. In the following section 2.0, I will introduce the two types of comparatives in Malayalam. In section 3.0, I will analyze the distribution of the comparative marker *more* and in section 4.0, I will look closely at the distribution of the standard marker *than*, followed by the analysis in section 5.0.

2. Malayalam comparatives: The basic data

There are two types of comparatives in Malayalam, depending on the standard marker: *kaaɭ-um* and *il-um* (4). They both show clausal comparison and phrasal comparison (see Menon 2012). The *kaaɭ-um* is similar to a particle comparative (like *English*) and is unique to Malayalam among other Dravidian languages. *kaaɭ* is a dedicated *than* morpheme found only in comparatives. The comparative marker *kuuʈuttal* is optional with *kaaɭ-um* comparatives.

(4) a. **the *kaaɭ-um* comparative: phrasal**[2]

Anil-inə [*Komalan-e* **kaaɭ-um**] (kuuʈuttal) pokkam uɳʈə
Anil-DAT Komalan-ACC than-UM more tallness POSS V
'Anil is taller than Komalan.' (Lit. 'To Anil there is (more) tallness than Komalan.')

b. **the *kaaɭ-um* comparative: clausal**

Anil-inə [*Komalanə pokkam uḷḷa-t-ine*] **kaaɭ-um** (kuuʈuttal)
Anil-DAT Komalan-DAT tallnessEX.COP$_{nonfinite}$-REL-NOML-ACC than-UM more
pokkam uɳʈə
tallness POSS V
'Anil is taller than Komalan.' (Lit. 'To Anil there is (more) tallness than Komalan has tallness.')

The second type of comparison, called the *il-um* comparative is the common strategy employed by all other Dravidian languages. It uses a locative postposition *il*, which is attached directly to the standard. Thus, there is a case marking difference between the two comparatives. The standard in the *kaaɭ-um* comparative is accusative case marked while the standard in the *il-um* comparative is locative case marked.

(5) a. **the *il-um* comparative: phrasal**

Anil-inə [*Komalan*-**il-um**] *(kuuʈuttal) pokkam uɳʈə
Anil-DAT Komalan-LOC-UM more tallness POSS V
'Anil is taller than Komalan.' (Lit. 'To Anil from Komalan there is tallness.')

b. **the *il-um* comparative: clausal**

Anil-inə [*Komalanə pokkam uḷḷa-t*-**il-um**] *(kuuʈuttal)
Anil-DAT Komalan-DAT tallnessEX.COP$_{nonfinite}$-REL-NOML-LOC-UM more
pokkam uɳʈə
tallness POSS V

[2] In the literature, the PossV *uɳʈə* (5a) is called existential copula and the PredV *aaɳə* (5b) is called the equative copula.

‘Anil is taller than Komalan.’ (Lit. ‘To Anil from Komalan there is tallness.’)

There are two generalizations from the above data. The comparative marker behaves differently in *kaaɻ-um* and *il-um* comparatives. In the case of *il-um* comparatives, the comparative marker *kuuʈuttal* is obligatory. In the following section, I will look closely at the distribution of the comparative marker.

3. Distribution of the comparative marker *more*

The comparative marker in Malayalam *kuuʈuttal* has a peculiar distribution. In this section I note an asymmetry in the distribution by looking at different expressions it can combine with.

3.1 NP comparatives are conditioned by possession

The comparative marker is obligatory when the NP is encoded in a non-possessive construction (6). When the NP is encoded in a possessive construction (the existential copula), the comparative marker is optional (cf. (5)).

(6) **NP comparative: obligatory *more* outside of possession**

a. Anil [*Komalan-e* **kaaɻ-um**] *(kuuʈuttal) pazham kazhicc-u
Anil Komalan-ACC than-UM more bananas eat-PAST
‘Anil ate more bananas than Komalan.’

b. *(kuuʈuttal) veḷḷam kuʈiccu ‘drank more water’
c. *(kuuʈuttal) kaatu vizhingi ‘ate more air’

(7) **NP comparative: optional *more* with possession**

a. Anilinə [*Komalan-e* **kaaɻ-um**] (kuuʈuttal) veḷḷam unʈ̪ə
Anil-DAT Komalan-ACC than-UM more water POSS V
‘Anil has more water than Komalan.’

b. (kuuʈuttal) paɳam unʈ̪ə ‘ has more money’

Crucially, possession plays a role in determining the presence of the comparative marker. In the case of *il-um* comparative, as I noted in the previous section, the comparative marker is always obligatory.

