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#####
## File "b1_diS_to_S_in_me_basis";
#####
#####
##### restart;
#####

deb:=X-> [seq(op(k,X),k=1..nops(X)-1)]; ##
summa:=X-> add(op(k,X),k=1..nops(X)); ##

heem:=proc(X): proc(p): if p=0 or p>op(+1,X) then 0 else (-1)^(1+nops(X))*op(-1,X)*a[summa(X)-p] fi end: end:
heem0:=proc(X): (-1)^(1+nops(X))*op(-1,X)*a[summa(X)] end:

## mep:='mep': mep[]:=1: a:='a': [seq(a[r]= allr, r=1..14)]; assign(%);

Mep:=proc(X):
if X=[] then 1
elif nops(X)=1 and op(X)=1 then +a[1]
elif nops(X)=1 and op(X)>1 then
+1/summa(X)*heem0(X)
+1/summa(X)*add(mep[p]*heem(X)(p),p=1..op(X)-1)
elif nops(X)>1 then
+1/summa(X)*add( mep[seq(op(k,X),k=1..i-1)]*heem0([seq(op(k,X),k=i..nops(X))]), i=1..nops(X))
+1/summa(X)*add(add( mep[seq(op(k,X),k=1..i-1),p,seq(op(k,X),k=j+1..nops(X))]*heem([seq(op(k,X),k=i..j)])(p),
p=1.. min(op(i,X),add(op(k,X),k=i..j)-1)), i=1..j,j=1..nops(X))
fi end:
#####

semeP1:= [mep[1] = a1] : ##

semeP2:=[

mep[2] = a2+a1^2,
mep[1,1] = -1/2*a2
]: ##

semeP3:= [
mep[3] = a3+2*a1*a2+a1^3,
mep[1,2] = -2/3*a3-1/3*a1*a2,
mep[2,1] = -1/3*a3-2/3*a1*a2,
mep[1,1,1] = 1/3*a3+1/6*a1*a2
]: ##

semeP4:= [
mep[4] = a4+2*a1*a3+a2^2+3*a2*a1^2+a1^4,
mep[1,3] = -3/4*a4-3/8*a2^2-1/2*a1*a3-1/4*a2*a1^2,
mep[2,2] = -1/2*a4-a1*a3-1/2*a2*a1^2,
mep[3,1] = -1/4*a4-5/8*a2^2-1/2*a1*a3-3/4*a2*a1^2,
mep[1,1,2] = 1/2*a4+1/3*a1*a3+1/6*a2*a1^2,
mep[1,2,1] = 1/4*a4+3/8*a2^2+1/6*a1*a3+1/12*a2*a1^2,
mep[2,1,1] = 1/4*a4+1/2*a1*a3+1/4*a2*a1^2+1/8*a2^2,
mep[1,1,1,1] = -1/4*a4-1/8*a2^2-1/6*a1*a3-1/12*a2*a1^2
]: ##

