# The Multiple Relative Product Theory of Propositional Attitudes 

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My theory of belief is mainly a sort of "multiple relative product theory."
[NOTE: I am only using the names of philosophers to give examples - the examples are not intended to represent the philosopher's theories!]
$R$ is a relation between words and ideas of objects.
$S$ is a relation between the ideas of objects and objects.
[We could also take a relation N [I'm running out of letters] between word tokens and words; and another P between words and ideas of the words Also another T between objects (taken as universals) and their instances. I will use maximum simplicity here and use only R and S relations. The extra relations do not help the issues I am dealing with, although they would be needed for a full analysis.]
Also, both the R and S relations have here "suppressed arguments" they should also have a person (Subject) and Time as arguments. Usually, I will just say "For person A at time T, ..." Until specified otherwise the R ad S will be relative to A at T . In some cases, if multiple people and/or times are involved, I will use subscripts indicating person ant time. Sometimes I will use the prefix "w_" to indicate a word (or a variable for a word) or "i_" for an idea (or variable for an idea), or "o" for an object (or variable for an object). This does not intend to limit the range of significance of such variables.

Both words and ideas are special kinds of objects. They may be quantified over.

Now there is a psychological state of believing, I call " $B$ ". It only requires the ideas to exist. You may have this state even if there are no objects (or words) corresponding to the ideas. "B" can have a variable number of arguments. The first two are a person and time. For now, consider the third to be an n-ary predicate, and then n more arguments. This is the simplest case - it can become much more complex. I will also suppress the Person and Time in B whenever possible otherwise they will be indicated by subscripts. The usual propositional attitude of believing will be indicated by "BB."

A simple case of BB For Quine at time T, BB/2 Planet Jupiter =df

> K K
> B/2 i_Planet i_Jupiter
> S/2 i_Planet Planet
> S/2 i_Jupiter Jupiter

Note The psychological relation B can hold even if the $S$ relations do not. In that case "believes" fails.

A simple case of true BB [TBB] For Quine at time T: TBB Planet Jupiter =df

K K K
B/2 i_Planet iJupiter
S/2 i_Planet, Planet
S/2 i_Jupiter Jupiter
Planet/1 Jupiter
Now suppose Jupiter = Jove - THEN by substitution: For Quine at time T:
K K K
B/2(i_Planet i_Jupiter
S/2 i_Planet Planet
S/2 i_Jupiter Jove
Planet/1 Jove
It does not matter that $\mathrm{B} / 2$ iPlanet i_Jove might be false. Jove may be substituted in $\mathrm{S} / 2$ iJupiter, Jupiter to give S/2 iJupiter Jove and in Planet/1 Jupiter to give Planet/1 Jove.

So,

C =/2 Jupiter Jove C BB/2 Planet Jupiter BB/2 Planet Jove

That is true, although is may be false that B/2 i_Planet i_Jove

A few ideas may be innate, but mostly we learn ideas socially

- connecting the words to ideas of objects, and ideas of objects to objects.

So, it comes about that w_Jupiter R|S Jupiter.

Or,
|/2 R S w_Jupiter Jupiter
w_Jupiter and Jupiter are public. People other than Quine would almost certainly have ideas of Jupiter different than Quine's i_Jupiter.

There will be approximate, but not perfect, agreement of the $\mathrm{R} \mid \mathrm{S}$ relation between speakers of a language.
$x R \mid S z$ just means the relation that holds whenever there is a y such that ( $\mathrm{x} R \mathrm{y}$ ) \& (yS z ).

Quine would be asserting a belief, i.e. for Quine at time T |-/2 w_Planet w_Jupiter = if [for Quine at T]

K K
Says/2 w_Planet w_Jupiter
R/2 w_Planet i_Planet
R/2 w_Jupiter i_Jupiter

The assertion is honest if, in addition.
B/2 i_Planet i_Jupiter

Now in the case that Jove = Jupiter, asserting a belief only involves the saying and R relations. Jove $=$ Jupiter has no effect. That only affects the $S$ relation.

Now the case of a true assertion. For Quine at T True|- = df

KKKKK K<br>Says/2 w_planet w_Jupiter<br>B/2 iPlanet i_Jupiter<br>R/2 w_Planet i_Planet<br>R/2 w_Jupiter i_Jupiter<br>S/2 i_Planet, Planet<br>S/2 i_Jupiter Jupiter<br>Planet/1 Jupiter

Note it is insufficient to use $\mathrm{R} \mid \mathrm{S}$ - the ideas must be determined for use in the B relation.

Now the case of a false assertion. Foe Quine at T

False|-p =df (|-p \& ~True|-p)

Note, this means a false assertion is made, not that an assertion of falsehood is made, or that it is false that an assertion is made.

Now in the last two cases, Jupiter and Jove (if equal are substitutable for each other.) But w_Jupiter $\sim=$ w_Jove. So, w_Jupiter \& w_Jove are not substitutable for each other. Assertions are always in words. And words may differ even when the corresponding objects are equal. Because of equalities people may be honestly unwilling (or even willing to deny) things that they actually believe.

Technically in the above, I should have existential quantifiers and variables for the ideas, I have just used a case for when the existential quantifier would be satisfied. A sort of sample. I've worked out samples similar in Prolog and WildLIFE (computer AI languages.) In them, you must make up example names, etc. I will work out the examples with quantifiers after I introduce my quantifier notation,

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