

EXPFUN

Mk function: @(x)hessf(x)

x0 = [5.00 ; 5.00]

.. #	0:	R=	NaN	f(x)=	30	x(1)=	5	x(2)=	5	step=	NaN	crate=	NaN	gradf =	10.05
Nr #	1:	R=	9.0792e-05	f(x)=	25.714	x(1)=	-0.37756	x(2)=	4.9951	step=	0.00097656	crate=	NaN	gradf =	9.9967
NF #	2:	R=	0.43499	f(x)=	0.69383	x(1)=	0.036917	x(2)=	0	step=	1	crate=	NaN	gradf =	0.0369
NF #	3:	R=	0.49932	f(x)=	0.69315	x(1)=	-3.355e-05	x(2)=	0	step=	1	crate=	0.0073719	gradf =	3.355e-05
NF #	4:	R=	0.5	f(x)=	0.69315	x(1)=	2.5197e-14	x(2)=	0	step=	1	crate=	0.00090798	gradf =	2.5147e-14

Mk function: @(x)hessf(x)

Hessian approximation at last iterate (rank = 2, condition = 2, eigenvalues = (1, 2)):

1	0
0	2

Hessian (exact) at last iterate (rank = 2, condition = 2, eigenvalues = (1, 2)):

1	0
0	2

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x0 = [5.00 ; 5.00]
x = [0.00000000 ; 0.00000000]
f(x) = 0.69314718
#it = 4 #f = 23 #gradf = 5 #hessf = 4
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Mk function: @(x)diag(diag(hessf(x)))

x0 = [5.00 ; 5.00]

.. #	0:	R=	NaN	f(x)=	30	x(1)=	5	x(2)=	5	step=	NaN	crate=	NaN	gradf =	10.05
Nr #	1:	R=	9.0792e-05	f(x)=	25.714	x(1)=	-0.37756	x(2)=	4.9951	step=	0.00097656	crate=	NaN	gradf =	9.9967
NF #	2:	R=	0.43499	f(x)=	0.69383	x(1)=	0.036917	x(2)=	0	step=	1	crate=	NaN	gradf =	0.0369
NF #	3:	R=	0.49932	f(x)=	0.69315	x(1)=	-3.355e-05	x(2)=	0	step=	1	crate=	0.0073719	gradf =	3.355e-05
NF #	4:	R=	0.5	f(x)=	0.69315	x(1)=	2.5197e-14	x(2)=	0	step=	1	crate=	0.00090798	gradf =	2.5147e-14

Mk function: @(x)diag(diag(hessf(x)))

Hessian approximation at last iterate (rank = 2, condition = 2, eigenvalues = (1, 2)):

1	0
0	2

Hessian (exact) at last iterate (rank = 2, condition = 2, eigenvalues = (1, 2)):