semeP5:= [
mep[5] = a5+2*a1*a4+2*a3*a2+3*a3*a1^2+3*a1*a2^2+4*a2*a1^3+a1^5,
mep[1,4] = -4/5*a5-14/15*a3*a2-17/30*a1*a2^2-3/5*a1*a4-2/5*a3*a1^2-1/5*a2*a1^3,
mep[2,3] = -3/5*a5-6/5*a1*a4-11/20*a1*a2^2-4/5*a3*a1^2-2/5*a2*a1^3-1/5*a3*a2,
mep[3,2] = -2/5*a5-4/5*a3*a2-9/20*a1*a2^2-4/5*a1*a4-6/5*a3*a1^2-3/5*a2*a1^3,
mep[4,1] = -1/5*a5-16/15*a3*a2-43/30*a1*a2^2-5/5*a1*a4-3/5*a3*a1^2-4/5*a2*a1^3,
mep[1,1,3] = 3/5*a5+9/20*a1*a4+7/40*a1*a2^2+3/10*a3*a1^2+3/20*a2*a1^3+1/5*a3*a2,
mep[1,2,2] = 2/5*a5+7/15*a3*a2+17/60*a1*a2^2+3/10*a1*a4+1/5*a3*a1^2+1/10*a2*a1^3,
mep[1,3,1] = 1/5*a5+11/15*a3*a2+47/120*a1*a2^2+3/20*a1*a4+1/10*a3*a1^2+1/20*a2*a1^3,
mep[2,1,2] = 2/5*a5+4/5*a1*a4+8/15*a3*a1^2+4/15*a2*a1^3+2/15*a3*a2+7/60*a1*a2^2,
mep[2,2,1] = 1/5*a5+2/5*a1*a4+3/5*a1*a2^2+4/15*a3*a1^2+2/15*a2*a1^3+2/5*a3*a2,
mep[3,1,1] = 1/5*a5+2/5*a1*a4+13/30*a1*a2^2+3/5*a3*a1^2+3/10*a2*a1^3+17/30*a3*a2,
mep[1,1,1,2] = -2/5*a5-3/10*a1*a4-1/5*a3*a1^2-1/10*a2*a1^3-2/15*a3*a2-7/60*a1*a2^2,
mep[1,1,2,1] = -1/5*a5-2/5*a3*a2-3/20*a1*a4-9/40*a1*a2^2-1/10*a3*a1^2-1/20*a2*a1^3,
mep[1,2,1,1] = -1/5*a5-2/5*a3*a2-3/20*a1*a4-9/40*a1*a2^2-1/10*a3*a1^2-1/20*a2*a1^3,
mep[2,1,1,1] = -1/5*a5-7/30*a3*a2-4/15*a1*a2^2-2/5*a1*a4-15*a3*a1^2-2/15*a2*a1^3,
mep[1,1,1,1,1] = 1/5*a5+7/30*a3*a2+17/120*a1*a2^2+3/20*a1*a4+1/10*a3*a1^2+1/20*a2*a1^3
]: ##

semeP6:= [
mep[6] = a6+2*a1*a5+2*a4*a2+3*a4*a1^2+a3^2+6*a3*a1*a2+4*a3*a1^3+a2^3+6*a2*a1^2+5*a2*a1^4+a1^6,
mep[1,5] = -5/6*a6-25/24*a4*a2-5/9*a3^2-53/36*a3*a1*a2-5/16*a2^3-49/72*a2^2*a1^2-2/3*a1^5-1/2*a4*a1^2-1/3*a3*a1^3-1/6*a2*a1^4,
mep[2,4] = -2/3*a6-4/3*a1*a5-14/9*a3*a1*a2-8/9*a2*a1^2-a4*a1*a2-2/3*a3*a1^3-1/3*a2*a1^4-2/9*a3^2-1/3*a4*a2,
mep[3,3] = -1/2*a6-a4*a2-1/2*a2^3-a3*a1*a2-a2*a2^2*a1^2-a1^3-2/3*a1^5-1/2*a2*a1^4,
mep[4,2] = -1/3*a6-7/9*a3*a2-22/9*a3*a1*a2-2/3*a4*a2-10/9*a2^2*a1^2-2/3*a1^5-a4*a1*a2-4/3*a3*a1^3-2/3*a2*a1^4,
mep[5,1] = -91/36*a3*a1*a2-1/6*a6-11/16*a2^3-1/3*a1*a5-23/24*a4*a2-1/2*a4*a1^2-4/9*a3*a2-2/3*a3*a1^3-167/72*a2^2*a1^2-5/6*a2*a1^4,

