basic_constrained

A basic example where the upper and lower level programs are totally unlinked. The unique global optimum is found at $x = [1, 0, 3, -4]$ and $y = [1, 0, 3, -4]$.

$$
\begin{aligned}
\underset{x,y}{\text{minimise}} \quad & x_1^2 + x_2^2 + x_3^2 + x_4^2 \\
\text{subject to} \quad & x_1 \geq 1, \\
& x_2 \geq -2, \\
& x_3 = 3, \\
& x_4 = -4, \\
& y \in \arg\min_{y} \begin{cases} y_1^2 + y_2^2 + y_3^2 + y_4^2, \\ y_1 \geq 1, \\ y_2 \geq -2, \\ y_3 = 3, \\ y_4 = -4, \end{cases}
\end{aligned}
$$

			Dimension	Type
Upper-level	x	variables	4	real
	F(x,y)	objective	1	quadratic
	G(x,y)	inequality	2	bounds
	H(x,y)	equality	2	linear
Lower-level	y	variables	4	real
	f(x,y)	objective	1	quadratic
	g(x,y)	inequality	2	bounds
	h(x,y)	equality	2	linear