1	0
0	2

```
x0 = [5.00 ; 5.00]
x = [0.00000000 ; 0.00000000]
f(x) = 0.69314718
#it = 4 #f = 23 #gradf = 5 #hessf = 4
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Mk function: @(x)hessf(x0)

x0 = [5.00 ; 5.00]

.. #	0:	R=	NaN	f(x)=	30	x(1)=	5	x(2)=	5	step=	NaN	crate=	NaN	gradf =	10.05
Nr #	1:	R=	9.0792e-05	f(x)=	25.714	x(1)=	-0.37756	x(2)=	4.9951	step=	0.00097656	crate=	NaN	gradf =	9.9967
Nr #	2:	R=	9.0792e-05	f(x)=	25.638	x(1)=	0.10725	x(2)=	4.9939	step=	0.00024414	crate=	NaN	gradf =	9.9884
Nr #	3:	R=	9.0792e-05	f(x)=	25.624	x(1)=	-0.18005	x(2)=	4.9915	step=	0.00048828	crate=	0.59263	gradf =	9.9845
Nr #	4:	R=	9.0792e-05	f(x)=	25.597	x(1)=	0.059447	x(2)=	4.9902	step=	0.00024414	crate=	0.83359	gradf =	9.9807
Nr #	5:	R=	9.0792e-05	f(x)=	25.58	x(1)=	-0.25988	x(2)=	4.9854	step=	0.00097656	crate=	1.3335	gradf =	9.974
Nr #	6:	R=	9.0792e-05	f(x)=	25.538	x(1)=	0.081873	x(2)=	4.9842	step=	0.00024414	crate=	1.0701	gradf =	9.9686
Nr #	7:	R=	9.0792e-05	f(x)=	25.52	x(1)=	-0.1378	x(2)=	4.9817	step=	0.00048828	crate=	0.6428	gradf =	9.9644
Nr #	8:	R=	9.0792e-05	f(x)=	25.513	x(1)=	0.23041	x(2)=	4.9793	step=	0.00048828	crate=	1.6761	gradf =	9.9611
Nr #	9:	R=	9.0792e-05	f(x)=	25.477	x(1)=	-0.074011	x(2)=	4.9781	step=	0.00024414	crate=	0.82676	gradf =	9.9564
Nr #	10:	R=	9.0792e-05	f(x)=	25.458	x(1)=	0.12464	x(2)=	4.9756	step=	0.00048828	crate=	0.65261	gradf =	9.952
Nr #	11:	R=	9.0792e-05	f(x)=	25.448	x(1)=	-0.2088	x(2)=	4.9732	step=	0.00048828	crate=	1.6784	gradf =	9.9485
Nr #	12:	R=	9.0792e-05	f(x)=	25.416	x(1)=	0.067924	x(2)=	4.972	step=	0.00024414	crate=	0.82988	gradf =	9.9442
Nr #	13:	R=	9.0792e-05	f(x)=	25.409	x(1)=	-0.29681	x(2)=	4.9671	step=	0.00097656	crate=	1.3182	gradf =	9.9385
Nr #	14:	R=	9.0792e-05	f(x)=	25.358	x(1)=	0.090935	x(2)=	4.9659	step=	0.00024414	crate=	1.063	gradf =	9.9323
Nr #	15:	R=	9.0792e-05	f(x)=	25.341	x(1)=	-0.15292	x(2)=	4.9635	step=	0.00048828	crate=	0.62893	gradf =	9.9282
Nr #	16:	R=	9.0792e-05	f(x)=	25.338	x(1)=	0.25511	x(2)=	4.9611	step=	0.00048828	crate=	1.6732	gradf =	9.9253
Nr #	17:	R=	9.0792e-05	f(x)=	25.297	x(1)=	-0.080636	x(2)=	4.9599	step=	0.00024414	crate=	0.82284	gradf =	9.9201
Nr #	18:	R=	9.0792e-05	f(x)=	25.279	x(1)=	0.13573	x(2)=	4.9574	step=	0.00048828	crate=	0.64446	gradf =	9.9158
Nr #	19:	R=	9.0792e-05	f(x)=	25.271	x(1)=	-0.22702	x(2)=	4.955	step=	0.00048828	crate=	1.6765	gradf =	9.9126
