Same as the parameter of an equation construction[1]

Yenan SUN — *The University of Chicago*

Abstract. Rett (2013) proposes that the difference between scalar equatives (*Mary is as tall as Sue is*) and similatives (*Mary danced as Sue did*) in terms of whether a parameter marker (i.e. the underlined *as*) is needed, can be attributed to their difference in whether lexicalized arguments are equated (degrees vs. manners). This paper shows that the *same*-sentence, which is a kind of equation construction, poses a challenge to Rett (2013) at first sight and to maintain her proposal, I argue that a null parameter marker must co-occur with the parameter *same*. Moreover, the existence of such a null parameter marker is not simply postulated to fit *same* into Rett (2013) but rather reveals something deep about this word, as it can straightforwardly account for its extraordinary scoping pattern (Dowty, 1985; Barker, 2007; Brasoveanu, 2011).

Keywords: equation construction, same, parameter, parameter marker, internal reading.

1. Introduction

Haspelmath and Buchholz (1998) (H&B henceforth) categorize a class of sentences which equate various types of semantic object such as individuals, degrees, manners, and times ((1)-(2)) as *equation constructions*.

(1) a. Mary met the same boy **as** Sue did. (Equating individuals)
b. Mary is as tall **as** Sue is. (Equating degrees)

(2) a. Mary danced **as** Sue did. (Equating manners)
b. Mary danced **as** Sue sang. (Equating times)

Those constructions (partially) share the morphological make-up and henceforth I follow H&B in referring to the various parts of an equative with the terminology in (3).

(3) Mary is as tall **as** [Sue is]
comparee PM parameter SM [(clausal) standard]
(PM: parameter marker; SM: standard marker)

H&B observe two cross-linguistic tendencies for equation constructions: (i) Languages tend to use the same morpheme to mark the standard in *equation* constructions. (ii) Languages generally can form equatives with a parameter marker (PM, underlined in (1)), namely a word that explicitly introduces an equation relation, but cannot form similatives with a PM, as evidenced in the ungrammaticality of (4).

(4) a. *Mary as danced **as** Sue did.
b. *Mary as danced **as** Sue sang.

Rett (2013) for the first time provides a formal theory that successfully captures the above two tendencies in English (and potentially cross-linguistically). She proposes a uniform analysis

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of the standard marker *as* in both scalar equatives and similatives as 'a relativizer with an unspecified domain' to capture the tendency (i). For tendency (ii), which is the main focus of this paper, Rett attributes such a contrast between equatives and similatives to the difference of whether lexicalized arguments are equated in those constructions. If the construction equates lexicalized arguments like individuals and degrees, the presence of a PM is required in English. For instance (1b) semantically equates degrees, and degrees are lexicalized arguments of the parameter (provided by the adjective *tall*), the presence of a PM is thus required. If the construction equates non-lexicalized arguments like manners and times, the presence of a PM is prohibited as in (4). The fact that a similative like (5) can not have an interpretation of equating degrees thus provides a novel argument against treating degrees as lexicalized arguments of verbs (*contra* Piñón, 2008; Bochnak, 2013).

(5) *The cakes were (as) cooled as the cookies were.
Int: 'The cakes and the cookies were cooled to the same degree'

Among those equation constructions, the *same*-construction (SAME) is only briefly discussed in Rett (2013). The first goal of this paper is to propose a concrete analysis of SAME that fits into both H&B's generalizations and Rett's proposal. Whereas SAME (repeated as (6)) is taken to be one kind of equation constructions, as indicated by the existence of the standard marker *as* and the equation semantics (i.e. the equation of individuals)[2], how each part of the sentence in (6) is mapped to the make up in (3) is not a trivial question.

(6) Mary met the same boy **as** Sue did.

One immediate puzzle is that, if we follow Rett (2013) in assuming a PM (i.e. *same*) exists in SAME because the sentence (6) equates lexicalized arguments, it is unclear which part in (6) provides the parameter that is parallel to the gradable adjective in a scalar equative. Though Rett does not make it explicit, a very natural thought is that the common noun *boy* in (6) provides the parameter since it denotes a one-place predicate which takes individuals as its argument. However such a hypothesis, as we will turn to in the next section, is rejected mainly because common nouns differ from gradable adjectives in a fundamental way, leading to their disqualification as parameters.

