Important note (post-presentation)

In this handout I discuss data of the type *I bought a bottle of wine (but no particular bottle).* As presented I did not attribute previous discussion of the non-specific readings present in sentences of this kind. The data should have been attributed to Friederike Moltmann in various works (Moltmann 1997, 2008 in particular). (I came across the data in a roundabout, Telephone-style way, and in the process of working on the subject lost track of who the observation was originally due to. That doesn’t absolve me of failing to attribute it, though; I was told who it was due to, and it should have been attributed in the presentation.)

The handout below is as presented at SNEWS 2011 (with the works by Moltmann added to the references section), but it should be read with the above proviso and attribution, with profound apologies for having failed to attribute the data in the actual presentation.

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1 Introduction and roadmap

- I argue that double-object verbs show a type of opacity in their object positions. I suggest that this is due to the embedded relation HAVE present in double object frames (Harley 2002, Beck & Johnson 2004). I will build on the theory of Zimmermann 1993 that opaque object positions are property-type to explain the opacity in double object frames (Section 2).

- I will suggest that prepositions in general play a crucial role in introducing property-type arguments; prepositions are type-shifters from GQ type to property type, equivalent to Montague’s be or Partee’s BE (Montague 1973, Partee 1986) (Section 3).

- I will show that from this assumption, we can gain both de dicto and de re readings both from double object verbs, and ‘simply’ intensional verbs like resemble (Sections 4, 5). I conclude by noting some other areas, such as the English conative alternation (shoot/shoot at), where treating prepositions as type-shifters to properties may also deliver good results. (Section 6)
2 An unexpected instance of opacity

Some cases of failure of existential exportation:

(1)  a. I just bought a bottle of wine (online).
    does not entail: There is a bottle of wine that I bought. (The shop might not have
    picked it out yet.)
  b. Sue just sold a custom-made car.
    does not entail: There is a custom-made car that Sue sold. (Presumably it hasn’t
    been built yet.)
  c. I just hired a temp to cover for our secretary’s absence.
    does not entail: There is a temp that I hired. (The agency might not have
    determined who they’re going to send yet.)

It is prima facie unexpected that these object positions would be opaque in this way.
In fact they’re not ‘completely’ opaque:

(2)  a. John wants a unicorn.
  b. #John bought a unicorn.

(2b) is absurd in a way that John bought a custom-made car is not – even though in both cases
the extension denoted by the object might be empty. There is some sense in which the
object of buy\(^1\) has to ‘potentially’ exist, even if it currently doesn’t.

I propose an account of this opacity, drawing on the fact that these verbs are all double-
object verbs:

(3)  a. I just bought Mary a bottle of wine.
  b. Sue just sold this guy a custom-made car.
  c. I just hired the manager a temp to cover for his secretary’s absence.

I assume, following e.g. Pesetsky 1995, Harley 2002, Beck & Johnson 2004 that these double
object constructions embed a prepositional phrase containing a null preposition \(\text{P}_{\text{HAVE}}\).

\(^1\)I take buy as the paradigm case; what I say also goes for sell, hire etc.
Predicates such as *own* can also have opaque object positions (example adapted from one due to Mats Rooth, in personal communication cited in Zimmermann 1993):

(5)  
   a. Mats and Ede decide to go in on buying a box of 100 ball bearings. The box costs $10. Mats pays $7.50 and Ede pays $2.50.
   b. Mats owns 75 ball bearings.
   c. *does not entail*: There are 75 ball bearings such that Mats owns them.\(^2\)

Here I propose to build on the proposal in Zimmermann 1993 for the treatment of opaque object positions. Zimmermann suggests that such opaque object positions are not entity type, but rather property type, in order to account for cases such as the below.\(^3\)

(6)  
   a. That horse resembles a unicorn.
   b. resembles(*thatHorse, \[\lambda x.\text{unicorn}(x)\]*)

I propose (for the present) that *own*, too, denotes a relation not between entities and entities, but between entities and properties; and that the semantics of the preposition \(P_{\text{HAVE}}\) can be identified with that of *own*. (We will have cause to revise these later.)