Nr #	20:	R=	9.0792e-05	f(x)=	25.236	x(1)=	0.073073	x(2)=	4.9538	step=	0.00024414	crate=	0.82727	gradf =	9.9079
Nr #	21:	R=	9.0792e-05	f(x)=	25.236	x(1)=	-0.31922	x(2)=	4.949	step=	0.00097656	crate=	1.3073	gradf =	9.9028
Nr #	22:	R=	9.0792e-05	f(x)=	25.178	x(1)=	0.095967	x(2)=	4.9478	step=	0.00024414	crate=	1.0583	gradf =	9.896
Nr #	23:	R=	9.0792e-05	f(x)=	25.163	x(1)=	-0.1613	x(2)=	4.9454	step=	0.00048828	crate=	0.61967	gradf =	9.892
Nr #	24:	R=	9.0792e-05	f(x)=	25.161	x(1)=	0.26872	x(2)=	4.9429	step=	0.00048828	crate=	1.6714	gradf =	9.8894
Nr #	25:	R=	9.0792e-05	f(x)=	25.117	x(1)=	-0.084124	x(2)=	4.9417	step=	0.00024414	crate=	0.82052	gradf =	9.8838
Nr #	26:	R=	9.0792e-05	f(x)=	25.1	x(1)=	0.14156	x(2)=	4.9393	step=	0.00048828	crate=	0.63964	gradf =	9.8796
Nr #	27:	R=	9.0792e-05	f(x)=	25.094	x(1)=	-0.23657	x(2)=	4.9369	step=	0.00048828	crate=	1.6754	gradf =	9.8765
Nr #	28:	R=	9.0792e-05	f(x)=	25.057	x(1)=	0.075697	x(2)=	4.9357	step=	0.00024414	crate=	0.82582	gradf =	9.8717
Nr #	29:	R=	9.0792e-05	f(x)=	25.039	x(1)=	-0.12747	x(2)=	4.9333	step=	0.00048828	crate=	0.65065	gradf =	9.8674
Nr #	30:	R=	9.0792e-05	f(x)=	25.029	x(1)=	0.21345	x(2)=	4.9309	step=	0.00048828	crate=	1.678	gradf =	9.864
Nr #	31:	R=	9.0792e-05	f(x)=	24.997	x(1)=	-0.069255	x(2)=	4.9297	step=	0.00024414	crate=	0.82924	gradf =	9.8596
Nr #	32:	R=	9.0792e-05	f(x)=	24.993	x(1)=	0.30261	x(2)=	4.9249	step=	0.00097656	crate=	1.3155	gradf =	9.8541
Nr #	33:	R=	9.0792e-05	f(x)=	24.94	x(1)=	-0.092271	x(2)=	4.9237	step=	0.00024414	crate=	1.0618	gradf =	9.8478
Nr #	34:	R=	9.0792e-05	f(x)=	24.924	x(1)=	0.15515	x(2)=	4.9213	step=	0.00048828	crate=	0.62659	gradf =	9.8437
Nr #	35:	R=	9.0792e-05	f(x)=	24.921	x(1)=	-0.25873	x(2)=	4.9189	step=	0.00048828	crate=	1.6727	gradf =	9.841
Nr #	36:	R=	9.0792e-05	f(x)=	24.88	x(1)=	0.081575	x(2)=	4.9177	step=	0.00024414	crate=	0.82223	gradf =	9.8356
Nr #	37:	R=	9.0792e-05	f(x)=	24.862	x(1)=	-0.1373	x(2)=	4.9153	step=	0.00048828	crate=	0.6432	gradf =	9.8315
Nr #	38:	R=	9.0792e-05	f(x)=	24.855	x(1)=	0.2296	x(2)=	4.9129	step=	0.00048828	crate=	1.6762	gradf =	9.8283
Nr #	39:	R=	9.0792e-05	f(x)=	24.82	x(1)=	-0.073786	x(2)=	4.9117	step=	0.00024414	crate=	0.82688	gradf =	9.8236
Nr #	40:	R=	9.0792e-05	f(x)=	24.802	x(1)=	0.12427	x(2)=	4.9093	step=	0.00048828	crate=	0.65286	gradf =	9.8193