The plan of this paper is as follows. Section 2 discusses why taking the nominal modified by *same* as the parameter is problematic. Section 3 presents a new analysis of *same*, which maintains the core of Rett's proposal of scalar equatives and crucially treats *same* as the parameter instead of the PM. The new analysis further assumes a null PM, which is semantically an individual quantifier. Section 4 argues that the existence of such a null equation head is not a pure stipulation. In fact, it further enables a uniform and compositional analysis of the external and internal readings of *same*. Section 5 concludes.

2. The problem of taking nouns as the parameter

This section shows why treating *same* as the PM of the equation construction fails to capture its parallel with scalar equatives under Rett's proposal. Though SAME is not given an explicit analysis in Rett (2013), I would like to go through the original discussion in her paper as our starting point here. Rett argues that the two equation constructions in (7) both have (obligatory)

[2]A more detailed overview of the motivations to analyze SAME and other equation constructions uniformly can be found in Alrenga (2007, 2010) and Oxford (2010).

PMs because lexicalized arguments are equated. (7a) equates individuals, which are the object arguments of each clause, thus it obligatorily requires the individual quantifier *same* (Alrenga, 2007; Barker, 2007; Brasoveanu, 2008). (7b) equates degrees, which are lexicalized arguments of gradable adjectives, thus it requires the PM as_{PM}, which is semantically a degree quantifier.

(7) a. Mary met the <u>same</u> boy as$_{SM}$ Sue. *same-construction*
b. Mary is <u>as$_{PM}$</u> tall as$_{SM}$ Sue. *equative*

Note that Rett does not specify the individuals being equated in (7a) are lexicalized arguments of which predicate – since PM immediately precedes the parameter to 'mark' it in the scalar equatives, a natural move is to take the noun modified by *same*, namely *boy*, as the parameter in (7a). However, from a theoretical perspective, common nouns seem to lack the core property of a *parameter*. A gradable adjective is called a parameter because it denotes a property that needs to be fixed relative to the scale, which is formed by a linearly ordered set of degrees (Cresswell, 1976; Stechow, 1984; Bierwisch, 1989; Kennedy, 1999). The semantics of gradable adjectives encodes a measure function that maps an individual to some abstract measurements, namely (ordered) degrees, taking *tall* as an example in (8).

(8) $[\![tall]\!] = \lambda d \lambda x.HEIGHT(x) \geq d$

We will discuss a more general version of measure function (based on Alrenga, 2007) in Section 3 that does not necessarily involve degrees but rather other possible forms of measurement. For now it is sufficient to notice that the property denoted by a common noun does not need to be fixed by any measurement, at least not in an obvious way. Those predicates differ from the gradable adjectives in a fundamental way such that it is not clear why a property of 'being a book' should be fixed by any measurements.

Relatedly, the fact that the noun *boy* is a one-place predicate but not a two-place one like gradable adjectives causes a problem in compositionality. In Rett (2013) the PM scopes out and its trace is interpreted as a variable of type τ (τ is the type of the objects being equated). In a scalar equative, the degree quantifier as_{PM} scopes out and its trace is interpreted as a degree variable (following a standard treatment of comparatives), which saturates the gradable adjective and results in a property (type $\langle e,t \rangle$), as in (9). However, if the parameter is a one-place predicate like *boy* as in (10), it can no longer compose with the rest of the clause after taking the individual variable that results from the trace of the individual quantifier *same*.

(9) as$_{PM}$ ... [OP$_d$ Mary met a d-tall boy] [3]

(10) same$_{PM}$ ... [OP$_x$ Mary met a x-boy]

In short, we fail to identify a suitable candidate for the parameter when *same* is assumed as the PM (parameter marker).

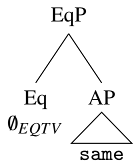
3. The proposal: *same* as the parameter

The new proposal inherits the basic idea from Alrenga (2007) (among others) that SAME and scalar equatives form a parallel. I argue that the proposed correlation between the existence of PM and the equation of lexicalized arguments in Rett (2013) can be successfully extended to

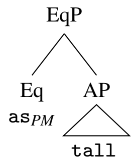
[3] A detailed derivation of equatives will be presented in Section 3.1 and the focus here is that the degree quantifier takes scope.

