Building libraries

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| Library | Modification | Output |
| Polynomial | None (default) | Polynomial Library  ['1', 'x0', 'x1', 'x0^2', 'x1^2'] |
| Fourier | None (default) | Fourier Library  ['sin(1 x0)', 'cos(1 x0)', 'sin(1 x1)', 'cos(1 x1)'] |
|  | Included the argument ‘n\_frequencies=3’ | Fourier Library  ['sin(1 x0)', 'cos(1 x0)', 'sin(1 x1)', 'cos(1 x1)', 'sin(2 x0)', 'cos(2 x0)', 'sin(2 x1)', 'cos(2 x1)', 'sin(3 x0)', 'cos(3 x0)', 'sin(3 x1)', 'cos(3 x1)'] |
| Identity | None (default) | Identity Library  ['x0', 'x1'] |
| Concatenated | Concatenated the default fourier and identity libraries | Concatenated Library (identity and fourier)  ['x0', 'x1', 'sin(1 x0)', 'cos(1 x0)', 'sin(1 x1)', 'cos(1 x1)'] |
| Tensor  *The description for this one notes that it gives a mad model because of mostly useless terms* | Tensored the default fourier and identity libraries | Tensored Library (identity and fourier)  ['x0 sin(1 x0)', 'x0 cos(1 x0)', 'x0 sin(1 x1)', 'x0 cos(1 x1)', 'x1 sin(1 x0)', 'x1 cos(1 x0)', 'x1 sin(1 x1)', 'x1 cos(1 x1)', 'x0^2 sin(1 x0)', 'x0^2 cos(1 x0)', 'x0^2 sin(1 x1)', 'x0^2 cos(1 x1)', 'x0 x1 sin(1 x0)', 'x0 x1 cos(1 x0)', 'x0 x1 sin(1 x1)', 'x0 x1 cos(1 x1)', 'x1^2 sin(1 x0)', 'x1^2 cos(1 x0)', 'x1^2 sin(1 x1)', 'x1^2 cos(1 x1)'] |
| SINDy-PI | Specified functions exp(x) and sin(x+y)  And specified x dot functions x | SINDy-PI library  With function names:  ['exp(x0)', 'exp(x1)', 'sin(x0x1)', 'x0\_dot', 'x1\_dot', 'exp(x0)x0\_dot', 'exp(x1)x0\_dot', 'sin(x0x1)x0\_dot', 'exp(x0)x1\_dot', 'exp(x1)x1\_dot', 'sin(x0x1)x1\_dot'] |
| PDE and Weak PDe | Specified functions exp(x) and sin(x+y)  (and function names) | PDE Library  With function names:  ['exp(x0)', 'exp(x1)', 'sin(x0x1)', 'x0\_t', 'x1\_t', 'exp(x0)x0\_t', 'exp(x0)x1\_t', 'exp(x1)x0\_t', 'exp(x1)x1\_t', 'sin(x0x1)x0\_t', 'sin(x0x1)x1\_t']  WeakPDE Library  With function names:  ['exp(x0)', 'exp(x1)', 'sin(x0x1)', 'x0\_t', 'x1\_t', 'exp(x0)x0\_t', 'exp(x0)x1\_t', 'exp(x1)x0\_t', 'exp(x1)x1\_t', 'sin(x0x1)x0\_t', 'sin(x0x1)x1\_t'] |
| Custom Library | Specified 4 functions | Custom Library  With function names:  ['exp(x0)', 'exp(x1)', '1/x0', '1/x1', 'x0', 'x1', 'sin(x0,x1)'] |
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