Nr #	41:	R=	9.0792e-05	f(x)=	24.792	x(1)=	-0.20818	x(2)=	4.9069	step=	0.00048828	crate=	1.6785	gradf =	9.8159
Nr #	42:	R=	9.0792e-05	f(x)=	24.761	x(1)=	0.067746	x(2)=	4.9057	step=	0.00024414	crate=	0.82997	gradf =	9.8116
Nr #	43:	R=	9.0792e-05	f(x)=	24.755	x(1)=	-0.29604	x(2)=	4.9009	step=	0.00097656	crate=	1.3185	gradf =	9.806
Nr #	44:	R=	9.0792e-05	f(x)=	24.704	x(1)=	0.090754	x(2)=	4.8997	step=	0.00024414	crate=	1.0632	gradf =	9.7998
Nr #	45:	R=	9.0792e-05	f(x)=	24.688	x(1)=	-0.15262	x(2)=	4.8973	step=	0.00048828	crate=	0.62924	gradf =	9.7957
Nr #	46:	R=	9.0792e-05	f(x)=	24.685	x(1)=	0.25462	x(2)=	4.8949	step=	0.00048828	crate=	1.6733	gradf =	9.793
Nr #	47:	R=	9.0792e-05	f(x)=	24.645	x(1)=	-0.080508	x(2)=	4.8937	step=	0.00024414	crate=	0.82292	gradf =	9.7877
Nr #	48:	R=	9.0792e-05	f(x)=	24.627	x(1)=	0.13551	x(2)=	4.8913	step=	0.00048828	crate=	0.64463	gradf =	9.7835
Nr #	49:	R=	9.0792e-05	f(x)=	24.62	x(1)=	-0.22667	x(2)=	4.8889	step=	0.00048828	crate=	1.6765	gradf =	9.7804

Nr # 50:	R= 9.0792e-05	f(x)= 24.586	x(1)= 0.072976	x(2)= 4.8877	step= 0.00024414	crate= 0.82732	gradf = 9.7757
Nr # 51:	R= 9.0792e-05	f(x)= 24.567	x(1)= -0.12291	x(2)= 4.8853	step= 0.00048828	crate= 0.65377	gradf = 9.7714
Nr # 52:	R= 9.0792e-05	f(x)= 24.557	x(1)= 0.20594	x(2)= 4.883	step= 0.00048828	crate= 1.6787	gradf = 9.768
Nr # 53:	R= 9.0792e-05	f(x)= 24.527	x(1)= -0.0671	x(2)= 4.8818	step= 0.00024414	crate= 0.83028	gradf = 9.7637
Nr # 54:	R= 9.0792e-05	f(x)= 24.521	x(1)= 0.29323	x(2)= 4.877	step= 0.00097656	crate= 1.3198	gradf = 9.7581
Nr # 55:	R= 9.0792e-05	f(x)= 24.471	x(1)= -0.090096	x(2)= 4.8758	step= 0.00024414	crate= 1.0637	gradf = 9.752
Nr # 56:	R= 9.0792e-05	f(x)= 24.455	x(1)= 0.15152	x(2)= 4.8734	step= 0.00048828	crate= 0.63035	gradf = 9.748
Nr # 57:	R= 9.0792e-05	f(x)= 24.452	x(1)= -0.25283	x(2)= 4.871	step= 0.00048828	crate= 1.6735	gradf = 9.7452
Nr # 58:	R= 9.0792e-05	f(x)= 24.412	x(1)= 0.080041	x(2)= 4.8699	step= 0.00024414	crate= 0.82321	gradf = 9.74
Nr # 59:	R= 9.0792e-05	f(x)= 24.394	x(1)= -0.13473	x(2)= 4.8675	step= 0.00048828	crate= 0.64524	gradf = 9.7359
Nr # 60:	R= 9.0792e-05	f(x)= 24.387	x(1)= 0.22539	x(2)= 4.8651	step= 0.00048828	crate= 1.6767	gradf = 9.7327
Nr # 61:	R= 9.0792e-05	f(x)= 24.353	x(1)= -0.07262	x(2)= 4.8639	step= 0.00024414	crate= 0.82751	gradf = 9.7281
Nr # 62:	R= 9.0792e-05	f(x)= 24.335	x(1)= 0.12231	x(2)= 4.8615	step= 0.00048828	crate= 0.65416	gradf = 9.7238