SAME if we assume *same* per se provides the parameter, and the PM is a null equation head (‘$\emptyset_{EQTV}$’) that obligatorily co-occurs with *same* as in (11). Syntactically this null head selects an adjectival phrase and projects an equation phrase (EqP), which is a more generalized version of comparison phrase than DegP such that semantically other kinds of abstract measurement besides degrees can be involved in the relevant comparison. The structural parallel between SAME and scalar equatives is shown in (11) and (12).

(11) SAME



(12) Scalar equatives



Semantically I propose that the PM ‘$\emptyset_{EQTV}$’ is an individual quantifier and *same* is qualified as a parameter just like gradable adjectives crucially in that it also denotes a property which must be fixed by some measurement, namely individuals, as in (13). More specifically, the ‘measure’ function encoded in *same* is $SELF$, which maps an individual to itself. Adopting the semantics of the degree quantifier as_{PM} in Rett (2013) and the standard treatment of gradable adjectives, the parallel between SAME and scalar equatives can be seen in (13) and (14).

(13) a. $[\![\emptyset_{EQTV}]\!] = \lambda D_{et} \lambda D'_{et}.MAX(D') = MAX(D)$
 b. $[\![same]\!] = \lambda y \lambda x.SELF(x) = y$
 $SELF$ is a function that maps an individual to itself.

(14) a. $[\![as_{PM}]\!] = \lambda D_{dt} \lambda D'_{dt}.MAX(D') \geq MAX(D)$ (Rett, 2013: 1107(15))
 b. $[\![tall]\!] = \lambda d \lambda x.HEIGHT(x) \geq d$
 $HEIGHT$ is a function that maps an individual to the degree of its height.

Notice that the semantic entry of *same* in my proposal is equivalent to an identity relation, which has been widely adopted in the literature on *same* (Barker, 2007; Brasoveanu, 2011; Hardt and Mikkelsen, 2015; Charnavel, 2015; Hanink, 2017). The rest of the paper will use the derived result in (15b) for convenience, but we should keep in mind that its underived form in (13b) is meaningful in introducing a ‘measure’ function for the parameter *same*.

(15) a. $SELF$: $\lambda x.x$
 b. $[\![same]\!] = \lambda y \lambda x.SELF(x) = y$
 $= \lambda y \lambda x.(x = y)$

The new proposal is able to maintain Rett’s proposal: *same* is a 2-place predicate that plays the role of parameters, and the arguments which are equated, namely individuals, are indeed lexicalized arguments of *same*. Since lexicalized arguments of the parameter are equated in SAME, the PM is required, which is captured by the head-complement relation between $\emptyset_{EQTV}$ and *same*.

The plan of this section is as follows: Section 3.1 goes through Rett’s theory of scalar equatives, which is helpful to our presentation later. Section 3.2 elaborates on the new proposal and illustrates the step-by-step derivation of *same*-constructions. We will focus on the attributive use of gradable adjectives and *same* with clausal standards but in principle with certain assumptions it can extend to other uses.[4]

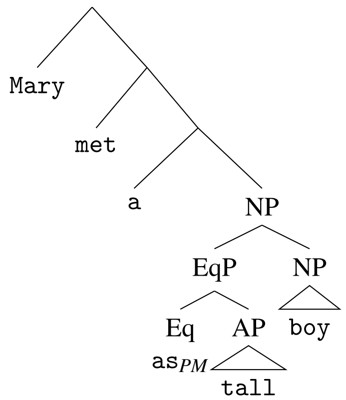
3.1. The theory of scalar equatives

I illustrate the syntactic assumptions and Rett's theory of scalar equatives with (16), which is featured by the attributive use of the gradable adjective and the clausal standard.

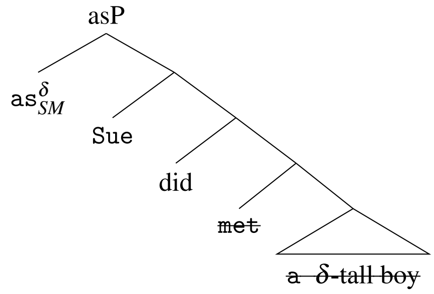
(16) Mary met as$_{PM}$ tall a boy as$_{SM}$ [$_{CP}$ Sue did].

