

Monolithic Preconditions Report

DISPLAY Lab

27 February, 2020

Performer Tabulation

How many performers had an acceptable paver?

Proportion of performers with at least one acceptable paver broken down by month. Total number of performers is 7225.

months_ago	subject	what	which	value	taylor_rate
0	perf	count	with_accept	4755	0.6581315
1	perf	count	with_accept	5150	0.7128028
2	perf	count	with_accept	4691	0.6492734
3	perf	count	with_accept	4617	0.6390311
4	perf	count	with_accept	4554	0.6303114
5	perf	count	with_accept	4347	0.6016609

Paver Definition

A paver is bite sized information about the performance annotation of a particular performer, measure, and comparator. It represents the unit the causal pathways are designed to operate on. So when a performer has an acceptable paver, it means they have annotations about a measure and comparator that satisfies the preconditions of a causal pathway.

Paver Tabulation

How many pavers are there?

Number of pavers is the same across all months due to analysis method. All of performers in this data had to have sufficient data to generate one paver. Performers without sufficient data (denominator < 10 for all measures) were previously excluded.

Number.of.Pavers	Number.of.Performers
201842	7225

How many acceptable pavers are there?

months_ago	accepted_count	count
0	120388	201842
1	135024	201842
2	115392	201842
3	111532	201842
4	106943	201842
5	106846	201842

How many pavers did each causal pathway accept?

which	months_ago_0	months_ago_1	months_ago_2
http://example.com/slowmo#BenchAchievement	1882	2367	2174
http://example.com/slowmo#BenchDiff	19676	22247	18744
http://example.com/slowmo#GoalAchievement	1366	1640	1489
http://example.com/slowmo#GoalDiff	18281	20411	16935
http://example.com/slowmo#HighBench	44173	47281	39693
http://example.com/slowmo#NegativeTrend	28240	32355	29312
http://example.com/slowmo#PositiveTrend	28725	33053	29115

which	months_ago_3	months_ago_4	months_ago_5
http://example.com/slowmo#BenchAchievement	2751	3416	5807
http://example.com/slowmo#BenchDiff	17987	17750	16694
http://example.com/slowmo#GoalAchievement	1866	2132	3721
http://example.com/slowmo#GoalDiff	16250	15940	14889
http://example.com/slowmo#HighBench	38646	37585	35906
http://example.com/slowmo#NegativeTrend	27577	26005	25217
http://example.com/slowmo#PositiveTrend	28419	25823	27145

How many pavers per performer?

NOTE: Uniform avg number of pavers is artifact of having an annotation (e.g. comparator type) always be applicable. This means what is counted here is the number of measures-comparators for which sufficient data is was available.

which	name	months_ago_0	months_ago_1
acceptable_candidates	avg	17.91125	18.22718
acceptable_candidates	max	33.00000	33.00000
acceptable_candidates	min	1.00000	1.00000
candidates	avg	27.93661	27.93661
candidates	max	42.00000	42.00000
candidates	min	2.00000	2.00000

which	name	months_ago_2	months_ago_3	months_ago_4
acceptable_candidates	avg	16.79855	16.45874	16.12033
acceptable_candidates	max	33.00000	33.00000	33.00000
acceptable_candidates	min	1.00000	1.00000	1.00000
candidates	avg	27.93661	27.93661	27.93661
candidates	max	42.00000	42.00000	42.00000
candidates	min	2.00000	2.00000	2.00000

Annotation tabulation

How many times does each annotation appear in the performers?

which	months_ago_0	months_ago_1	months_ago_2
http://example.com/slowmo#Achievement	4766	2261	2684
http://purl.obolibrary.org/obo/psdo_0000094	100921	100921	100921
http://purl.obolibrary.org/obo/psdo_0000095	100921	100921	100921
http://purl.obolibrary.org/obo/psdo_0000099	25026	28930	25300
http://purl.obolibrary.org/obo/psdo_0000100	24562	28248	25492
http://purl.obolibrary.org/obo/psdo_0000104	79497	85321	71334
http://purl.obolibrary.org/obo/psdo_0000105	29598	33529	27603
http://purl.obolibrary.org/obo/psdo_0000106	109095	109095	109095

which	months_ago_3	months_ago_4	months_ago_5
http://example.com/slowmo#Achievement	3340	3806	5822
http://purl.obolibrary.org/obo/psdo_0000094	100921	100921	100921
http://purl.obolibrary.org/obo/psdo_0000095	100921	100921	100921
http://purl.obolibrary.org/obo/psdo_0000099	24678	22310	23570
http://purl.obolibrary.org/obo/psdo_0000100	23852	22486	21734
http://purl.obolibrary.org/obo/psdo_0000104	69335	67361	64376
http://purl.obolibrary.org/obo/psdo_0000105	26387	25965	24258
http://purl.obolibrary.org/obo/psdo_0000106	109095	109095	109095

Stepping Back Analysis Method

Special Annotation

A stepping backwards preconditions analysis is accomplished by way of a special annotation function. It filters the data back x number of months and runs the other annotations that are temporally dependent. The annotations that have been run on data with x months filtered out are named specially with $_x$ appended. For example, `positive_performance_gap_3` indicates a positive performance gap in the data 3 months back.

Query After Swapping Annotation IRIS

Initially the pavers are evaluated by applying causal pathway preconditions and querying the results. To step back and evaluate what the pavers would have been x months ago, the annotations need to be altered to match the IRIs the causal pathways operate on. This is accomplished by a simple IRI swapping scheme where the standard annotation gets swapped for the equivalent $x-1$ special annotation, and the x special annotation gets swapped for the standard.

For example, after initial evaluation and query, stepping 1 month back:

1. All instances of `psdo_0000104` changed to `positive_performance_gap_0`
2. All instances of `positive_performance_gap_1` changed to `psdo_0000104`
3. Swapping is also performed for:
 - `psdo_0000105`
 - `psdo_0000100`
 - `psdo_0000099`
 - `slowmo#Achievement`
4. Existing triples of the form `paver acceptable_by causal_pathway` are deleted removing accepted from the previous IRI set.
5. Causal pathways are applied writing in new `paver acceptable_by causal_pathway` based on the newly swapped IRIs.
6. Summary queries are run and collected into summary file