3.2 Verbal comparatives: obligatory *more*

In the case of verbal comparatives (8), the comparative marker seems to be obligatorily required.

(8) a. Anil [*Komalan-e* **kaaɻ-um**] *(kuuʈuttal) ooʈi
Anil Komalan-ACC than-UM more ran

'Anil ran more than Komalan.'

b. *(kuuʈuttal) nadannu 'walked more'
c. *(kuuʈuttal) mala keɾi 'climbed more hills'

The same obligatory requirement holds of verbal comparatives formed using the *il-um* comparative.

3.3 Class 1 property concept expressions prohibit the comparative marker

In previous work, I have analyzed Malayalam has having two classes of property concept (PC) expressions (for more details, see Menon 2013, Menon and Pancheva 2014, Menon and Pancheva forthcoming). There are no semantic differences between the two types of roots. The distinction is morpho-syntactic (based on etymology), and the morpho-syntactic class determines the type of structures the roots can appear in.

(9) a. [[√nall]] = the property of goodness (Class 1)

b. [[√santosh]] = the property of happiness (Class 2)

A covert possessive *v* categorizes Class 1 roots. Class 2 roots are categorized with a non possessive *v*, and they enter further PC predication as complements of possessive predicates. Correspondingly, all PC predication is possession-based.

(10) Class 1 PC root *(-a* ending, relativized root)

a. $[[[\sqrt{\text{nall}} + \varnothing_{v\_poss}]_v + \text{POS}]_v \text{-a}]_{rel}$
Lit. 'having an instance of goodness measuring to a degree that exceeds the standard'

b. $[\![\varnothing_{v\_poss}]\!] = \lambda\Pi\, \lambda d\, \lambda x\, \exists y$ [y is an instance of Π & x has y & $\mu(y) \geq d$]

c. $[\![\ \text{POS}\ ]\!] = \lambda g_{<d, <e, t>>}.\ \lambda x.\ \exists d$ [g(d)(x) & d > d_s]

d. $[\![\text{nalla}]\!] = \lambda x.\ \exists d\ \exists y$ [y is an instance of goodness & x has y & $\mu(y) \geq d$ & d > d_s]
$\approx \lambda x.\ \exists d$ [x's goodness $\geq$ d & d > d_s]

Thus, Class 1 PC expressions encode covert possession and they are gradable. These Class 1 PC expressions such as *big, good, new* never appear with the comparative marker.

(11) **Class1 PC comparatives: *more* is prohibited**

a. Anil	[*Komalan-e*	**kaaɭ-um**]	(*kuuʈuttal)	nalla-van	aaɳə
Anil	Komalan-ACC	than-UM	more	good-M.SG	PRED V

'Anil is good than Komalan.' (Lit. 'Anil is one having goodness than Komalan')

b. (*kuuɻuttal) pazhayatə ‘more old’
c. (*kuuɻuttal) valippam ‘more big’

Class 1 PC expressions only appear with *kaaɻ-um* comparative due to the prohibition against the comparative marker.

3.4 Class 2 property concept expressions optionally allow the comparative marker

Class 2 PC roots are non-gradable and they are categorized using a non possessive verbal head.

(12) Class 2 property concept root *(-am* ending, nominalized root)

a. $[[\sqrt{}\text{pokk+}\ \varnothing_v\ ]_v + \text{-am}]_n$
Lit. ‘being an instance of height’

b. $[\![\varnothing_v]\!] = \lambda\Pi\,\lambda x\,[x \text{ is an instance of } \Pi]$

c. $[\![\text{pokkam}]\!] = \lambda x.\,[x \text{ is an instance of height}]$

The possessive relation is expressed at the level of the word, through a covert possessive verbal morpheme, with Class 1 roots, and at the phrasal level, through an overt possessive verb, with Class 2 roots. Gradability is directly related to property possession. Only Class 1 roots are gradable.

Class 2 PC expressions such as *happiness, tallness, smartness* optionally appears with the comparative marker.

(13) **Class2 PC comparatives: *more* is optional**

a. Anil-inə [*Komalan-e* **kaaɻ-um**] (kuuɻuttal) pokkam unʈə
Anil-DAT Komalan-ACC than-UM more tallness POSS V
‘Anil is taller than Komalan.’ (Lit. ‘Anil has more tallness than Komalan.’)

b. (kuuɻuttal) santosham ‘more happiness’
c. (kuuɻuttal) dukkam ‘more sadness’

A question regarding the comparative marker emerges at this point. Why is *more* obligatory with NP comparatives outside of possession, optional with possessive predicates including those appearing with Class 2 expressions, and disallowed with Class 1 expressions? We will proceed to answer this question in section 5. The table below summarizes the behavior of the comparative marker in the presence of the two different kinds of comparatives and with the different property concept expressions as well as NP and VP comparatives.