For the syntax of (16), I assume that the Eq head (or degree head) forms a constituent with AP (Abney, 1987; Kennedy, 1999), as in (17) and the standard clause (asP) is late-merged with the Eq head after the Eq head moves to its scope position (Bhatt and Pancheva, 2004), as in (20) which we will turn to shortly. The AP should be further fronted to derive its precedence to the indefinite article but I will constantly omit such movement (see Matushansky, 2002) in the derivation in this paper. The clausal standard (asP) is an elided clause with obligatory Comparative Deletion (Bresnan, 1973), as in (18).

(17)



(18)



According to Rett, in the standard clause, the degree argument of the gradable adjective gets valued by a free variable (i.e. δ) and the standard marker as_{SM} then binds that free variable as a relativizer with an unspecified domain, which plays the same semantic role as a *wh*-operator such that it λ-abstracts over δ, resulting a set of objects that are of the same type as that free variable. The operation $[d/\delta]$ in (19) replaces all occurrences of δ in a clause S$^{\delta}$ with the variable d, and returns a set of degrees.

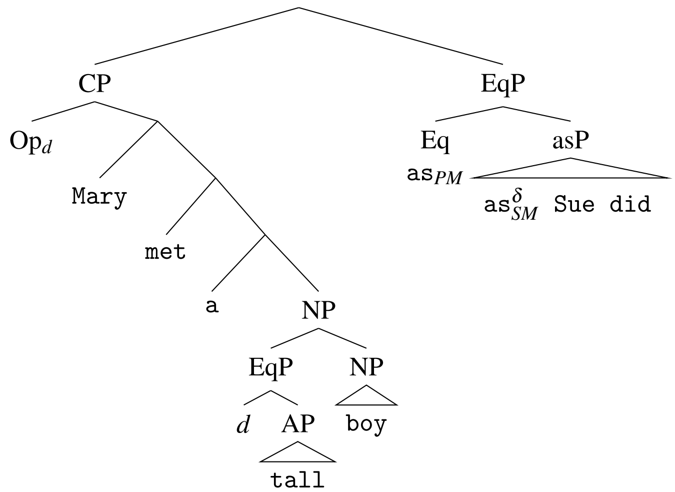
(19) $[\![as_{SM}\ S^{\delta}]\!] = \lambda d.[\![S^{\delta}]\!][d/\delta]$

Since the PM as_{PM} is a degree quantifier which takes two sets of degrees as its arguments, it cannot be interpreted in situ and must scope out, as in (20). I follow Bhatt and Pancheva (2004)

[4]For instance, this paper does not discuss the so-called 'predicative' use of *same*, in which no overt nominal follows *same*, as in (i). The reason is not that the semantics we assigned to *same* cannot extend to it but rather the syntax of such sentences is still controversial (Alrenga, 2007).
(i) Mary is the same as Sue.
Moreover, I focus only on the identity reading of *same* and a potential similarity reading (Alrenga, 2007) is taken to be a case of pragmatic halos (Lasersohn, 1999) instead of a genuine distinct reading.

in assuming the moved PM is right-adjoined to the matrix clause and takes the standard clause as its argument via late merge. The trace of the PM is interpreted as a degree variable and a null *wh*-operator λ-abstracts over it to create a set of degrees.

(20)



The gradable adjectives such as *tall* are analyzed as relations between individuals and degrees, as repeated in (21). To shorten the formula, I deviate from the standard formal representations and use '$tall(x,d)$' as an abbreviation for '$HEIGHT(x) \geq d$' and '$P(x,y)$' as an abbreviation for '$P(y)(x)$'.

(21) $[\![tall]\!] = \lambda d \lambda x.HEIGHT(x) \geq d$ (or $\lambda d \lambda x.tall(x,d)$)

Now we are ready to derive the semantics for the entire sentence (16). The asP and CP in (20) both denote a set of degrees, as in (22). The semantics of the parameter marker as_{PM} is a degree quantifier in (23), which involves a weak linear ordering '$\geq$' between the maximal members of two sets of degrees (Horn, 1972; Seuren, 1973; Schwarzchild and Wilkinson, 2002).

