**public** **static** Double solveqnsb(Cons eqns, Cons eqnscpy, Cons vals, String v)

{

Cons unknowns = **null**;

Object o;

//System.out.println("eqns is " + eqns.toString());

//System.out.println("eqnscpy is " + eqnscpy.toString());

//System.out.println("vals is " + vals.toString());

//System.out.println("v is " + v);

**if** (*assoc*(v,vals) != **null**)

**return** (Double)*lhs*(*assoc*(v,vals));

**else** **if** (*consp*(eqnscpy))

{

//System.out.println(" eqnscpy is cons " + eqnscpy.toString());

//System.out.println("rhs((Cons)first(eqnscpy)) " + rhs((Cons)first(eqnscpy)));

**if** (*consp*(*lhs*((Cons)*first*(eqnscpy))))

{

Cons vrs = *vars*(*first*(eqnscpy));

**if** (*member*(v,vrs) != **null**)

{

Cons slv = *solve*((Cons)*first*(eqnscpy),v);

System.*out*.println("slv is " + slv.toString());

slv = *list* (slv,eqns);

**return** *solveqnsb*(slv,slv, vals, v);

}

**else**

**return** *solveqnsb*(eqns,*rest*(eqnscpy),vals,v);

}

**else** **if** (*lhs*((Cons)*first*(eqnscpy)).equals(v))

{

//System.out.println("lhs = variables: lhs: " + lhs((Cons)first(eqnscpy))

// + " and variable : " + v);

**if** (*consp*(*rhs*((Cons)*first*(eqnscpy))) &&

(unknowns = *noValuesAssociated*(*rhs*((Cons)*first*(eqnscpy)),vals)) == **null**)

{

//System.out.println("unknowns == null");

Double s = *eval*(*rhs*((Cons)*first*(eqnscpy)),vals);

vals = *cons* (*list*(v,s),vals);

//System.out.println("finally eval is: " + s );

**return** *solveqnsb*(eqns,eqns,vals,v);

}

**else** **if** (unknowns != **null**)

{

//System.out.println("unknowns != null, unknowns are " + unknowns.toString());

Double d = *solveqnsb*(eqns, eqns, vals, (String)*first*(unknowns));

//System.out.println("d is " + d);

vals =*cons*(*list*((String)*first*(unknowns),d),vals);

//System.out.println(" vals is: " + vals);

**return** *solveqnsb*(eqns, eqns, vals, v);

}

**else**

{

**if** (eqnscpy != **null**)

{

//System.out.println("rhs((Cons)first(eqnscpy) is not Cons its "

//+ rhs((Cons)first(eqnscpy)) );

**return** *eval*(eqnscpy,vals);

}

**else**

{

//System.out.println("rhs((Cons)first(eqnscpy) isnt Cons its null " );

**return** 1.0;

}

}

}

//else if ( (o = assoc(lhs((Cons)first(eqnscpy)),vals)) != null )

//{

// return 0.0;

//}

**else**

{

**if** (*rest*(eqnscpy) != **null**)

eqnscpy = *rest*(eqnscpy);

**else**

eqnscpy = eqns;

**return** *solveqnsb*(eqns, eqnscpy, vals, v);

}

}

**else**

{

**return** 1.0;

}

}