Motivating a symmetric be in attitude reports
Linmin Zhang (linmin.zhang@nyu.edu), Department of Linguistics, New York University

Overview: In this abstract, I show that different from asymmetric be, symmetric be blocks the generation of de re readings in attitude reports. To account for this, I propose that while asymmetric be relates an individual variable and a descriptive property, symmetric be relates two individual variables, which would be each type-shifted (coerced) into a descriptive property.

Background I: The de re reading derivation mechanism I adopt here is shown in (1) (Sudo 2013) – a de re reading is derived from a de dicto attitude report via this substitution rule:

(1) De re substitution rule of Sudo 2013: if there is a function \( \xi \) of type \( \langle s, \gamma \rangle \) that is contextually equivalent to \([E]\), then \([E]\) can optionally be interpreted as \(\xi\).

(E.g., if \([\text{the unknown girl}]^{w_0} = [\text{Mary}]^{v_0}\), then from the de dicto sentence ‘John thinks the unknown girl is nice.’, we can derive the de re sentence ‘John thinks Mary is nice.’)

Background II: To account for (2) (see Cumming 2008), Percus & Sharvit 2014 proposed (3) to analyze asymmetric be: (3a) means that \(b_{\text{asym}}\) relates an individual \(x_e\) and an individual concept \(k_{(s,e)}\); (3b) means that when an inherently individual-denoting expression \(Z_e\) appears in the concept-argument position of asymmetric be, \(Z_e\) can be coerced into a concept by a contextually-salient type-shifting function \(g_{(e,se)}\). Thus, the belief report (2) means that in each \(w' \in \text{Dox}_{w_0}(\text{Mary})\), the individual Jess has the properties Sam has in \(w'\) (e.g., be a doctor).

(2) Context: There is a party in honor of Sam who has just got his PhD. When Jess arrives, Mary, who is already tipsy, says to Jess ‘you must be proud to be a doctor’.

Mary thinks Jess is Sam (√ de re), but she doesn’t think Sam is Jess.

(3) a. \([b_{\text{asym}}]^i = _{\text{def}} \lambda(k_{(s,e)},\lambda x_e.x = k(i))\); b. \([b_{\text{asym}} Z]^i = _{\text{def}} \lambda x_e.x = g([Z])(i)\) (P&S14)

Empirical evidence: Based on the de re rule of Sudo 2013, here I use think and dream as illustrations to show that the de re blocking effect of symmetric be generally exists for various kinds of attitude reporting predicates.

As attitude reporting predicates, think and dream were claimed to be different (Percus & Sauerland 2003, Sudo 2013): in the context that Mary anonymously reviewed John’s paper, the sentence ‘John thought that Mary was a bald man’ has a de re reading if John thought the reviewer was a bald man, while if John had a dream that the reviewer was a bald man, no de re reading is available for ‘John dreamt that Mary was a bald man’. I argue against this claim by further specifying the contexts in (4). I show that the availability of a de re reading does not depend on choosing dream or think, but on how to interpret the de dicto sentence.

Sentence (5) is de-dicto-ly true through the contexts C1-C4. However, under the contexts C1 and C3, de re reading is available for (4a) and (4c); but under the contexts C2 and C4, no de re reading is available for (4b) or (4d). Thus the behaviors of think and dream are similar.

Since \([\text{Mary}]^{v_0} = [\text{the reviewer}]^{v_0}\) is valid through C1-C4, the contrast between (4a/c) and (4b/d) can only be due to the potential constraints in applying the de re substitution rule (1).

Under C1 and C3, John has no specific bald man in his thought/dream and has access to only one individual (res) via the acquaintance relation the person who wrote the review. Thus the use of be in the de dicto sentence (5) is essentially asymmetric: under C1/C3, the sentence (5) does not share the same meaning as the sentence (6), because no particular bald man exists in John’s mind to be related to the reviewer; (5) only means that in John’s thought/dream, the reviewer has the property of being a bald man. Since a felicitous de re reading is available for (4a/c), evidently, the de re reading derivation from (5) to (4a/c) is possible.
In contrast, under C2 and C4, John does have a specific bald man in his thought/dream and has in effect access to two individuals (i.e., two res) via two acquaintance relations respectively – the author of the review and the bald man he saw in the reality/dream. Thus, the de dicto sentence (5) has the same meaning as the sentence (6), indicating that under C2/C4, the use of be is symmetric: in John’s thought/dream, he recognized that there is an equivalence relationship between the two individuals. The unavailability of de re readings for (4b/d) indicates that the de re reading derivation is blocked.

In sum, the (un)availability of a de re reading is not correlated with the choice of attitude reporting predicates, but with the different uses of be in a de dicto sentence.

(4) Context: Mary anonymously reviewed John’s paper (i.e., [Mary]^{av0} = [the reviewer]^{w0}).
   a. John thought that Mary was a bald man. √ de re (due to asymmetric be in (5))
   b. # John thought that Mary was a bald man. no de re reading (symmetric be in (5))
   c. John dreamt that Mary was a bald man. √ de re (due to asymmetric be in (5))
   d. # John dreamt that Mary was a bald man. no de re reading (symmetric be in (5))

(5) De dicto: John thought/dream that the reviewer was a bald man. ambiguous be

(6) J. thought/dream the reviewer and a (certain) bald man are the same one. √ C2/C4, # C1/C3

The meaning of be: First I make a distinction between two uses of the symbol ‘=’:
(i) ‘x = 3’ means that the variable x has the value (or property) of 3, and I write this relationship as P(x), meaning the property P holds for the variable x; (ii) ‘x = y’ means that x and y are two interchangeable variable names in a certain context (see also Fine 2009)[1]. Thus, I rewrite P&S14’s lexical entry of asymmetric be as (7): in (7b), the contextually-salient function k coerces the individual Z into certain properties. Based on (7), I propose (8) as the lexical entry of symmetric be: symmetric be relates two individuals x and y – each of them can be coerced into properties; thus x has the contextually salient properties of y, and vice versa.

(7) a. [be_{asym}]^i =def λx.e.λx.e.P(i)(x); b. [be_{asymp}]^j =def λx.e.λx.e,[k_{(e, set)}(Z_e)](i)(x)
   (8) [be_{sym}]^i =def λy.e.λx.e.\{[k_1(y^j)](i)(x) ∧ [k_2(x^j)](i)(y)\} (based on (7))

The de re blocking effect of symmetric be is accounted for in (9).

(9) Suppose [the reviewer]^{c,i} = R_e, [a (certain) bald man]^{c,i} = f_{choice(\{set, e\})(bald-man)]^{c,i} = B_e
   \[R \text{ is sym } B\]_{de dicto} = [k_1(B)^{c,i}](i)(R) ∧ [k_2(R)^{c,i}](i)(B), i.e., for all w \in \text{ Dox}_{[w_0]}(John), the res R has the contextually salient properties of B in w', and vice versa.
   On the left of ∧, :: [Mary]^{av0} = [the reviewer]^{w0}, :: we can de re replace the variable name R by Mary and derive the de re reading [k_1(B)^{c,i}](i)(Mary) (i.e., John believes the property [k_1(B)^{c,i}](i) of Mary); however, on the right of ∧, there’s no way to remove the variable name B, and thus no de re replacement could happen.

Notes: The current analysis of be suggests that in such a sentence as ‘Tully is sym Cicero’, proper names contribute both as descriptions and as variable names, and that the mutuality involved in the semantics makes ‘Tully is sym Cicero’ more informative than ‘Tully is Tully’.


[1]The ‘equivalent’ relationship mentioned in Sudo 2013’s de re rule should be this interchangeable relationship between variable names in a context.