

Generator	Dimension	Model Property Iteration	Our Model Plausibility	Proximity	Sparsity	D4EL Plausibility	Proximity	Sparsity
CBG-CBGW-IM	Activity	0	0.320000	4.114943	9.000000	0.160000	4.178792	11.000000
		1	0.240000	3.862351	7.840000	0.120000	4.529252	17.420000
		2	0.160000	3.791798	7.680000	0.080000	4.493975	17.340000
		3	0.180000	4.179553	9.640000	0.090000	4.687853	18.320000
		4	0.280000	4.560320	12.260000	0.140000	4.878236	19.630000
		5	0.400000	4.258332	10.720000	0.200000	4.727242	18.860000
	Resource	0	0.000000	4.251903	17.920000	0.000000	4.724028	21.460000
		1	0.000000	3.818159	14.720000	0.000000	3.779908	14.360000
		2	0.000000	3.918192	15.500000	0.000000	3.829925	14.750000
		3	0.000000	4.283800	18.340000	0.000000	4.263220	18.170000
		4	0.000000	4.681512	21.820000	0.000000	4.685964	21.910000
		5	0.000000	4.168343	17.400000	0.000000	4.263621	18.200000
ES-EGW-CBI-ES-UC3-SBM-RR-IM	Activity	0	0.000000	4.123106	6.000000	0.000000	4.659629	16.500000
		1	0.000000	3.872983	2.000000	0.000000	4.534568	14.500000
		2	0.000000	3.741657	4.000000	0.000000	4.468905	15.500000
		3	0.000000	3.875524	3.020000	0.000000	4.535838	15.010000
		4	0.000000	4.582576	8.000000	0.000000	4.889364	17.500000
		5	0.000000	4.242641	7.000000	0.000000	4.719397	17.000000
	Resource	0	0.000000	4.123106	17.000000	0.000000	4.182873	17.500000
		1	0.000000	3.492392	11.200000	0.000000	3.617024	12.600000
		2	0.000000	2.965685	8.800000	0.000000	3.353671	11.400000
		3	0.000000	4.242641	17.640000	0.000000	4.242641	17.820000
		4	0.000000	4.795832	23.000000	0.000000	4.743124	22.500000
		5	0.000000	4.000000	16.000000	0.000000	4.179449	17.500000
ES-EGW-CBI-RWS-OPC-SBM-FSR-IM	Activity	0	0.000000	4.123106	6.000000	0.000000	4.659629	16.500000
		1	0.000000	3.741657	3.000000	0.000000	4.468905	15.000000
		2	0.000000	3.741657	4.000000	0.000000	4.468905	15.500000
		3	0.000000	4.000000	4.000000	0.000000	4.598076	15.500000
		4	0.000000	4.472136	5.000000	0.000000	4.834144	16.000000
		5	0.000000	4.242641	6.000000	0.000000	4.719397	16.500000
	Resource	0	0.000000	4.000000	14.000000	0.000000	4.121320	16.000000
		1	0.000000	4.358899	16.000000	0.000000	4.050278	15.000000
		2	0.000000	2.236068	5.000000	0.000000	2.988863	9.500000
		3	0.000000	4.123106	15.000000	0.000000	4.182873	16.500000
		4	0.000000	4.582576	21.000000	0.000000	4.636496	21.500000
		5	0.000000	3.872983	15.000000	0.000000	4.115941	17.000000
RG-RGW-IM	Activity	0	0.000000	4.832195	20.960000	0.000000	5.014174	23.980000
		1	0.000000	4.822574	20.380000	0.000000	5.009363	23.690000
		2	0.000000	4.856500	20.460000	0.000000	5.026326	23.730000
		3	0.000000	4.805536	20.800000	0.000000	5.000844	23.900000
		4	0.000000	4.794502	21.740000	0.000000	4.995327	24.370000
		5	0.000000	4.731463	20.580000	0.000000	4.963807	23.790000
	Resource	0	0.000000	4.242641	18.000000	0.000000	4.242641	18.000000
		1	0.000000	3.741657	14.000000	0.000000	3.741657	14.000000
		2	0.000000	3.741657	14.000000	0.000000	3.741657	14.000000
		3	0.000000	4.242641	18.000000	0.000000	4.242641	18.000000
		4	0.000000	4.690416	22.000000	0.000000	4.690416	22.000000
		5	0.000000	4.358899	19.000000	0.000000	4.358899	19.000000

Table 1: A comparison between our model and D4EL

Table 1 shows how each model scores under different operationalisations of viability aspects. They were derived from **hsieh'DiCE4ELInterpretingProcess'2021's** custom evaluation protocol and aim to provide a better comparison. Each value reflects the mean across all counterfactual results per model.

The results show that diversity is the highest for the evolutionary algorithm in terms of activity traces and resource traces. The Random-Search Generator displays low diversity for activities generated and a higher diversity for the resource.

Only the Casebased-Search Generator reaches a maximum score of 1 for plausibility. All the other models are far below or 0.

In terms of proximity, the Casebased-Search Generator has the lowest activity proximity. The average distance is 12.55. The SBI-ES-OPC-SBM-FSR Generator takes the second place. Interestingly, the gap between the proximity for activities is larger than the gap between proximities in terms of resources.

Again, the Casebased-Search Generator has the lowest sparsity with 9.34 in terms of activity but only remains slightly better than SBI-ES-OPC-SBM-FSR Generator in terms of resources.

The results suggest that the SBI-ES-OPC-SBM-FSR Generator is capa-

ble of producing very diverse counterfactual solutions, but cannot compete with the Casebased-Search Generator in terms of plausibility, proximity and sparsity. Hence, the Casebased-Search Generator is completely plausible given the data, is closer to the factual on average and displays less changes.

However, this only holds for the activities that are generated. In terms of resources that were generated, the Casebased-Search Generator is just slightly better.