(22) a. $[\![CP]\!] = \lambda d.\exists x[met(m,x) \wedge boy(x) \wedge tall(x,d)]$
b. $[\![asP]\!] = \lambda d.\exists y[met(s,y) \wedge boy(y) \wedge tall(y,d)]$

(23) $[\![as_{PM}]\!] = \lambda D \lambda D'.MAX(D') \geq MAX(D)$

(24) $[\![(16)]\!] = [\![as_{PM}]\!]\ ([\![asP]\!])\ ([\![CP]\!])$
$= MAX(\lambda d.\exists x[met(m,x) \wedge boy(x) \wedge tall(x,d)]) \geq MAX(\lambda d.\exists y[met(s,y) \wedge boy(y) \wedge tall(y,d)])$

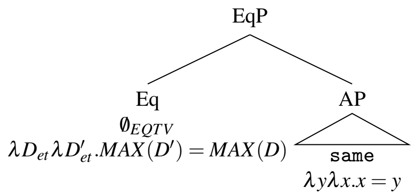
Under Rett's analysis, (24) asserts that the maximal member of the first degree set (which characterizes the height of a boy whom Mary met) ranks at least as high as the maximal member of the second degree set (which characterizes the height of a boy whom Sue met) on the scale. This truth condition captures the intuition that (16) is true if only if the height of the boy that Mary met is no less than the height of the boy that Sue met.

I will maintain most parts of the theory in Rett (2013) about the LF and the standard marker in equatives in my proposal for SAME.

3.2. Theory of SAME

This subsection illustrates how the proposal for SAME in (11) and (13), repeated in (25), derives the correct truth conditions for SAME with the example in (26).

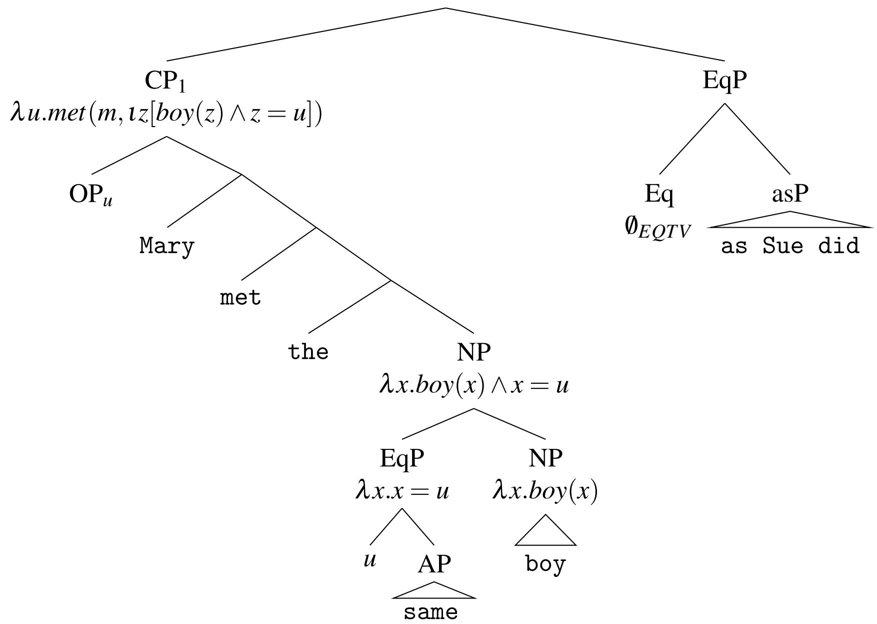
(25) Proposal:



(26) Mary met the same boy as Sue did.

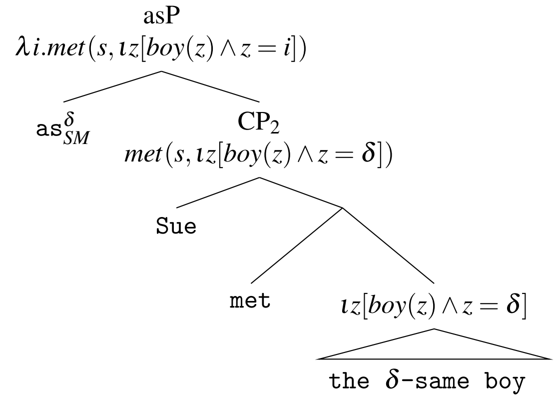
The LF and semantics of (26) in (27) are familiar since they are parallel to the scalar equatives discussed in Section 3.2. The null PM scopes out and its trace is interpreted as an individual variable. In the matrix clause CP_1, a null *wh*-operator λ-abstracts over the variable, which creates a set of individuals.

