testG

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Example for algorithm testG. Algorithm is usefull only for testing QWTB toolbox. It calculates maximal and minimal value of the record. GUF is calculated by wrapper.

See also `qwtb`

Generate sample data

Two quantities are prepared: `x` and `y`.

```
x = []; y = [];
x.v = [1:20];
y.v = [1:14 13:-1:8];
```

All uncertainties are set to 1.

```
x.u = x.v.*0 + 1;
y.u = y.v.*0 + 1;
```

Set degrees of freedom.

```
x.d = x.v.*0 + 60;
y.d = y.v.*0 + 9;
```

Quantities are put into data input structure `DI`.

```
DI = [];
DI.x = x;
DI.y = y;
```

Create calculation settings `CS` and set uncertainty calculation method to GUM uncertainty framework.

```
CS = [];
CS.unc = 'guf';
```

Call algorithm

Use QWTB to apply algorithm `testG` to data `DI` with calculation settings `CS`.

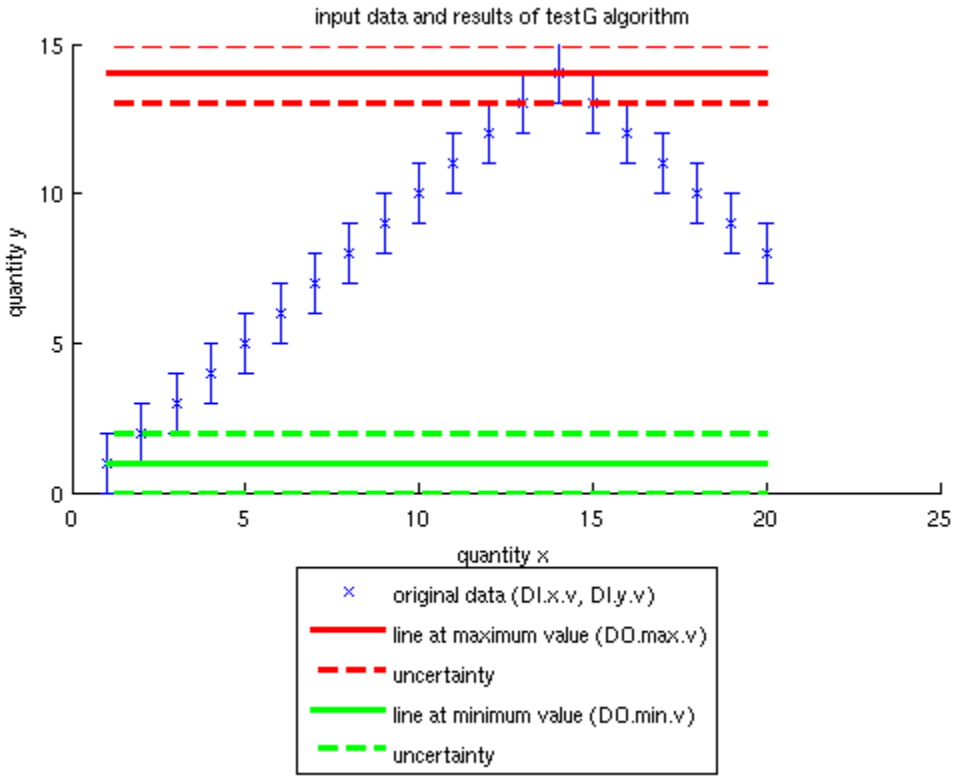
```
DO = qwtb('testG', DI, CS);
```

```
        QWTB: default correlation matrix generated for quantity `x`
        QWTB: default correlation matrix generated for quantity `y`
        QWTB: uncertainty calculation by means of wrapper or algorithm
```

Plot results

Plot input data and calculated maximal and minimal values as a red and green lines with uncertainties represented by dashed lines.

```
figure
hold on
errorbar(DI.x.v, DI.y.v, DI.y.u, 'xb')
plot([DI.x.v(1) DI.x.v(end)], [DO.max.v DO.max.v], '-r', 'linewidth', 3)
plot([DI.x.v(1) DI.x.v(end)], [DO.max.v - DO.max.u DO.max.v - DO.max.u], '--r', 'l
plot([DI.x.v(1) DI.x.v(end)], [DO.min.v DO.min.v], '-g', 'linewidth', 3)
plot([DI.x.v(1) DI.x.v(end)], [DO.min.v - DO.min.u DO.min.v - DO.min.u], '--g', 'l
plot([DI.x.v(1) DI.x.v(end)], [DO.max.v + DO.max.u DO.max.v + DO.max.u], '--r', 'l
plot([DI.x.v(1) DI.x.v(end)], [DO.min.v + DO.min.u DO.min.v + DO.min.u], '--g', 'l
legend('original data (DI.x.v, DI.y.v)', 'line at maximum value (DO.max.v)', 'unce
xlabel('quantity x')
ylabel('quantity y')
title('input data and results of testG algorithm')
hold off
```



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