\(^2\)The intuitions perhaps become clearer with *Mats owns 75 of the ball bearings in the box.*

\(^3\)I systematically omit the world or eventuality argument in properties, purely for lack of clutter. They do of course have to be there, because *unicorn* (for example) is an empty concept otherwise.
(7) (definitions to be revised)
   a. \( \text{[own]} = \lambda P. \lambda x. \text{own}(x, P) \)
   b. \( \text{[own 75 ball bearings]} = \lambda x. \text{own}(x, [\lambda y. \text{BallBearings}(y)]) \)
   c. \( \text{[own]} = [\text{P\_HAVE}] \)

The ‘strength’ of the opacity appears to be parallel between the object positions of \textit{own} and \textit{buy}. Just as (8b) is bizarre, so is (9b):

(8) a. John bought a bottle of wine (but no particular one).
    b. \#John bought a unicorn. (False even if he has a receipt saying that he did.)

(9) a. Mats owns 75 ball bearings (but no particular 75).
    b. \#Mats owns a plot of land on Atlantis. (False even if he has a certificate saying so.)

This follows if ownership is a relation between entities and properties. A horse can have a resemblance relation with the property \textit{unicorn}, but to have an ownership relation with \textit{unicorn} there have to either be unicorns or the potential for unicorns to exist; that’s just what ownership means in human society.

Given these definitions, we can come to a meaning for \textit{John bought Mary a bottle of wine} where \textit{a bottle of wine} is property-type, and therefore we predict a non-specific reading:

(10) a. \[ \text{John [bought [CAUSE [Mary [OWN a bottle of wine]]]]} \]
    b. John did a buying, and caused the state of affairs:
       \( \text{own}(\text{Mary}, [\lambda x. \text{BottleOfWine}(x)]) \)

### 3 Prepositions as type-shifters

I have proposed that we can capture the opaque/non-specific reading of double-object verbs such as \textit{buy}, \textit{sell}, \textit{hire} by making use of the embedded structure containing \textit{HAVE}, which I argue to have an opaque object position.

However, it may be significant that this \textit{HAVE} is identified with a preposition. There appears to be a wider generalization. Many verbs with opaque object positions either

\[^{4}\text{I remain neutral about the means by which the subject argument is associated with the predicate – that is, whether it is an argument of the verb from the start, or whether it is added in by a functional head } v \text{ (Kratzer 1996). Here I assume it is directly associated with the predicate, but nothing hinges on this.}\]
appear with prepositions or can be paraphrased by other verbs which appear with prepositions.

(11)   a. John is looking *for* a unicorn.
   b. Arnim compares himself *to* a pig. (Zimmermann 1993)
   c. Mary conceived (*of*) a unicorn.
   d. John seeks a unicorn.
       ≈ John is looking *for* a unicorn.
   e. That horse resembles a unicorn.
       ≈ That horse looks *like* a unicorn.

I propose that we should take the paraphrase of (e.g.) resemble as look like quite seriously.
I agree with Zimmermann 1993’s argument from verbs like resemble that some predicates take property type arguments. I argue, however, that DPs such as a unicorn are basically of type \( \langle et, t \rangle \). In order for these DPs to compose with verbs taking property-type arguments, other elements have to intervene and type-shift them. I argue that this is the role of prepositions.

4  Mechanics

4.1  Getting the *de dicto* readings

(12) The story for resemble a unicorn (opaque/de dicto reading):

```
        VP
          V   PP
            |  resemble
              P   DP
               |   LIKE
                a unicorn
```

(13)   a. \[ [\text{LIKE}] = \lambda P_{\langle et, t \rangle}. \lambda x. [P(\lambda y.y = x)] \]
        (Montague 1973’s *be*, Partee 1986’s BE; see also Jäger 2003 on *as*)
   b. \[ [[PP \text{LIKE a unicorn}]] = \lambda x. \text{unicorn}(x) \]
   c. \[ [\text{resemble LIKE a unicorn}] = \lambda z. \text{resemble}(z, [\lambda x. \text{unicorn}(x)]) \]