Summary of the behavior of the comparative marker kuuɽuttal

	kaaɭ-um comparative	***il-um comparative***
a. NP comparative (outside possession)	obligatory *more*	obligatory *more*
b. NP comparative (with possession)	optional *more*	obligatory *more*
c.Verbal comparative	obligatory *more*	obligatory *more*
d. Class 1	prohibited *more*	-------
e. Class 2	optional *more*	obligatory *more*

In this section we have seen that the behavior of *more* is quite distinct from the English –*er/more*. It has a varied distribution depending on the standard marker and the kind of expression it combines with. In the next section, we will look at the distribution of the standard marker *than*.

4 Distribution of *than*

English can optionally omit the standard phrase in a comparative construction. These type of constructions are called as implicit comparatives.

(14) {Come out onto the porch.} It's cool**er** here. (Sheldon 1945)

(15) a. John has 3 pens. I have **more**.
b. John is 6 ft tall. I am tall**er**.

4.1. *Than* is always obligatory in Malayalam

Another point of difference between English comparatives and Malayalam comparatives is that these comparatives are disallowed in Malayalam.

(16) a. Anil-inə muunə pena unʈə. enikkə [*atin-e* kaaɭum] kuuɽuttal unʈə.
Anil-DAT three pens EX COP I-DAT that-ACC than more POSS V
'Anil has three pens. I have more than that.

b. Anil-inə aarə aɽi pokkam unʈə. enikkə [*atin-e* kaaɭum] kuuɽuttal unʈə
Anil-DAT three feet tallness EX COP I-DAT that-ACC than more POSSV
'Anil is 6 feet tall. I have more than that.

Thus, another generalization that comes forth from this data is regarding the nature of the comparative marker *more* in Malayalam, it behaves differently from English *more*.

4.2. Hebrew bare comparatives

Hebrew bare comparatives have been analyzed in Schwarzschild 2014 as having a semantically meaningful *than*.

(17) Miri xazaka mi-Yoni (Schwarzschild 2014: 17)
Miri strong[3sg.fem] SM-Yoni
'Miri is stronger than Yoni.'

The standard marker *mi* appears in (13) without the comparative marker *yoter*. Hebrew bare comparatives do not have a null *more* since differentials cannot combine with bare comparatives.

(18) *harbe xazak mi-Yoni (Schwarzschild 2014: 24)
a lot strong SM-Yoni
'a lot stronger than Yoni.'

Hebrew allows differentials to be expressed as a prepositional phrase following the comparative adjective.

(19) hu (yoter) xazak mi-Yoni bə-harbe (Schwarzschild 2014: 24)
he CM strong SM-Yoni P – a lot
'he's stronger than Yoni by alot'

4.3. Malayalam differentials

Measure phrases can combine with comparatives without the presence of the comparative marker (similar to English), though speakers prefer the presence of the comparative marker.

(20) HoAnilin-ə [*Komalan-e* kaaɭ-um] ranʈu inch (kuuʈuttal) pokkam unʧə
Anil-DAT Komalan-ACC than-UM two inch more tallness POSS V
'Anil is two inches taller than Komalan.'

(21) Anil [*Komalan-e* kaaɭ-um] orupaaʈə pazham (kuuʈuttal) kazhiccu
Anil Komalan-ACC than-UM a lot bananas more ate
'Anil ate a lot of bananas than Komalan.'

However, in the *il-um* comparatives the *more* is obligatory. This is similar to the Hebrew differential comparatives in (xx).

(22) a. Anilin-ə *Komalan-il-um* ranʈu inch *(kuuʈuttal) pokkam unʧə
Anil-DAT Komalan-LOC-UM two inch more tallness POSS V
'Anil is two inches taller than Komalan.'

(23) b. Anil *Komalan-il-um* orupaaʈə *(kuuʈuttal) pazham kazhiccu
Anil Komalan-LOC-UM a lot more bananas ate

'Anil ate a lot more bananas than Komalan.'

