Motivating a symmetric *be* in attitude reports

Linmin Zhang (linmin.zhang@nyu.edu)

Department of Linguistics, New York University

Take home messages

Main claims:

▸ English copula *be* has (i) an **asymmetric** use (Percus & Sharvit 2014) and (ii) a **symmetric** use:

(1) a. $[\![be_{asym}]\!]^w_{\langle e,et\rangle} =_{def} \lambda y.\lambda x.g_{\langle e,set\rangle}(y)(w)(x)$ (see also Percus & Sharvit 2014)

     b. $[\![be_{sym}]\!]^w_{\langle e,et\rangle} =_{def} \lambda y.\lambda x.[g_1(y)(w)(x) \land g_2(y)(w)(x)]$

▸ **Symmetric *be*** is used to express a **sameness** relation holding between two individuals.

▸ A **sameness** relation encoded in natural languages should not be characterized as a co-referring relation between two individual names, but such a relation that the contextually salient properties of each individual involved in the sameness relation hold for all the other individuals. (i.e., '*A is_sym B*' means that the contextually relevant properties coerced from the individual named *B* holds for the individual named *A*, and vice versa.)

Empirical motivation:

▸ For *de dicto* attitude reports using **asymmetric *be***, there are corresponding *de re* attitude reports.
▸ For *de dicto* attitude report using **symmetric *be***, there are **no** corresponding *de re* attitude reports.
∴ Individual names related by **symmetric *be*** contribute more than just being names that refer.

An interesting further consequence:

▸ In natural languages, individual names can contribute simultaneously as *Sinn* (i.e., contextually relevant descriptions) and *Bedeutung* (i.e., variable names (see also Cumming 2008)).

Empirical evidence: *be_asym* vs. *be_sym* in attitude reports

Big context: Mary anonymously reviewed John's paper.

Sub-contexts	*de dicto* sentences	*de re* sentences
John has access to only one *res* – copula *be* is asymmetric in *de dicto* reports.		
John read the review and thought that whoever wrote it must be a bald man.	✓ *de dicto*: John thought that the reviewer was a bald man.	✓ *de re*: John thought that Mary was a bald man.
	# *de dicto*: John thought that a bald man was the reviewer.	/
John read the review and dreamt that whoever wrote it must be a bald man.	✓ *de dicto*: John dreamt that the reviewer was a bald man.	✓ *de re*: John dreamt that Mary was a bald man.
	# *de dicto*: John dreamt that a bald man was the reviewer.	/
John has access to two *res* – copula *be* is symmetric in *de dicto* reports.		
John saw a bald man talking about his paper and took the bald man as the reviewer.	✓ *de dicto*: John thought that the reviewer was a bald man.	# *de re*: John thought that Mary was a bald man.
	✓ *de dicto*: John thought that a bald man was the reviewer.	# *de re*: John thought that a bald man was Mary.
John read the review and dreamt of a bald man talking about his paper and took him as the reviewer.	✓ *de dicto*: John dreamt that the reviewer was a bald man.	# *de re*: John dreamt that Mary was a bald man.
	✓ *de dicto*: John dreamt that a bald man was the reviewer.	# *de re*: John dreamt that a bald man was Mary.

▸ In sum, the (un)availability of a *de re* reading attitude report is correlated with the sub-contexts as well as the uses of *be* in a *de dicto* attitude report.

Accounting for the *de re* reading derivation blocking effect of *be_sym*

Proposal – the semantics of *be_asym* and *be_sym*:

Meaning of asymmetric *be* – (1a)

▸ The use of *be_asym* essentially involves only one individual (i.e., *res*).
▸ *be_asym* relates an individual name x_e and a predicate (i.e., property) $P_{\langle set\rangle}$, meaning that the property P holds for the individual x:

$[\![be_{asym}]\!]^w_{\langle set,\langle et\rangle\rangle} =_{def} \lambda P_{\langle set\rangle}.\lambda x_e.P(w)(x)$

▸ When the predicate is apparently an individual name – say y, a contextually salient function $g_{\langle e,set\rangle}$ coerces the name y into its contextually relevant properties $g(y)$.
▸ Thus, as (1a) shows, in the use of *be_asym*, variable x contributes extensionally – as a variable name referring to a *res*, while variable y contributes intensionally.

Meaning of symmetric *be* – (1b)

▸ The use of *be_sym* necessarily involves two individuals, i.e., the attitude holder has access to two *res* via two acquaintance relations and eventually recognizes a **sameness** relation between these two *res*.
▸ *be_sym* relates two individual names x_e and y_e, meaning that the contextually salient properties of the *res* named x holds for the *res* named y, and vice versa.
▸ Thus, as (1b) shows, in the use of *be_sym*, both the variable names x and y contribute extensionally – as variable names referring to a certain *res* – as well as intensionally – as contextually salient properties of each *res*.

The *de re* reading blocking effect of *be_sym*:

▸ $[\![$John thought that the reviewer was_sym a bald man$]\!]^w_{\text{de dicto}}$
$= \forall w' \in Dox_{w_0}(John)[g_1([\![a\ bald\ man]\!]^{w'})(w')([\![the\ reviewer]\!]^{w'}) \land g_2([\![the\ reviewer]\!]^{w'})(w')([\![a\ bald\ man]\!]^{w'})]$
(i.e., for each of John's doxastic worlds w', the contextually salient properties of the *res* that John called 'the reviewer' hold in w' for the *res* that John called 'a bald man', and vice versa.)

▸ According to the *de re* reading derivation mechanism of Sudo 2013 (which is in the same spirit of Quine 1956), a name of a *res* – x – can be replaced by a co-referring name y, if x purely contributes extensionally in an attitude report. Thus, while the name *Mary* can replace the name $[\![the\ reviewer]\!]^{w'}$ on the left side of $\land$, the replacement cannot take place on the right side of $\land$, which means that a corresponding *de re* attitude report cannot be derived on the base of a *de dicto* attitude report using symmetric *be*.

Further discussion

Frege's puzzle:

▸ Why does '*Hesperus is Phosphorus*' sound more informative than '*Hesperus is Hesperus*'?
▸ The current analysis suggests that the sameness relation encoded in natural languages differs from the equivalence relation holding between individual names that co-refer.
▸ Thus, '*Hesperus is Phosphorus*' means that the properties of the *res* we call Hesperus hold for the *res* we call Phosphorus and vice versa; but '*Hesperus is Hesperus*' is a tautology.

Extending the current analysis of *be_sym* to account for *same*:

▸ The two sentences '*Hesperus is Phosphorus*' and '*Hesperus and Phosphorus are the same (star)*' entail each other, suggesting that a sufficiently good analysis of *same* should also characterize the sameness relation encoded in natural languages in the same way.
▸ Proposal of internal *same*: $[\![same]\!]^w_{\langle e,et\rangle} =_{def} \lambda X.\bigcap_{x_i < X} g_i(x_i)(w)$ (i.e., *same* is an anaphoric adjective, bound by a name referring to a plural entity (see also Barker 2007); it returns the intersection of contextually relevant properties of each atomic part of the plural entity.)

Selected references Barker. 2007. Parasitic scope. *L&P.* | **Cumming. 2008.** Variabilism. *Philosophical Review.* | **Percus & Sharvit. 2014.** Copular asymmetries in belief reports. *SALT24.* | **Sudo. 2013.** On *de re* predicates. *WCCFL31.*