(27)



I assume the standard in (26) is an elided clause 'Sue met the δ-same boy', which contains a free variable in the position of PM. The relativizer as_{SM} takes a clause with a free variable δ (type e) and λ-abstracts over the variable as in (28), which results in another set of individuals.

(28) a.



b. $[\![as_{SM}\ S^{\delta}]\!] = \lambda x.[\![S^{\delta}]\!][x/\delta]$

Within the DP objects of the matrix clause and the standard clause, a variable saturates the first argument of $[\![same]\!]$, which returns a property of being the individual denoted by the free variable under the model. Since there can always be one single individual that is equivalent to an individual, namely that individual itself, this is a property with one single individual in its extension. This is a desirable result since the uniqueness presupposition of the definite article is satisfied in (26). In fact, based on the *Maximize Presupposition* principle (Heim, 1991), the definite article for *same* is enforced in English, as the nominal which has a single individual in its extension like *sun* must co-occur with *the*. Such a principle accounts for the fact that *same* is not only compatible with *the*, but must always co-occur with it as in (29).

(29) *Mary met {a, some, one} same girl as Sue (did).

The final derivation of the semantics of (26) is shown in (30)-(31):

(30) a. $[\![CP_1]\!] = \lambda u.met(m, \iota z[boy(z) \wedge z = u])$
b. $[\![asP]\!] = \lambda i.met(s, \iota z[boy(z) \wedge z = i])$

(31) $[\![(26)]\!] = [\![as_{PM}]\!]\ ([\![asP]\!])\ ([\![C_1P]\!])$
$= MAX(\lambda u.met(m, \iota z[boy(z) \wedge z = u])) = MAX(\lambda i.met(s, \iota z[boy(z) \wedge z = i]))$

(31) can be paraphrased as follows: the maximal member of the set of the individuals which are the individuals that Mary met and are boys bears the equivalence/identity relation '=' to the maximal member of the set of individuals which are the individuals that Sue met and are boys. Since in this sentence they both met one boy, the two relevant sets which are arguments of the quantifier $\emptyset_{EQTV}$ is a singleton set, and the *MAX* operator would just pick out the single boy in either set. The '=' relation between the two is only true if the two are one and the same individual. My proposal thus derives the right semantics for (26).

To sum up, this section proposed a concrete analysis of SAME, which holds that *same* is the parameter (encoding a measure function *SELF*) and a null PM $\emptyset_{EQTV}$ obligatorily co-occurs with it. The proposed analysis maintains Rett's proposal of equation constructions and derives the desired semantics for SAME.

4. Unifying the internal and external *same*

This section presents one more argument for the current proposal, especially for the existence of a null PM in SAME. One old puzzle about *same* in the literature is that whether its external use and internal use can be unified (Barker, 2007; Brasoveanu, 2011; Brasoveanu and Dotlačil, 2012; Charnavel, 2015). All the sentences that I have analyzed so far involve the external use, since the standard is introduced 'externally' by an overt complement, as in (32).

(32) Mary met the same boy [as Sue did].

Besides the external use, it has been argued that *same* can also be used 'internally' as in (33), which has a reading 'each of the girls met the same boy as the others' (Dowty, 1985; Carlson, 1987; Barker, 2007). Such a sentence involves multi-comparisons between every two girls in terms of the boys they met without introducing any explicit standard.

(33) The girls met the same boy.[5]

What is special about the internal reading in (33) is that the comparison is 'distributed' over every two girls even though there is no overt distributor in the sentence. This is striking since other predicates that denote a symmetric relation such as *identical* and *similar* do not have such a pattern:

(34) Internal reading intended:
  a. #The girls met {an, the} identical boy.
  b. #The girls met {a, the} similar boy.