Below is a summary of the distribution of the comparative marker and the standard marker given the data from English, Hebrew, and Malayalam. As seen, all languages have ways of forming comparative and allowing differentials in comparative but they do so differently. Malayalam differs from English and Hebrew in forming comparatives from property concept expressions. Hebrew and Malayalam allow bare comparatives, formed only using the standard phrase headed by *than*. English and Hebrew, to the exclusion of Malayalam, allow an incomplete comparative where the standard phrase is omitted. Thus, the Malayalam *than* is special and the behavior of *than* and *more* in Malayalam is different from that of English or Hebrew.

- ***Summary of the distribution of more and than in English, Hebrew, Malayalam***

	English	**Hebrew**	**Malayalam**
Comparative	John is tall**er than** Bill	John is tall**er than** Bill	John is tall**er than** Bill
Bare comparative	*John is tall **than** Bill	John is tall **than** Bill	John is tall **than** Bill
Incomplete comparative	It is cool**er** over here	It is cool**er** over here	*It is cool**er** over here
Differential	John is 2 inches taller than Bill	John is taller than Bill by 2 inches	John is 2 inches taller than Bill/ John is taller than Bill by 2 inches

5. Toward an analysis

There are three viable options for accounting for the variable behavior of the comparative marker. I will show that only one of these options if tenable for the data presented from the Malayalam comparatives. The first option is to assume the standard semantics for the comparative marker as in the standard literature. In this case, the comparative marker more encodes the comparative semantics. However, this analysis will provide no explanation for the varied distribution of the comparative marker. Why is it that the more is disallowed with Class 1 property concept expressions, optional with Class 2 property concept expressions, and obligatory with NP and VP comparatives, if indeed the comparative marker encodes comparative semantics uniformly?

The second option is to assume a silent degree head as is seen postulated for Hindi (Bhatt and Takahashi 2011). However, if indeed there was a silent head mediating the semantics, we expect to see systematic distinctions between the degree head –er and the comparative marker, yet we don't.

The final option is to assume that the standard phrase is not semantically vacuous and in addition to the comparative marker encodes the comparative marker. This is the analysis I will be pursuing in the following sections.

5.1 Is the *more* actually *more*?

Before laying out the analysis, looking at the nature of the comparative marker, one could ask whether it is indeed a comparative marker. I will offer a morphological decomposition account suggesting that the comparative marker is a dedicated morpheme seen only in comparative uses.

√kur is the root for quantity predicates. The same root can be seen in comparatives of superiority (*more*) as well as comparatives of inferiority (*less*). Moreover, *kuuɻuttal* 'more' is only used in comparatives.

(24)	a.	√kur + -ee = kuree	'a lot, many, much'
	b.	√kur + -avə= kuravə	'less
	c.	√kur + -uka = kuuɻuka	'to increase'
	d.	√kur + uɻ + -al = kuuɻuttal	'many/much + er' ~ 'more'

Following the traditional analysis in Bresnan (1973), Hackl (2000), *more* is analyzed as in (25).

(25) *–er* + many/much = more

5.2 A semantics for *than*

The standard marker determines the semantics of comparison (selecting for a phrasal vs. clausal standard of comparison) cross-linguistically (Kennedy 2007, Alrenga et al 2012). Comparative marker is not always necessary in comparative constructions (Schwarszschild 2014 for Hebrew) Comparative markers are cross-linguistically far more rare than standard markers (Stassen 1985).

5.2.1 *Schwarzschild's proposal*[3]

The *than* phrase can bind the degree argument in the matrix clause in bare comparatives (i.e. syntactically saturate the degree argument of the gradable predicate) or can act as a quantifier domain adverbial in the presence of *more* (i.e., syntactically act as an adjunct to the degree phrase).

(26) a. *than*: $[\![\textit{kaaɭ-um}]\!] = \lambda D.\ \lambda D'.\ \exists d\ [\ d \in D \wedge d \in D']$

b. *more*: $[\![\textit{kuuɻuttal}]\!] = \lambda D.\ \lambda D'.\ \forall d\ [\ d \in D \rightarrow d \in D']$

However, both in Class 1 and Class 2 property concept expressions there is no degree argument that *than* can bind. In the standard analysis, gradable adjectives are type <d, et>. In my analysis of Class 1 expressions, they are predicates of individuals. (see appendix). Alrenga et al's

[3] Schwarzschild uses thresholds in his analysis and not degrees.

analysis also assumes the standard semantics for gradable predicates and will not work for the Malayalam data. We adopt the spirit of Schwarzschild's proposal, essentially *than* encodes the comparative semantics and behaves as a quantifier domain adverbial in the presence of *more*.