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meep[1,1,4] = 2/3*a6+8/15*a1*a5+28/45*a3*a1*a2+29/90*a2*a1*a2+2/5*a4*a1*a2+4/15*a3*a1*a3+2/15*a2*a1*a4+2/9*a3*a2+1/3*a4*a2,
meep[1,2,3] = 1/2*a6+5/8*a4*a2+5/16*a2*a3+11/20*a3*a1*a2+13/40*a2*a1*a2+2/5*a1*a5+3/10*a4*a1*a2+1/5*a3*a1*a3+1/10*a2*a1*a4,
meep[1,3,2] = 1/3*a6+5/9*a3*a2+3/8*a3/90*a3*a1*a2+5/12*a4*a2+16/45*a2*a2*a1*a2+4/15*a1*a5+1/5*a4*a1*a2+2/15*a3*a1*a3+1/15*a2*a1*a4,
meep[1,4,1] = 1/6*a7+17/22*a4*a2+1/3*a3*a2+17/20*a3*a1*a2+5/16*a2*a3+4/3*a1*a2+2/1*a2+1/5*a1*a5+1/10*a4*a1*a2+1/2*a1*a4,
meep[2,1,3] = 1/2*a3*a1*a2+1/2*a6+1/8*a2*a3+1*a1*a5+1/4*a4*a2+3/4*a4*a1*a2+1/2*a3*a1*3/8*a2*a2*a1*a2+1/4*a2*a1*a4,
meep[2,2,2] = a3*a1*a2+1/3*a6+2/3*a1*a5+1/6*a4*a2+1/2*a4*a3+1/3*a3*a2+1/3*a3*a1*a2+1/2*a2*a1*a2+1/6*a2*a1*a4,
meep[2,3,1] = 1/6*a6+1/3*a1*a5+47/36*a3*a1*a2+23/36*a2*a2*a1*a2+1/4*a4*a1*a2+1/6*a3*a1*a3+1/2*a2*a1*a4+11/24*a4*a2+2/9*a3*a2+1/16*a2*a3,
meep[3,1,2] = 7/9*a3*a1*a2+1/3*a6+2/3*a1*a5+2/3*a4*a2+4*a1*a2+1/2*a9*a3*a2+2/3*a3*a1*a3+4/9*a2*a2*a1*a2+1/3*a2*a1*a4,
meep[3,2,1] = 17/18*a3*a1*a2+1/6*a6+1/2*a2+3/1*a3*a1*a5+7/12*a4*a2+1/2*a4*a2+1/3*a3*a1*a3+31/36*a2*a2*a1*a2+1/6*a2*a1*a4,
meep[4,1,1] = 55/36*a3*a1*a2+1/6*a6+3/16*a2*a3+1/3*a1*a5+11/24*a4*a2+1/2*a4*a1*a2+4/9*a3*a2+2/3*a3*a1*a5+59/72*a2*a2*a1*a2+1/3*a2*a1*a4,
meep[1,1,1,3] = -1/2*a6+2/5*a1*a5+3/10*a4*a1*a2+1/5*a2*a1*a2+1/5*a3*a1*a3-1/10*a2*a1*a4*a2+1/3*a2*a1*a3-1/12*a2*a1*a4,
meep[1,1,2,2] = -8/15*a3*a1*a2+1/3*a6+14/5*a1*a5+1/6*a4*a2+1/5*a4*a1*a2-1/3*a2+2/15*a3*a1*a3-13/60*a2*a2*a1*a2+1/5*a2*a1*a4,
meep[1,1,3,1] = -1/6*a6-11/24*a4*a2-2/15*a1*a5-103/180*a3*a1*a2-89/360*a2*a2*a1*a2+1/10*a4*a1*a2-1/15*a3*a1*a3-1/30*a2*a1*a4+4/2-9*a3*a2-1/16*a2*a3,
meep[1,2,1,2] = -43/90*a3*a1*a2+1/3*a6+4/15*a1*a5+5/12*a4*a2+1/5*a4*a1*a2-1/9*a3*a2+2/15*a3*a1*a3-11/45*a2*a2*a1*a2-1/15*a2*a1*a4,