Nr # 63:	R= 9.0792e-05	f(x)= 24.325	x(1)= -0.20496	x(2)= 4.8592	step= 0.00048828	crate= 1.6788	gradf = 9.7204
Nr # 64:	R= 9.0792e-05	f(x)= 24.295	x(1)= 0.066816	x(2)= 4.858	step= 0.00024414	crate= 0.83041	gradf = 9.7162
Nr # 65:	R= 9.0792e-05	f(x)= 24.289	x(1)= -0.29199	x(2)= 4.8532	step= 0.00097656	crate= 1.3203	gradf = 9.7106
Nr # 66:	R= 9.0792e-05	f(x)= 24.24	x(1)= 0.089804	x(2)= 4.852	step= 0.00024414	crate= 1.064	gradf = 9.7045
Nr # 67:	R= 9.0792e-05	f(x)= 24.224	x(1)= -0.15103	x(2)= 4.8497	step= 0.00048828	crate= 0.63084	gradf = 9.7005
Nr # 68:	R= 9.0792e-05	f(x)= 24.221	x(1)= 0.25204	x(2)= 4.8473	step= 0.00048828	crate= 1.6736	gradf = 9.6978
Nr # 69:	R= 9.0792e-05	f(x)= 24.181	x(1)= -0.079833	x(2)= 4.8461	step= 0.00024414	crate= 0.82334	gradf = 9.6926
Nr # 70:	R= 9.0792e-05	f(x)= 24.164	x(1)= 0.13438	x(2)= 4.8438	step= 0.00048828	crate= 0.64552	gradf = 9.6884
Nr # 71:	R= 9.0792e-05	f(x)= 24.157	x(1)= -0.22482	x(2)= 4.8414	step= 0.00048828	crate= 1.6768	gradf = 9.6853
Nr # 72:	R= 9.0792e-05	f(x)= 24.123	x(1)= 0.072461	x(2)= 4.8402	step= 0.00024414	crate= 0.8276	gradf = 9.6807
Nr # 73:	R= 9.0792e-05	f(x)= 24.105	x(1)= -0.12205	x(2)= 4.8378	step= 0.00048828	crate= 0.65434	gradf = 9.6765
Nr # 74:	R= 9.0792e-05	f(x)= 24.096	x(1)= 0.20452	x(2)= 4.8355	step= 0.00048828	crate= 1.6789	gradf = 9.6731
Nr # 75:	R= 9.0792e-05	f(x)= 24.066	x(1)= -0.066689	x(2)= 4.8343	step= 0.00024414	crate= 0.83047	gradf = 9.6688
Nr # 76:	R= 9.0792e-05	f(x)= 24.06	x(1)= 0.29144	x(2)= 4.8296	step= 0.00097656	crate= 1.3206	gradf = 9.6633
Nr # 77:	R= 9.0792e-05	f(x)= 24.011	x(1)= -0.089673	x(2)= 4.8284	step= 0.00024414	crate= 1.0641	gradf = 9.6572
Nr # 78:	R= 9.0792e-05	f(x)= 23.995	x(1)= 0.15082	x(2)= 4.826	step= 0.00048828	crate= 0.63105	gradf = 9.6533
Nr # 79:	R= 9.0792e-05	f(x)= 23.992	x(1)= -0.25168	x(2)= 4.8237	step= 0.00048828	crate= 1.6736	gradf = 9.6505
Nr # 80:	R= 9.0792e-05	f(x)= 23.953	x(1)= 0.079739	x(2)= 4.8225	step= 0.00024414	crate= 0.8234	gradf = 9.6454
Nr # 81:	R= 9.0792e-05	f(x)= 23.936	x(1)= -0.13423	x(2)= 4.8202	step= 0.00048828	crate= 0.64564	gradf = 9.6412
Nr # 82:	R= 9.0792e-05	f(x)= 23.929	x(1)= 0.22456	x(2)= 4.8178	step= 0.00048828	crate= 1.6768	gradf = 9.6381
Nr # 83:	R= 9.0792e-05	f(x)= 23.896	x(1)= -0.072389	x(2)= 4.8166	step= 0.00024414	crate= 0.82763	gradf = 9.6335
