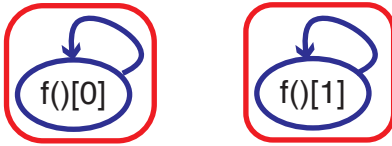


Sum reduction of complex-number

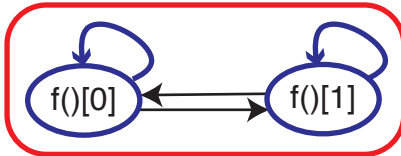
$$f() = \{f()[0] + g(r.x)[0], f()[1] + g(r.x)[1]\}$$



Subgraphs: $\{f()[0] : \{f()[0]\}, f()[1] : \{f()[1]\}\}$

Multiply reduction of complex-number

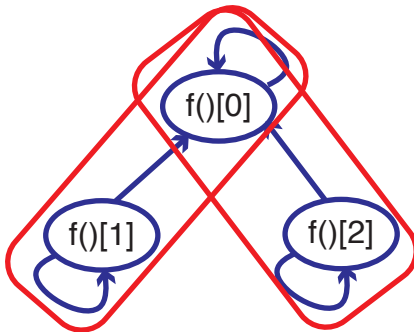
$$f() = \{f()[0]*g(r.x)[0] - f()[1]*g(r.x)[1], f()[1]*g(r.x)[0] + f()[0]*g(r.x)[1]\}$$



Subgraphs: $\{f()[0] : \{f()[0], f()[1]\}, f()[1] : \{f()[0], f()[1]\}\}$

Two-dimensional argmin

$$f() = \{\min(f()[0], g(r.x, r.y)), \text{select}(f()[0] < g(r.x, r.y), f()[1], r.x), \text{select}(f()[0] < g(r.x, r.y), f()[2], r.y)\}$$



Subgraphs: $\{\{f()[0] : \{f()[0]\}, f()[1] : \{f()[0], f()[1]\}, f()[2] : \{f()[0], f()[2]\}\}$