*look like* is exactly like *resemble* except that the P LIKE appears overtly as *like*. 
(14) The story for compare John to/with a pig (opaque/de dicto reading):

```
          VP
           |
           VP
            |
            PP
             |
             V
              |
              DP
               |
               P
                |
                DP
                 |
                to
                 |
                 DP
                  |
                 a pig
```

(15) a. \([to] = [\text{LIKE}]^5\)
b. \([[\text{PP} to a pig]] = \lambda x.\text{pig}(x)\)
c. \([\text{compare John to a pig}] = \lambda y.\text{compare}(y, \text{John}, [\lambda x.\text{pig}(x)])\)

4.2 Entity arguments, and de re readings

I have proposed that prepositions such as LIKE, like and to compose with generalized quantifiers. But then how to account for the below?

(16) a. John resembles/looks like Bill.
    b. John compares himself to Bill.

I assume that such proper names are typeshifted up to GQ type via Partee 1986’s LIFT. So LIFT([\text{Bill}]) = \lambda P.P(\text{Bill}). Then, the prepositions which type-shift down from GQ type to property type act on these GQs to return essence properties (Zimmermann 1993), of the form \(\lambda x.x = \text{Bill}\):

(17) a. PP
    b. \([[\text{Bill}]] = \lambda P.P(\text{Bill})\) (via LIFT)
c. \([\text{LIKE Bill}] = \lambda x.([\lambda y.y = x](\lambda P.P(\text{Bill}))) = \lambda x.\text{Bill} = x\)

\(^5\)I am not suggesting, of course, that to always means this. It’s worth noting that the to that appears in constructions like compare him to seems to bear no semantic resemblance to the to indicating goal or motion, suggesting that they are separate. One can also substitute with in for to here, again suggesting that the preposition’s only role is as some piece of type-shifting functional structure rather than bearing a semantics of its own.
A similar mechanism will be used to gain the *de re* specific readings of such sentences. A combination of QR, type-shifting using LIFT, and Trace Conversion (Fox 2002) will be used to get the right result.\(^6\)

(19) *John resembles a (specific) pig* (Logical Form):

\[
\begin{align*}
S & \rightarrow \text{DP} & \text{VP} \\
\text{DP} & \rightarrow \text{a pig} & \text{DP} \\
\text{VP} & \rightarrow \text{John} & \text{V} & \text{PP} \\
\text{V} & \rightarrow \text{resembles} & \text{P} & \text{DP} \\
\text{LIKE} & \rightarrow \langle \text{a pig} \rangle \\
\end{align*}
\]

(20) a. \([\langle \text{a pig} \rangle] = \lambda x.\text{pig}(x) \& x = 1\) (Trace Conversion)

b. \(\text{LIFT}([\langle \text{a pig} \rangle]) = \lambda P. P(\lambda x.\text{pig}(x) \& x = 1)\)

c. \([[[\text{PP LIKE } \langle \text{a pig} \rangle]]] = \lambda y. (\lambda x.\text{pig}(x) \& x = 1) = y\)

d. \([S] = \exists z.\text{pig}(z) \& \text{resemble(John, } [\lambda y. (\lambda x.\text{pig}(x) \& x = z) = y])\)

e. There is a pig \(z\), and John stands in the resemblance relation to the essence property of \(z\).

## 5 On having and giving

### 5.1 Back to double-object verbs

If we assume that double-object verbs such as *buy* can always take a PP complement, then the mechanism above can also get us the non-specific reading in such cases. Let us assume

\(^6\)This derivation appears complicated; however, it only requires tools which we know to be independently needed (LIFT, Trace Conversion, QR), and does not appeal to any mechanism of scoping-out of a property-type argument such as that used in Zimmermann 1993.
that HAVE retains the semantics of ownership proposed above, but in addition, takes a
GQ argument and type-shifts it:

(21)  
   a. \[\text{HAVE} \equiv \lambda P \langle \text{et}, t \rangle . \lambda x. \text{own}(x, \text{BE}(P))\]
   b. \[[\text{Mary bought [CAUSE [John HAVE a bottle of wine]]}] = \text{Mary bought CAUSE [\text{own(John, BE(\lambda G. \exists x. \text{bottleOfWine}(x) \& G(x)))}] = \text{Mary bought CAUSE [\text{own(John, (\lambda x. \exists y. \text{bottleOfWine}(y) \& x = y))}] = \text{Mary bought CAUSE [\text{own(John, (\lambda x. \text{bottleOfWine}(x))}]\]

That is, \text{Mary bought John a bottle of wine} is predicted to have the meaning that
John merely stands in an ownership relation to the property of a bottle of wine, rather than to
any specific bottle of wine. The ‘normal’, specific reading is obtained by the QR/trace-conversion
mechanism outlined above for resemble.

