(%i6)
```
kill(all)$ load(distrib)$ ratprint:false$ solveexplicit:true$ fpprintprec:5$
load("fit.mac")$ display2d:true$
```

(%i8)
```
speed: [40 70 150 230 310 370 420 460 490 530]$ length(speed);
```
(%o8)

(%i14)
```
/* 1:u5 2:P34 3:dkw 4:etas 5:bsr 6:cp 7:cv 8:gamma 9:D5 10:VS */
data: read_matrix("map.csv")$ /* must have commas!!! */
trpdata1: transpose(data)[1]$
trpdata5: transpose(data)[5]$
trpdata4: transpose(data)[4]$
trpdata1[50]; length(trpdata1);
```
(%o13)
(%o14)

(%i17)
```
speedsort: makelist( [], j, 1, length(speed), 1 )$
for j thru length(speed) do
    for i thru length(trpdata1) do
        if round(trpdata1[i])=speed[j] then
            speedsort[j]: endcons([trpdata5[i], trpdata4[i]], speedsort[j]);
speedsort[1]$
```
(%o16)

(%i19)
```
dataplot: makelist( [], i, 1, length(speed), 1 )$
for j thru length(speed) do (
    data5[j]: makelist( speedsort[j][i][1], i, 1, length(speedsort[j]), 1 ),
    data4[j]: makelist( speedsort[j][i][2], i, 1, length(speedsort[j]), 1 ),
    dataL[j]: makelist( [ data5[j][i], data4[j][i] ], i, 1, length(data5[j]), 1 ),
    dataplot[j]: endcons([ discrete, data5[j], data4[j] ], dataplot[j])
);
```
(%o19)

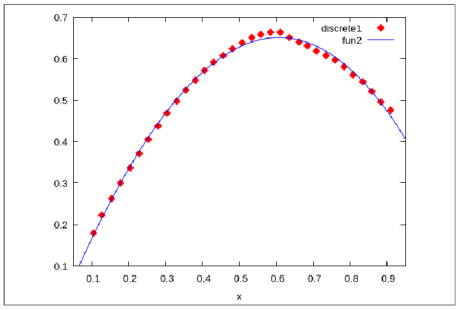
➜
```
/* fit individual: sinus / just to one curve for illustration */;
```

(%i20)
```
sln: 2;
```
(%o20)

(%i21)
```
fn: a*x^3+b*x^2+c*x+d;
```
(%o21)

(%i25)
```
dataM: apply( matrix, dataL[sln])$
lsq: lsquares_estimates(
        dataM, [x,y], y = fn, [a,b,c,d], initial=[1,0,1,0,1,0,1,0], iprint=[-1,0])$
fitleast: fn, lsq[1]$
wxplot2d([dataplot[sln][1], fitleast], [x, 0.05, 0.95], [y, 0.1, 0.7], [style,points,lines], [point_type,diamond], [color,red,blue])$
```

(%t25)



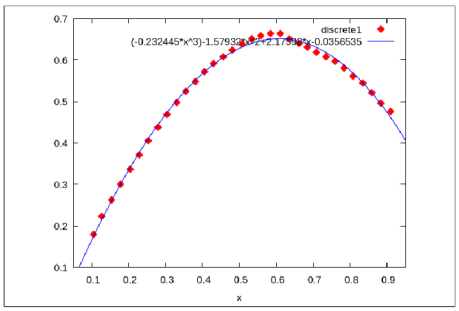
(%i26)
```
floatfitleast: float(fitleast);
```
(%o26)

(%i30)
```
facA: coeff(floatfitleast,x,3);
facB: coeff(floatfitleast,x,2);
facC: coeff(floatfitleast,x,1);
facD: coeff(floatfitleast,x,0);
```

➜
```
/* nlf: nlfit (dataM,sigL,fn,[a,b,c,d],[facA,facB,facC,facD])$ */
```

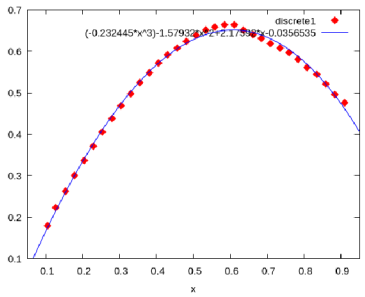
(%i36)
```
dataM: apply( matrix, dataL[sln])$
sigL: makelist(1,i,1,length(dataL[sln]))$
display(sigL)$
nlf: nlfit (dataM,sigL,fn,[a,b,c,d],[facA,facB,facC,facD])$
fitreference: ev(fn, nlf,1)$
wxplot2d([dataplot[sln][1], fitreference], [x, 0.05, 0.95], [y, 0.1, 0.7], [style,points,lines], [point_type,diamond], [color,red,blue])$
```

(%t36)



(%i42)
```
dataM: apply('matrix, dataL[sln])$
sigL: [1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1]$
display(sigL)$
nlf: nlfit ('dataM sigL fn [a b c d] [facA facB facC facD])$
fitweights: ev(fn  nlf(1))$
wxplot2d([dataplot(sln)[1] fitreference])[x  0.05  0.95][y  0.1  0.7][style points lines] [point_type diamond] [color red blue])$
```

(%t42)



(%i43)
```
wxplot2d([dataplot(sln)[1] fitleast fitreference fitweights])[x  0.05  0.95][y  0.1  0.7][style points lines lines lines] [point_type diamond] [color red blue green black])$
```

(%t43)