

## recursion

We have multiple ways to use recursion: in the database and in our queries for example we can make properties transitive.

```
dadof(you,dad).  
dadof(dad,granddad).  
dadof(granddad, petethegreat).  
momof(petethegreat,eve)  
ancestorof(X,Y):- dadof(X,Y).  
ancestorof(X,Y):- momof(X,Y).  
%naive: ancestorof(X,Y):- ancestorof(X,Z),ancestor(Z,Y).
```

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%naive: ancestorof(X,Y):- ancestorof(X,Z),ancestor(Z,Y).  
  
%better:  
ancestorof(X,Y):- dadof(X,Z),ancestor(Z,Y).  
ancestorof(X,Y):- momof(X,Z),ancestor(Z,Y).
```

## recursion on lists

suppose we have a list of groupmembers [roald, winand, anvar, alexey, sjoerd] . . . we can declare a member of this group to be part of this list using recursion i.e.

```
member(H, [H|T])
```

```
member(X, [H|T]) :- member(X,T)
```

. . . So when we search for members we can simply search

```
?- member(anvar,[roald, winand, anvar, alexey,  
sjoerd])
```

which would say yes