
Brightway2-parameters Documentation

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Contents

The simplest case is to evaluate a system of variables and formulas:

```
In [1]: from bw2parameters import ParameterSet

In [2]: parameters = {
...:     'Deep_Thought': {'amount': 42},
...:     'East_River_Creature': {'formula': '2 * Deep_Thought + 16'},
...:     'Elders_of_Krikkit': {'formula': 'sqrt(East_River_Creature)'},
...: }

In [3]: ParameterSet(parameters).evaluate()
Out[3]: {'Deep_Thought': 42, 'East_River_Creature': 100, 'Elders_of_Krikkit': 10.0}
```

You can also use and reference global constants. This is useful when sharing some values across several sets of formulas:

```
In [4]: parameters = {
...:     'East_River_Creature': {'formula': '2 * Deep_Thought + 16'},
...:     'Elders_of_Krikkit': {'formula': 'sqrt(East_River_Creature)'},
...: }

In [5]: global_parameters = {'Deep_Thought': 42}

In [6]: ParameterSet(parameters, global_parameters).evaluate()
Out[6]: {'East_River_Creature': 100, 'Elders_of_Krikkit': 10.0, 'Deep_Thought': 42}
```

Note that calling `evaluate` will return the global parameter values as well as the local variables.

You can call a `ParameterSet` with a list of new variables and formulas. Note that this new list cannot have reference to itself, only to the parameter set defined earlier. Calling set the `amount` field in the new list:

```
In [7]: another_parameter_list = [
...:     {'formula': 'East_River_Creature + Elders_of_Krikkit'},
...:     {'formula': '42 - Elders_of_Krikkit'},
...:     {'something else': "won't change"}
...: ]

In [8]: ps = ParameterSet(parameters, global_parameters)

In [9]: ps(another_parameter_list)
Out[9]:
[{'u'amount': 110.0, 'formula': 'East_River_Creature + Elders_of_Krikkit'},
 {'u'amount': 32.0, 'formula': '42 - Elders_of_Krikkit'},
 {'something else': "won't change"}]
```

Finally, you can modify the parameters dictionary by adding an `amount` field to all formula parameters:

```
In [10]: ParameterSet(parameters, global_parameters).evaluate_and_set_amount_field()
Out[10]: {'East_River_Creature': 100, 'Elders_of_Krikkit': 10.0}

In [11]: parameters
Out[11]:
{'East_River_Creature': {'u'amount': 100, 'formula': '2 * Deep_Thought + 16'},
 'Elders_of_Krikkit': {'u'amount': 10.0, 'formula': 'sqrt(East_River_Creature)'}}
```

Note the following:

- Variables and formulas must be defined with unique names.

- Variable and formula names can't contradict the existing built-in functions. Available functions are documented in the [asteval documentation](#).
- Formulas should not include the equals sign; instead of `{'formula': 'a = b + c', 'name': 'a'}` do `{'formula': 'b + c', 'name': 'a'}`.
- Formulas can only reference defined variables.

Brightway2-parameters is Python 2.7 & 3.3/3.4 compatible, has 100% test coverage, and is 2-clause BSD licensed and free. Source code [on bitbucket](#).