meep[1,2,2,1] = -1/6*a6-11/24*a4*a2-2/15*a1*a5-103/180*a3*a1*a2-89/360*a2*a2*a1*a2+1/10*a4*a1*a2-1/15*a3*a1*a3-1/30*a2*a1*a4+4/2-9*a3*a2-1/16*a2*a3,
meep[1,3,1,1] = -3/5*a3*a1*a2+1/6*a6-1/8*a2+3/2*a1*a5+1/3*a4*a2+1/10*a4*a1*a2-1/3*a1*a3+1/5*a3*a1*a3-7/30*a2*a2*a1*a2-1/2*a0*a1*a4,
meep[2,1,1,2] = -4/9*a3*a1*a2+1/3*a6+2/3*a1*a5+1/6*a4*a2+1/2*a4*a1*a2-1/9*a3*a2+1/3*a1*a3+5/18*a2*a2*a1*a2-1/6*a2*a1*a4,
meep[2,1,2,1] = -7/9*a3*a1*a2+1/6*a6-1/8*a2+3/1*a3*a1*a5+1/3*a4*a2+1/4*a3*a1*a2-1/9*a3*a2+1/6*a3*a1*a3+29/72*a2*a2*a1*a2+1/2*a2*a1*a4,
meep[2,2,1,1] = -29/36*a3*a1*a2+1/6*a6+1/16*a3*a2+1/3*a1*a5+5/24*a4*a2+1/4*a4*a1*a2+2/9*a3*a2+1/6*a3*a1*a3+17/8*a2*a2*a1+2/1*12*a2*a1*a4,
meep[3,1,1,1] = -25/36*a3*a1*a2+1/6*a6+3/16*a2*a3+1/3*a1*a5+11/24*a4*a2+1/2*a4*a1*a2-1/9*a3*a2+1/3*a3*a1*a3-35/72*a2*a2*a1*a2+1/6*a2*a1*a4,
meep[1,1,1,1,2] = 1/3*a6+4/15*a1*a5+1/5*a4*a2+1/2+15*a3*a1+1/15*a2+1/4+14/45*a3*a1*a2+29/180*a2*a2*a1*a2+1/6*a4*a2+1/9*a3*a2,
meep[1,1,1,2,1] = 1/6*a6+1/3*a4*a2+1/9*a3+2/17*a5/43*a1*a2+2/15*a1*a5+1/10*a4*a1*a2+8/45*a2*a2*a1*a2+1/15*a3*a1*a3+1/30*a2*a1*a4+1/8*a2*a3,
meep[1,1,2,1,1] = 1/6*a6+5/24*a4*a2+2/15*a1*a5+73/180*a3*a1*a2+1/10*a4*a1*a2+59/360*a2*a2*a1*a2+1/5*a3*a1*a3+1/30*a2*a1*a4+2/9*a3*a2+1/16*a2*a3,
meep[1,2,1,1,1] = 1/6*a6+1/3*a4*a2+1/9*a3+2/17*a5/43*a1*a2+2/15*a1*a5+1/10*a4*a1*a2+8/45*a2*a2*a1*a2+1/15*a3*a1*a3+1/30*a2*a1*a4+1/8*a2*a3,
meep[2,1,1,1,1] = 19/36*a3*a1*a2+1/6*a6+1/16*a3+2/13*a1*a5+5/24*a4*a2+1/4*a4*a1*a2+1/9*a3*a2+1/6*a3*a1*a3+5/18*a2*a2*a1*a2+1/12*a2*a1*a4,
meep[1,1,1,1,1,1] = -1/6*a6-5/24*a4*a2+1/9*a3*a2+5/3180*a3*a1*a2+1/16*a2*a2+3/49*a360*a2*a2*a1*a2+2/15*a1*a5+1/10*a4*a1*a2-1/5*a3*a1*a3-1/30*a2*a1*a4
] ##
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