imp

November 16, 2025

[3]:

```
import pm4py
from pm4py.objects.conversion.bpmn import converter as bpmn_converter
import pandas as pd

from pm4py.objects.log.util import sorting
from pm4py.objects.conversion.log import converter as log_converter

try:
    # Newer API (pm4py >= 2.2)
    from pm4py.algo.evaluation import algorithm as eval_alg
except ImportError:
    # Older API
    from pm4py.evaluation import algorithm as eval_alg
```

[4]:

```
LOG_PATH = "bpi-chall.xes"

elog = pm4py.read_xes(LOG_PATH)

if isinstance(elog, pd.DataFrame):
    elog = log_converter.apply(elog, variant=log_converter.Variants.
 ↪TO_EVENT_LOG)

elog = sorting.sort_timestamp(elog, timestamp_key="time:timestamp")

print(type(elog))
print(f"Number of cases: {len(elog)}")
```

```
parsing log, completed traces :: 100%|      | 31509/31509 [00:29<00:00,
1070.02it/s]

<class 'pm4py.objects.log.obj.EventLog'>
Number of cases: 31509
```

[5]:

```
bpmn_graph = pm4py.read_bpmn("import/diagram-ver-1.bpmn")
net, im, fm = bpmn_converter.apply(bpmn_graph)

metrics = eval_alg.apply(elog, net, im, fm)
print(metrics)
```

```
replaying log with TBR, completed traces :: 100%|      | 15930/15930
[02:37<00:00, 101.46it/s]
replaying log with TBR, completed traces :: 100%|      | 263907/263907
[01:38<00:00, 2671.32it/s]
```

```
{'fitness': {'perc_fit_traces': 0.0, 'average_trace_fitness':
0.5988861730253517, 'log_fitness': 0.5604812400557768,
'percentage_of_fitting_traces': 0.0}, 'precision': 0.4258705254315367,
'generalization': 0.958587368203946, 'simplicity': 0.7391304347826086,
'metricsAverageWeight': 0.671017392118467, 'fscore': 0.4839904961880316}
```

[ ]:

```
bpmn_graph = pm4py.read_bpmn("import/diagram-ver-2.bpmn")
net, im, fm = bpmn_converter.apply(bpmn_graph)

metrics = eval_alg.apply(elog, net, im, fm)
print(metrics)
```

```
replaying log with TBR, completed traces :: 100%|      | 15930/15930
[02:05<00:00, 126.79it/s]
replaying log with TBR, completed traces :: 100%|      | 263907/263907
[01:36<00:00, 2741.04it/s]
```

```
{'fitness': {'perc_fit_traces': 0.0, 'average_trace_fitness':
0.6089833433252885, 'log_fitness': 0.5677412511560701,
'percentage_of_fitting_traces': 0.0}, 'precision': 0.4642573341959193,
'generalization': 0.9577263384648805, 'simplicity': 0.7303370786516854,
'metricsAverageWeight': 0.6800155006171389, 'fscore': 0.5108108548130869}
```

[8]:

```
bpmn_graph = pm4py.read_bpmn("import/diagram-ver-3.bpmn")
net, im, fm = bpmn_converter.apply(bpmn_graph)

metrics = eval_alg.apply(elog, net, im, fm)
print(metrics)
```

```
replaying log with TBR, completed traces :: 100%|      | 15930/15930
[02:22<00:00, 111.64it/s]
replaying log with TBR, completed traces :: 100%|      | 263907/263907
[01:06<00:00, 3959.29it/s]
```

```
{'fitness': {'perc_fit_traces': 0.0, 'average_trace_fitness':
0.5897998211363679, 'log_fitness': 0.5589778570099243,
'percentage_of_fitting_traces': 0.0}, 'precision': 0.6342961392247884,
'generalization': 0.9367445416203679, 'simplicity': 0.7227722772277226,
'metricsAverageWeight': 0.7131977037707008, 'fscore': 0.5942599901318903}
```

[6]:

```
bpmn_high = pm4py.read_bpmn("models/candidate_HM_dep0_1.bpmn")
net, im, fm = bpmn_converter.apply(bpmn_high)

metrics = eval_alg.apply(elog, net, im, fm)
print(metrics)
```

```
replaying log with TBR, completed traces :: 100%|      | 15930/15930
[00:57<00:00, 276.68it/s]
replaying log with TBR, completed traces :: 100%|      | 263907/263907
[02:49<00:00, 1552.72it/s]
```

```
{'fitness': {'perc_fit_traces': 0.0, 'average_trace_fitness':
0.9465848441559679, 'log_fitness': 0.9484026400584812,
'percentage_of_fitting_traces': 0.0}, 'precision': 0.7831687346649673,
'generalization': 0.8948434250535694, 'simplicity': 0.5254237288135593,
'metricsAverageWeight': 0.7879596321476443, 'fscore': 0.8579020263442991}
```

[9]:

```
bpmn_graph = pm4py.read_bpmn("import/diagram-ver-4.bpmn")
net, im, fm = bpmn_converter.apply(bpmn_graph)

metrics = eval_alg.apply(elog, net, im, fm)
print(metrics)
```

```
replaying log with TBR, completed traces :: 100%|      | 15930/15930
[02:21<00:00, 112.58it/s]
replaying log with TBR, completed traces :: 100%|      | 263907/263907
[00:57<00:00, 4610.15it/s]
```

```
{'fitness': {'perc_fit_traces': 0.0, 'average_trace_fitness':
0.5884702904596485, 'log_fitness': 0.5572426592489195,
'percentage_of_fitting_traces': 0.0}, 'precision': 0.48755901118183886,
'generalization': 0.914150784507872, 'simplicity': 0.7009345794392523,
'metricsAverageWeight': 0.6649717585944707, 'fscore': 0.5200770397308568}
```