Nr # 84:	R= 9.0792e-05	f(x)= 23.878	x(1)= 0.12193	x(2)= 4.8143	step= 0.00048828	crate= 0.65442	gradf = 9.6293
Nr # 85:	R= 9.0792e-05	f(x)= 23.869	x(1)= -0.20432	x(2)= 4.8119	step= 0.00048828	crate= 1.6789	gradf = 9.626
Nr # 86:	R= 9.0792e-05	f(x)= 23.839	x(1)= 0.066632	x(2)= 4.8108	step= 0.00024414	crate= 0.8305	gradf = 9.6217
Nr # 87:	R= 9.0792e-05	f(x)= 23.833	x(1)= -0.29119	x(2)= 4.8061	step= 0.00097656	crate= 1.3207	gradf = 9.6163
Nr # 88:	R= 9.0792e-05	f(x)= 23.784	x(1)= 0.089615	x(2)= 4.8049	step= 0.00024414	crate= 1.0641	gradf = 9.6102
Nr # 89:	R= 9.0792e-05	f(x)= 23.769	x(1)= -0.15072	x(2)= 4.8025	step= 0.00048828	crate= 0.63115	gradf = 9.6062
Nr # 90:	R= 9.0792e-05	f(x)= 23.766	x(1)= 0.25152	x(2)= 4.8002	step= 0.00048828	crate= 1.6736	gradf = 9.6035
Nr # 91:	R= 9.0792e-05	f(x)= 23.727	x(1)= -0.079697	x(2)= 4.799	step= 0.00024414	crate= 0.82343	gradf = 9.5984
Nr # 92:	R= 9.0792e-05	f(x)= 23.71	x(1)= 0.13416	x(2)= 4.7967	step= 0.00048828	crate= 0.64569	gradf = 9.5943
Nr # 93:	R= 9.0792e-05	f(x)= 23.704	x(1)= -0.22445	x(2)= 4.7943	step= 0.00048828	crate= 1.6768	gradf = 9.5912
Nr # 94:	R= 9.0792e-05	f(x)= 23.67	x(1)= 0.072357	x(2)= 4.7932	step= 0.00024414	crate= 0.82765	gradf = 9.5866
Nr # 95:	R= 9.0792e-05	f(x)= 23.653	x(1)= -0.12187	x(2)= 4.7908	step= 0.00048828	crate= 0.65445	gradf = 9.5824
Nr # 96:	R= 9.0792e-05	f(x)= 23.643	x(1)= 0.20423	x(2)= 4.7885	step= 0.00048828	crate= 1.6789	gradf = 9.5791
Nr # 97:	R= 9.0792e-05	f(x)= 23.614	x(1)= -0.066606	x(2)= 4.7873	step= 0.00024414	crate= 0.83051	gradf = 9.5749
Nr # 98:	R= 9.0792e-05	f(x)= 23.609	x(1)= 0.29107	x(2)= 4.7826	step= 0.00097656	crate= 1.3207	gradf = 9.5695
Nr # 99:	R= 9.0792e-05	f(x)= 23.56	x(1)= -0.089588	x(2)= 4.7815	step= 0.00024414	crate= 1.0642	gradf = 9.5634
Nr #100:	R= 9.0792e-05	f(x)= 23.545	x(1)= 0.15067	x(2)= 4.7791	step= 0.00048828	crate= 0.63119	gradf = 9.5594

Mk function: @(x)hessf(x0)

Hessian approximation at last iterate (rank = 2, condition = 1.101423e+04, eigenvalues = (0.000181583, 2)):

0.000181583230944082
0 2

Hessian (exact) at last iterate (rank = 2, condition = 2.045750e+00, eigenvalues = (0.977637, 2)):

0.9776370523356
0 2

x0 = [5.00 ; 5.00]

x = [0.15067359 ; 4.77913393]

f(x) = 23.544577

#it = 100 #f = 1427 #gradf = 101 #hessf = 100

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