The rest of the section demonstrates that how the null PM in the current proposal can conveniently derive such a property of *same*, making possible a uniform analysis of different uses of *same*. Therefore, positing a null PM is not only meaningful in maintaining Rett's proposal but also sheds light on the general properties of *same*.

To derive the internal reading of *same* such as (33), I argue that a phrasal version of the PM $\emptyset_{EQTV}$ is involved. Following the literature in comparatives (Kennedy, 2007; Bhatt and Takahashi, 2011), comparative heads are often treated as either a 2-place degree quantifier (clausal version) or a 3-place predicate taking two individual arguments and a predicate of individuals and degrees (phrasal version), as in (35).

(35) a. $[\![\text{-}er]\!]$ (clausal) = $\lambda D_{et}\lambda D'_{et}.MAX(D') > MAX(D)$
  b. $[\![\text{-}er]\!]$ (phrasal) = $\lambda P_{\langle d,et\rangle}\lambda y_e\lambda x_e.MAX(\lambda d.P(x,d)) > MAX(\lambda d'.P(y,d'))$

Bhatt and Takahashi (2011) argue that both options are available in English. For this reason I assume that the phrasal version of $\emptyset_{EQTV}$ is also available in grammar, as in (37b) .

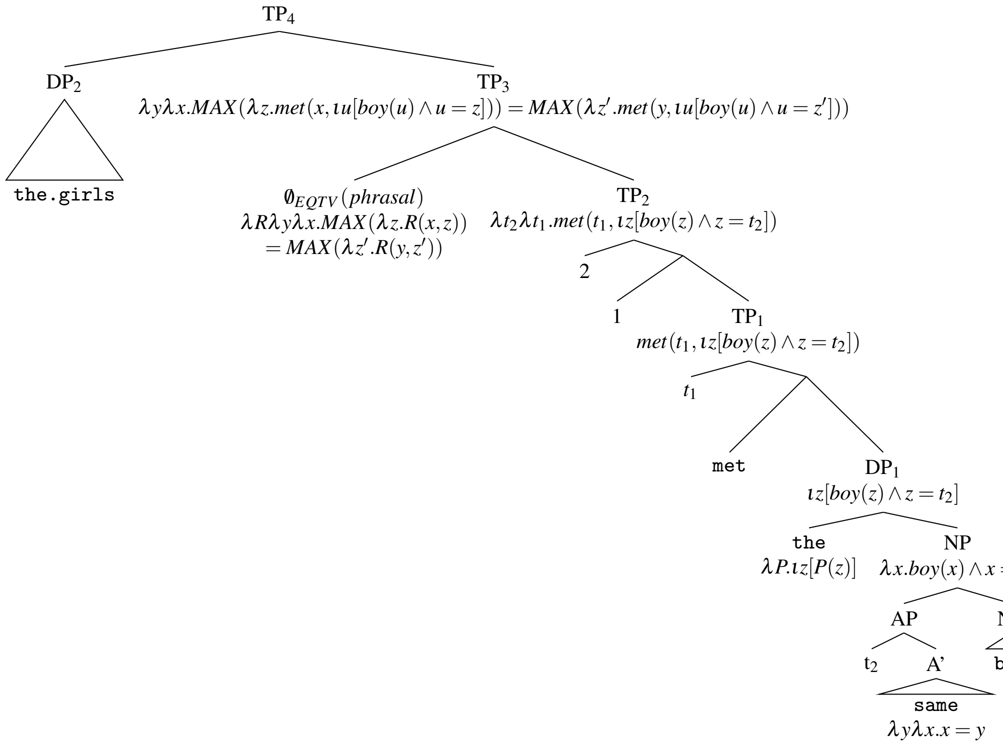
(36) The girls met the same boy.

(37) a. $[\![\emptyset_{EQTV}]\!]$ (clausal) = $\lambda D_{et}\lambda D'_{et}.MAX(D') = MAX(D)$
  b. $[\![\emptyset_{EQTV}]\!]$ (phrasal) = $\lambda R_{\langle e,et\rangle}\lambda y_e\lambda x_e.MAX(\lambda z.R(x,z)) = MAX(\lambda z'.R(y,z'))$

[5]Due to the limit of space, I will not discuss the internal reading of the *same*-sentences with overt distributors such as (i) since it is not a property specific to *same*. Other symmetric relational terms such *identical* and *similar* can also have such a reading as in (ii):
(i) Every girl met the same boy.
(ii) Every girl met a(n) {identical, similar} boy.