5.3 *Than* is not semantically vacuous and encodes comparison

My main proposal is regarding the semantic content of the standard marker *than*. The standard marker is not semantically vacuous and acts as a context setter. The phrase headed by *than* can function as a quantifier-domain adverbial whereby it restricts the domain of the degree quantifier *more*. The semantics for the standard marker is given in (27). It takes a degree predicate and gives a degree, which is greater than the maximal degree denoted by the degree predicate.

(27) *than*: $[\![kaal\text{-}um\ ]\!] = \lambda D_{<d,t>}.\ \exists d\ [d > \max(D)]$

(28) John is taller than Bill (is)

The standard phrase [*than Bill is*] denotes a degree- a degree of tallness one would have to exceed in order to be taller than John. This degree is Bill's height, the maximal degree to which Bill is tall. Max is standardly defined as follows. It denotes the largest degree that satisfies D.

(29) $\max(D) \overset{\text{def}}{=} \iota d\ [\forall d'\ [D(d') \rightarrow d' \leq d]$

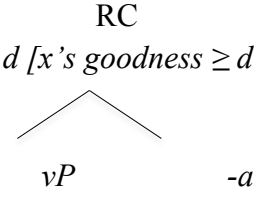
Given this semantics, in the next sections I develop how comparatives are formed in the different classes of property concept expressions in Malayalam.

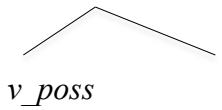
5.4 *Than alone encodes comparison- Class 1*

Class 1 property concept expressions are *–a* ending relativized property concept expressions and they never allow an overt comparative marker *more*. The internal composition of these Class 1 expressions encode covert possession, through merge in the Spec of a functional head $\varnothing_{v\_poss}$. The positive morpheme (POS) can saturate the degree argument and the *–a*, which is the relative clause marker in Proto-Dravidian attaches next. The role of this marker is only syntactic and it does not change the semantic type of the property concept expression.

(30) $[[[\sqrt{}nall + \varnothing_{v\_poss}\ ]_v + POS]_v\ \text{-a}]_{rel}$
Lit. 'having an instance of goodness measuring to a degree that exceeds the standard'

(31) a.

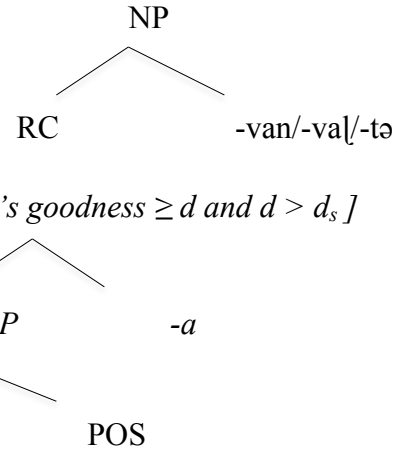




$\lambda\Pi\ \lambda d\ \lambda x\ \exists y$ [y is an instance of Π & x has y & $\mu(y) \geq d$] $\lambda g_{<d, <e, t>>}.\ \lambda x.\ \exists d$ [g(d)(x) & d > d_s]

The role of the standard marker, *than*, which is a PP adjunct that can adjoin to the *v*P, is to combine with a Class 1 expression and restrict the POS, essentially set the context. This structure is then turned into a resumptive one by the addition of resumptive pronouns that turn the relative clause into a free relative.

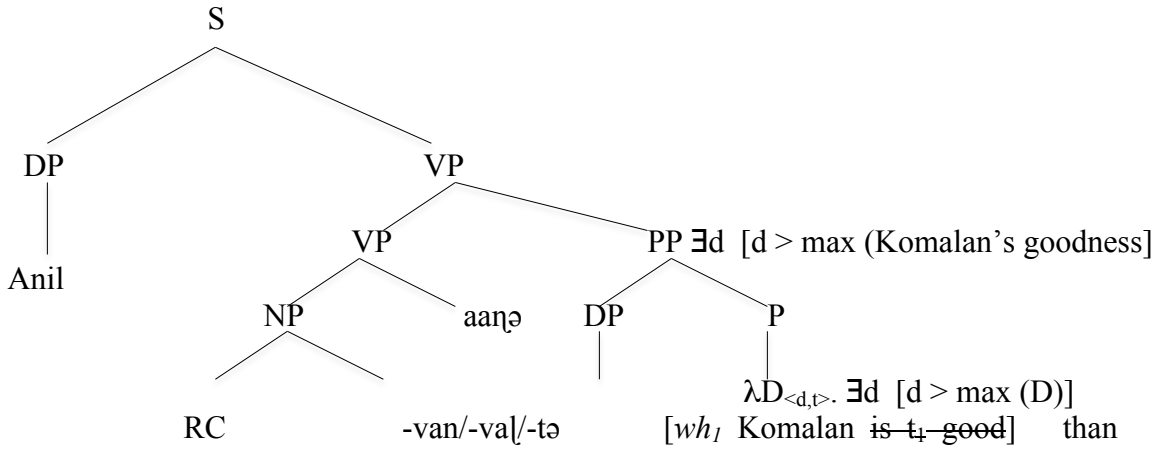
(31) b. A resumptive pronoun makes the RC in (5a) into a free relative.