5.2 A note on HAVE and have

Originally, I claimed that have and own are property-taking predicates:

(22)  Mats has/owns\(^7\) 75 ball bearings.

I now claim that prepositions are responsible for mediating between such verbs and their
arguments. Verbs such as have or owns do not seem to have prepositional variants or
paraphrases, so we might question how they take property-type arguments. I argue that
this can be accounted for if we follow the proposal that verbal have actually is an
incorporated preposition, be+P\(_{\text{HAVE}}\) (Freeze 1992, Guéron 1995, Harley 2002):

(23)  a. Mats has 75 ball bearings.
        \text{is underlyingly something like:}
   b. is [Mats [P\(_{\text{HAVE}}\) 75 ball bearings]]

Given this underlying structure, and the semantics for P\(_{\text{HAVE}}\), we predict that the verb
have is a property-taker, and preserve the generalization that all property-type arguments
in English require the presence of a (covert or overt) preposition.

\(^7\)For some reason, the non-specific reading is more easily accessible for me with owns, although I can get it with have too.
6  Further areas to explore

6.1  Conative alternation

There are other cases where prepositions appear to contribute opacity or non-specificity. For example, the conative alternation in English makes use of the preposition \textit{at} (Levin 1993, Kratzer 2004):

\begin{enumerate}
  \item I shot a bear.
  \item I struck a mugger.
\end{enumerate}

\begin{enumerate}[\itemsep=0pt, \topsep=0pt]
  \item I shot \emph{at} a bear.
  \item I struck \emph{(out) at} a mugger.
\end{enumerate}

My intuitions\textsuperscript{8} are that the cases in (24) have only specific readings, while (25) can be non-specific.

\begin{enumerate}
  \item There is a whole group of bears milling around in the distance. I shoot in their general direction with the intent of hitting one; I don't care which.
    \item I shot \emph{at} a bear.  
      \textit{does not entail:} There is a bear I shot at.
    \item I cannot really see my assailants because it’s dark, but I know that I’m surrounded by muggers. I strike out in their general direction and run away.
    \item I struck out \emph{at} a mugger.  
      \textit{does not entail:} There is a mugger I struck out at.
\end{enumerate}

Perhaps \textit{at} is doing similar work here as above. The interaction with telicity is complicated (Kratzer 2004), but it might be argued that verbs such as \textit{shoot (at)}, \textit{strike (at)} denote relations between individuals and properties (of ‘bearishness’ or ‘muggerishness’), rather than relations between individuals as such.

6.2  More

\begin{enumerate}
  \item He’s more \emph{of} a man than you’ll ever be.
\end{enumerate}

This \textit{of} seems to be turning \textit{a man} into property-type, making it modifiable by \textit{more}.

\textsuperscript{8}Apparently shared by some but not all English speakers.
6.3 Verbs of creation

Verbs of creation are all optionally double-object in English:

(28)  
  a. John baked (me) a cake.
  b. I built (him) a house.

Could such verbs also be property-takers embedding null prepositions? This might solve Parsons 1989’s problem of the failure of existential exportation in these cases:

(29)  
  a. John was baking a cake.
  b. *does not entail:* There is a cake that John was baking.

Clearly there is significant interaction with aspect here, however, and exploration of this issue will have to be left to future work.

7 Conclusion

- There is (a peculiar form of) opacity in double-object verbs involving a HAVE component.
- This can be explained due to the opacity in the meaning of HAVE…
- …but more generally, it seems as if prepositions play an important role in the introduction of property-type arguments.

References