With this phrasal version of the PM, we are ready to derive the internal reading. First, the parasitic scope (Barker, 2007) is applied such that the plural subject *the girls* is scoped out and then the phrasal $\emptyset_{EQTV}$ scopes out and intervenes between the plural subject and its scope, as in (38). This step makes the scope of $\emptyset_{EQTV}$ 'parasitic' on the scope of *the girls*. The traces left by them are interpreted as individual variables in situ.

(38)



The relation created by QR ($[\![TP_2]\!]$) is a familiar one: a relation between an individual t_1 and an individual t_2 such that the boy which t_1 met is exactly t_2. This relation saturates the first argument of equation head and yields a new relation ($[\![TP_3]\!]$) between individuals x and y such that the boy whom x met is exactly the boy whom y met.

The potential type mismatch between $[\![TP_3]\!]_{<e,et>}$ and $[\![DP_2]\!]_e$ triggers the application of *Hmg* (homogeneity, see similar operations in Chatain, 2019; Beck, 2000, 2001; Schwarzschild, 1996). This operation freely transfers any symmetric relation R into a property of a plural individual X such that R holds between all the atomic parts of X[6], as in (39a). This operation is not uncommon in the grammar, which for instance is sometimes overtly realized as the prefix *a-* in English (39b):

(39) a. Operation *Hmg*: For any symmetric relation R, $[\![R^{Hmg}]\!] = \lambda X.\forall x,y \leq X[R(x,y)]$.
b. 'Darci is like Betty' → 'The girls are alike'.

Since $[\![TP_3]\!]$ is a symmetric relation, applying *Hmg* as in (40) distributes this symmetric relation between all the atomic parts of the plural individual denoted by *the girls* (its denotation is informally represented as G), deriving the internal reading as in (41). (41) can be roughly read

[6]The symmetric relation is defined as follows in this paper: If for any x and y, $R(y)(x) \leftrightarrow R(x)(y)$, then R is a symmetric relation.

as 'for every pair of girls x and y: the boy whom x met is the boy whom y met'.

(40) $[\![TP_3^{Hmg}]\!] = \lambda X.\forall x,y \leq X[MAX(\lambda z.met(x,\iota u[boy(u) \wedge u = z])) = MAX(\lambda z'.met(y,\iota u[boy(u) \wedge u = z']))]$

(41) $[\![TP_4]\!] = \forall x,y \leq G[MAX(\lambda z.met(x,\iota u[boy(u) \wedge u = z])) = MAX(\lambda z'.met(y,\iota u[boy(u) \wedge u = z']))]$

The key thing here is that the null PM, just like the equation head in scalar equatives, can QR and abstract over the relevant variable. Via parasitic scope, a 2-place relation is available and is applied as the first argument of the PM, which distributes this relation twice in the formula. This step is crucial since that is why the VP 'met the same boy', which involves a singular event based on its morphology, is distributed among all the atomic subpart of a plural individual, and the comparison is further made between every two atomic subparts of a plural individual via Hmg.

In sum, the current proposal provides a uniform way to derive the external and internal readings of *same* compositionally. Whereas there are other uniform analyses in the literature (Brasoveanu, 2011; Charnavel, 2015; Hardt and Mikkelsen, 2015), none of them relates such a property of *same* to Rett (2013) discussion of equation constructions. Thus my proposal is the first to bring together the strand of work on the internal/external readings of *same* on the one hand, and another strand of work on the general equation constructions.

5. Concluding remarks

This paper makes two contributions. First, I propose an explicit analysis of the *same*-sentence that can fit into Rett (2013) proposal of equation constructions in general. In particular, I argue that *same* itself provides the parameter (encoding a measure function) and since it equates individuals, it requires a parameter marker, which is realized as a covert equation head that syntactically selects *same*. Second, I demonstrate that the existence of a null PM in a *same*-sentence can be further supported by the extraordinary scoping pattern of *same*, namely it can license an internal reading in a sentence without overt distributors.

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