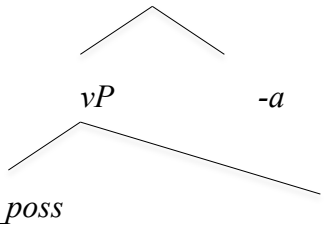


$\lambda\Pi\ \lambda d\ \lambda x\ \exists y$ [y is an instance of Π & x has y & $\mu(y) \geq d$] $\lambda g_{<d, <e, t>>}.\ \lambda x.\ \exists d$ [g(d)(x) & d > d_s]

The PP adjunct is then right adjoined to the VP.

(32)





$\lambda\Pi\ \lambda d\ \lambda x\ \exists y$ [y is an instance of Π & x has y & $\mu(y) \geq d$] $\lambda g_{<d, <e, t>>}.\ \lambda x.\ \exists d$ [g(d)(x) & d > d_s]

The PP adjunct then extraposes for λ-abstraction to a position before the VP. Comparative semantics is entirely encoded in *than*. Syntactically as well as semantically the comparative marker has no role.

(33) [$_{PP}$ than wh_1 Komalan is ~~t_1 good~~] (⟦ vP ⟧) = λD. ∃d [d > max (the degree to which Komalan is good)]

Thus in some sense, this is similar to an implicit comparison in English, although the *kaaɭum* comparative is an explicit comparative (see Menon 2012 for a detailed analysis of this).

(34) Compared to John, Bill is tall.

This analysis also accounts for how the distribution of *kaaɭum* is less restricted than that of *than* phrases. The comparative marker cannot appear on its own since semantically the comparative marker alone can do the comparison.

(35) a. *Than John, I love Paris.

b.

Anil-ine	**kaaɭum**	enikkə	Paris	iʃʈam	aaɳə
Anil-DAT	than	I-DAT	Paris	love	PRED V

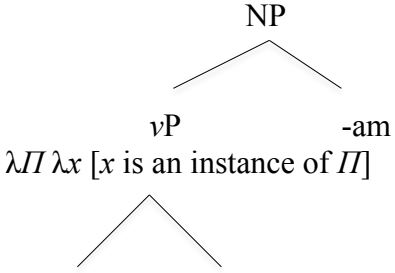
5.5. *Than alone encodes comparison- Class 2*

Class 2 property concept expressions are different from Class 1 property concept expressions in that they are nominalized with the *–am* marker. They merge in the Spec of a non possessive $\varnothing_v$. Thus in these cases, the possession is encoded overtly by combining with the possessive verb uɳʈə. The dative case marker on the subject and the possessive verb together contributes a degree for comparison (cf. (11)).

(36) [[√pokk+ $\varnothing_v$]$_v$ + -am]$_n$

Lit. ‘being an instance of height’

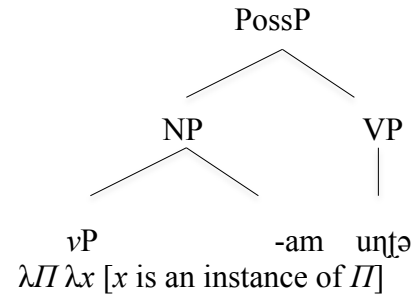
(37)



