set A;
param xo {i in A};
param yo {i in A};
param zo {i in A};
param x{i in A,j in A: i<j}=xo[i]-xo[j];
param y{i in A,j in A: i<j}=yo[i]-yo[j];
param z{i in A,j in A: i<j}=zo[i]-zo[j];

param f{i in A};
param s{i in A};
param v{i in A};

var q{i in A};
var p{i in A};
var t{i in A,j in A};
var b{i in A,j in A} binary;

minimize vcsum: sum{i in A} (abs(q[i]+p[i]));

subject to limit1 {i in A,j in A:i<j}:
b[i,j]*((((v[i]+q[i])*(sin(f[i]+p[i]))*(cos(s[i]))-(v[j]+q[j])*(sin(f[j]+p[j]))*(cos(s[j])))^2+((v[i]+q[i])*(sin(f[i]+p[i]))*(sin(s[i]))-(v[j]+q[j])*(sin(f[j]+p[j]))*(sin(s[j])))^2+((v[i]+q[i])*(cos(f[i]+p[i]))-(v[j]+q[j])*(cos(f[j]+p[j])))^2)*((x[i,j])^2+(y[i,j])^2+(z[i,j])^2-25)-(x[i,j]*((v[i]+q[i])*(sin(f[i]+p[i]))*(cos(s[i]))-(v[j]+q[j])*(sin(f[j]+p[j]))*(cos(s[j])))+y[i,j]*((v[i]+q[i])*(sin(f[i]+p[i]))*(sin(s[i]))-(v[j]+q[j])*(sin(f[j]+p[j]))*(sin(s[j])))+z[i,j]*((v[i]+q[i])*(cos(f[i]+p[i]))-(v[j]+q[j])*(cos(f[j]+p[j])))^2)>=0;

subject to limit21 {i in A,j in A:i<j}:
t[i,j]=-(x[i,j]*((v[i]+q[i])*(sin(f[i]+p[i]))*(cos(s[i]))-(v[j]+q[j])*(sin(f[j]+p[j]))*(cos(s[j])))+y[i,j]*((v[i]+q[i])*(sin(f[i]+p[i]))*(sin(s[i]))-(v[j]+q[j])*(sin(f[j]+p[j]))*(sin(s[j])))+z[i,j]*((v[i]+q[i])*(cos(f[i]+p[i]))-(v[j]+q[j])*(cos(f[j]+p[j]))))/(((v[i]+q[i])*(sin(f[i]+p[i]))*(cos(s[i]))-(v[j]+q[j])*(sin(f[j]+p[j]))*(cos(s[j])))^2+((v[i]+q[i])*(sin(f[i]+p[i]))*(sin(s[i]))-(v[j]+q[j])*(sin(f[j]+p[j]))*(sin(s[j])))^2+((v[i]+q[i])*(cos(f[i]+p[i]))-(v[j]+q[j])*(cos(f[j]+p[j])))^2);

subject to limit31 {i in A,j in A:i<j}: t[i,j]*(2*b[i,j]-1)>=0;

subject to limit51 {i in A}: 0.547 <=q[i]+v[i]<= 0.569;

subject to limit41 {i in A}: -0.5233 <= p[i]   <=0.5233;