[10]:

```
bpmn_graph = pm4py.read_bpmn("import/diagram-ver-5.bpmn")
net, im, fm = bpmn_converter.apply(bpmn_graph)

metrics = eval_alg.apply(elog, net, im, fm)
print(metrics)
```

```
replaying log with TBR, completed traces :: 100%|      | 15930/15930
[02:21<00:00, 112.57it/s]
replaying log with TBR, completed traces :: 100%|      | 263907/263907
[00:57<00:00, 4558.09it/s]
```

```
{'fitness': {'perc_fit_traces': 0.0, 'average_trace_fitness': 0.594000496063338,
'log_fitness': 0.5623686303968428, 'percentage_of_fitting_traces': 0.0},
'precision': 0.48755901118183886, 'generalization': 0.9152437987811822,
'simplicity': 0.6851851851851851, 'metricsAverageWeight': 0.6625891563862623,
'fscore': 0.5222986470642835}
```

[11]:

```
bpmn_graph = pm4py.read_bpmn("import/diagram-ver-6.bpmn")
net, im, fm = bpmn_converter.apply(bpmn_graph)

metrics = eval_alg.apply(elog, net, im, fm)
print(metrics)
```

```
replaying log with TBR, completed traces :: 100%|      | 15930/15930
[06:12<00:00, 42.74it/s]
replaying log with TBR, completed traces :: 100%|      | 263907/263907
[01:26<00:00, 3064.78it/s]
```

```
{'fitness': {'perc_fit_traces': 0.0, 'average_trace_fitness':
0.6540925083216095, 'log_fitness': 0.6258973376965458,
'percentage_of_fitting_traces': 0.0}, 'precision': 0.568378095517758,
'generalization': 0.9440476542894795, 'simplicity': 0.690909090909091,
'metricsAverageWeight': 0.7073080446032185, 'fscore': 0.5957525825213248}
```

```
[12]: bpmn_graph = pm4py.read_bpmn("import/diagram-ver-7.bpmn")
      net, im, fm = bpmn_converter.apply(bpmn_graph)

      metrics = eval_alg.apply(elog, net, im, fm)
      print(metrics)
```

```
replaying log with TBR, completed traces :: 100%|      | 15930/15930
[06:25<00:00, 41.33it/s]
replaying log with TBR, completed traces :: 100%|      | 263907/263907
[02:36<00:00, 1687.17it/s]
```

```
{'fitness': {'perc_fit_traces': 0.0, 'average_trace_fitness':
0.7259423845539759, 'log_fitness': 0.7211319580530586,
'percentage_of_fitting_traces': 0.0}, 'precision': 0.3225723796732639,
'generalization': 0.9150729389944777, 'simplicity': 0.6879432624113474,
'metricsAverageWeight': 0.6616801347830369, 'fscore': 0.44575315701832746}
```

```
[13]: bpmn_graph = pm4py.read_bpmn("import/diagram-ver-8.bpmn")
      net, im, fm = bpmn_converter.apply(bpmn_graph)

      metrics = eval_alg.apply(elog, net, im, fm)
      print(metrics)
```

```
replaying log with TBR, completed traces :: 100%|      | 15930/15930
[06:26<00:00, 41.25it/s]
replaying log with TBR, completed traces :: 100%|      | 263907/263907
[02:55<00:00, 1507.56it/s]
```

```
{'fitness': {'perc_fit_traces': 0.0, 'average_trace_fitness':
0.6989051589375617, 'log_fitness': 0.7018699681216896,
'percentage_of_fitting_traces': 0.0}, 'precision': 0.28191802039692837,
'generalization': 0.8431827232469645, 'simplicity': 0.6729559748427673,
'metricsAverageWeight': 0.6249816716520874, 'fscore': 0.40226104465225904}
```

```
[14]: bpmn_graph = pm4py.read_bpmn("import/diagram-ver-9.bpmn")
      net, im, fm = bpmn_converter.apply(bpmn_graph)

      metrics = eval_alg.apply(elog, net, im, fm)
      print(metrics)
```

```
replaying log with TBR, completed traces :: 100%|      | 15930/15930
[04:01<00:00, 66.05it/s]
replaying log with TBR, completed traces :: 100%|      | 263907/263907
[04:43<00:00, 929.38it/s]
```

```
{'fitness': {'perc_fit_traces': 0.0, 'average_trace_fitness': 0.795144194260723,
'log_fitness': 0.8520945489268186, 'percentage_of_fitting_traces': 0.0},
'precision': 0.1605281585750855, 'generalization': 0.8334228312373719,
'simplicity': 0.668639053254438, 'metricsAverageWeight': 0.6286711479984285,
'fscore': 0.27016018475140324}
```

[15]:
```
bpmn_graph = pm4py.read_bpmn("import/diagram-ver-9-final.bpmn")
net, im, fm = bpmn_converter.apply(bpmn_graph)

metrics = eval_alg.apply(elog, net, im, fm)
print(metrics)
```

```
replaying log with TBR, completed traces :: 100%|      | 15930/15930
[04:02<00:00, 65.56it/s]
replaying log with TBR, completed traces :: 100%|      | 263907/263907
[04:43<00:00, 931.54it/s]
```

```
{'fitness': {'perc_fit_traces': 0.0, 'average_trace_fitness':
0.7951972367964067, 'log_fitness': 0.8520777865368468,
'percentage_of_fitting_traces': 0.0}, 'precision': 0.1605281585750855,
'generalization': 0.8333896979800217, 'simplicity': 0.668639053254438,
'metricsAverageWeight': 0.628658674086598, 'fscore': 0.2701593422313455}
```

[ ]:
```

```