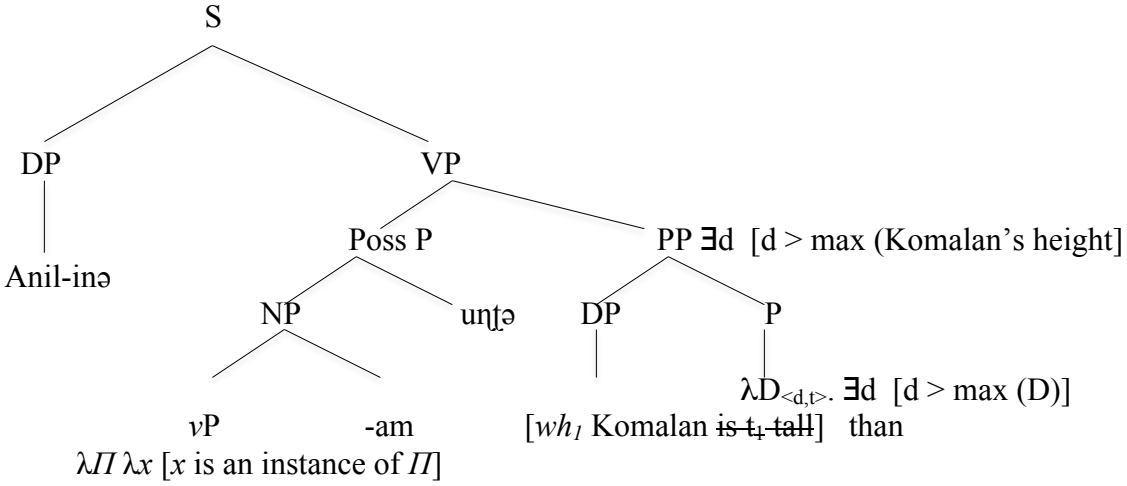
√pokk v

The nominal formed in (37) merges with a PossP hosting the Poss V. Thus possession makes the predicate gradable. The standard marker *than* saturates the degree argument of the have predicate + dative construction.

(38)



(39)



Similar to Class 1 property concept expressions, the PP adjunct then extraposes for λ-abstraction to a position before the VP. PossP introduces a degree variable, which the PP can bind. Thus possession introduces gradability or in other words gradability is only an epiphenomenon.

5.3 *Than encodes comparison with the more- Class 2, NP/VP comparative*

The cases in which the standard marker *than* and the comparative marker *more* can encode comparison are in Class 2 as well as NP/VP comparatives. This happens optionally with Class 2 property concept expressions and obligatorily with NP/VP comparative. In these cases, *more* is an adnominal degree modifier, meaning along the lines of "in addition of", "in excess of". The semantics is given in (40).

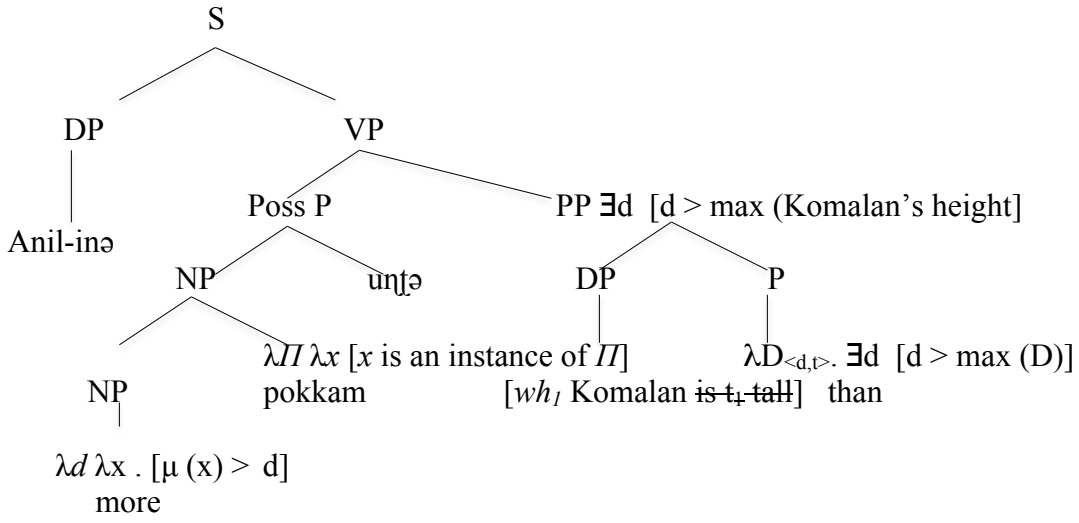
(40) *more*: $[\![kuuʈuttal]\!] = \lambda d\, \lambda x\, .\, [\mu(x) > d]$

The role of the comparative marker, when it appears with *than* is to saturate the max (D).

(41) John is taller than Bill (is).

