

## A cat, a rat and a bat

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Now *Pim* is type *e*, and she is a cat  
*Be a cat* is  $\langle e, t \rangle$ , giving **one** to each cat.  
If we feed *Pim* to that, we get **one** (she's a cat),  
Feeding Remy the rat, we get **null** (he's a rat).

If *Pim* is a cat and chases a rat,  
and *be a cat* is  $\langle e, t \rangle$ , then so is *chasing a rat*.  
*Chase a rat* is  $\langle e, t \rangle$ , giving **one** to some cat,  
because *Pim*, Anna's cat, is chasing a rat.

Now, Remy the rat is a rat of type *e*,  
chasing Remy the rat is again of  $\langle e, t \rangle$ .  
*Chase Remy the rat* assigns **one** to our cat,  
since *Pim* is our cat and chases Remy the rat.

*Chase Remy the rat* we assign type  $\langle e, t \rangle$ ,  
And Remy the rat is a rat of type *e*.  
Now what is the type that the verb *chase* should be,  
so that *chase Remy rat* can be of type  $\langle e, t \rangle$ ?

Well, the trick is quite simple, *chase* should take Remy rat,  
who is of type *e*, as is *Pim*, Anna's cat,  
and map Remy rat on the property that  
you have when you chase ol' Remy the rat.

So *chase* takes Remy rat, who is of type *e*  
and maps him on *chase Remy rat* of  $\langle e, t \rangle$ .  
A function that brings us from *e* to  $\langle e, t \rangle$   
is itself a function of type  $\langle e, \langle e, t \rangle \rangle$ .

It takes Remy the rat to: *chase Remy the rat*,  
which itself then applies to *Pim*, Anna's cat.  
We get **one**, because *Pim*, Anna's cat is a cat  
who indeed in our model chases Remy the rat.

Now Bartok the bat is a friend of the rat,  
and *chase Remy the rat* assigns **null** to the bat,  
because in our model, this Bartok the bat  
is certainly not chasing Remy the rat.

Now *chase*  $\langle e, \langle e, t \rangle \rangle$  takes the bat of type *e*  
and maps it on *chase Bartok bat* of  $\langle e, t \rangle$ ,  
which takes good old *Pim*, again of type *e*  
and spits out the **null** of our basic type *t*.

Why null? 'Cause *Pim* chases Remy the rat,  
but *Pim* happens not to chase Bartok the bat.  
In sum:  $\langle e, \langle e, t \rangle \rangle$  plus an *e* gives  $\langle e, t \rangle$ ,  
and  $\langle e, t \rangle$  plus an *e* gives our basic type *t*.