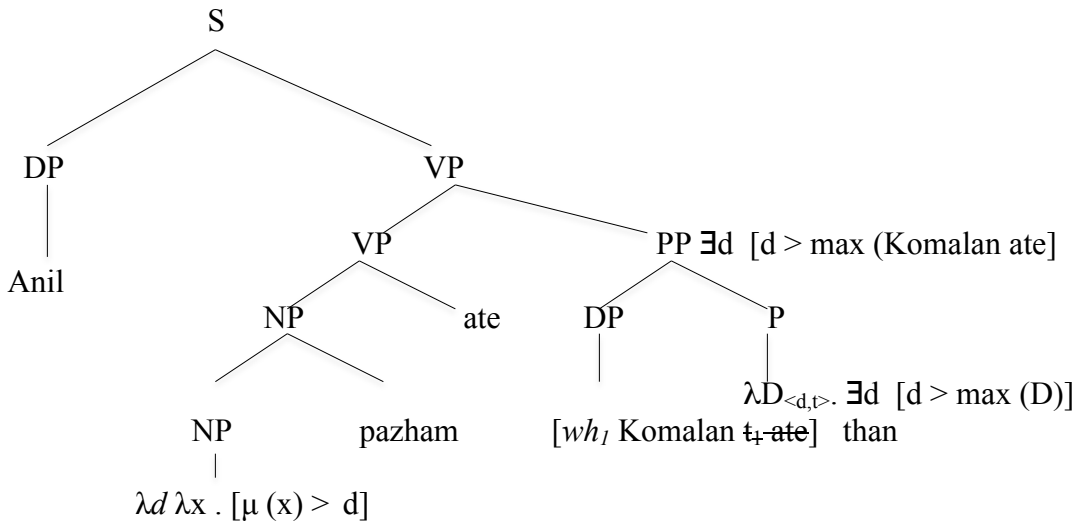
(42) than ([[*kuuɻuttal*]]) = the degree to which John is tall in excess of the degree to which Bill is tall.

Thus, when *more* occurs with *than*, it specifies the degree exceeding the specified standard.



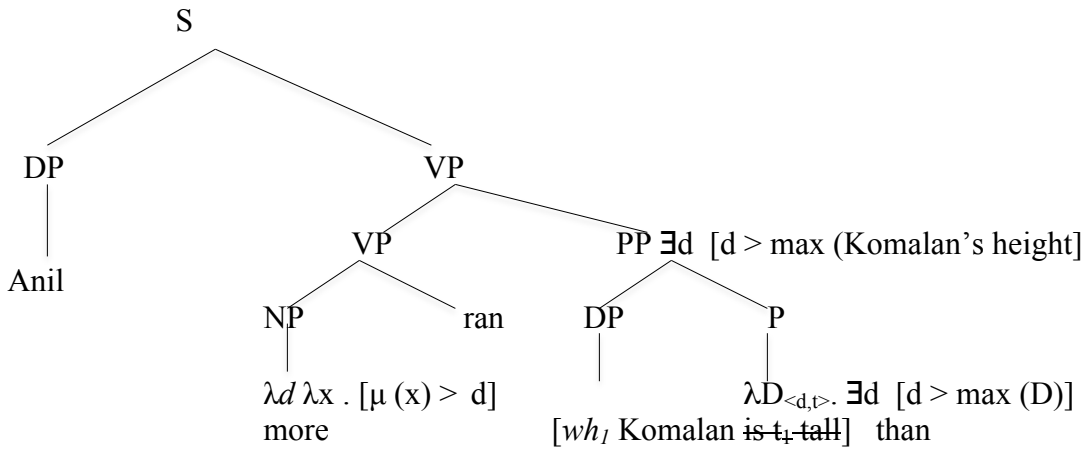
Thus, NP and VP comparatives need to be made gradable overtly by the addition of the degree morphology, the comparative adnomial marker *more* which gives the excess degree. Below are the derivations for the NP and VP comparatives.

(43) NP comparatives



more

(44) VP comparatives



6 Conclusion

We have shown a maximally transparent mapping from surface syntax to meaning by showing that both the comparative morpheme (*more*) and the standard morpheme (*than*) contribute to the semantics of comparison. The *than* can never be omitted from comparative constructions. The *than* phrase can bind the degree argument in the matrix clause in bare comparatives or can act as a quantifier domain adverbial in the presence of *more*. This division of labor can be seen in other instances of grammar, time and tense adverbials, modality and negation, numerals and plurals.

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