

In the result tables you can see 4 factuals with the best counterfactual the model produced.

Table 1: Shows a factual and the corresponding counterfactual generated. This counterfactual was generated by the evolutionary algorithm. It is the result which appears to have the highest viability score.

Factual Sequence Activity	Amount	Resource	Outcome	Counterfactual Sequence Activity	Amount	Resource	Outcome
A-SUBMITTED	20 000	112	1				
A-PARTLYSUBMITTED	20 000	112	1				
A-PREACCEPTED	20 000	112	1				
A-ACCEPTED	20 000	9	1				
A-FINALIZED	20 000	9	1				
O-SELECTED	20 000	9	1				
O-CREATED	20 000	9	1				
O-SENT	20 000	9	1				
W-Completeren aanvraag	20 000	9	1				
W-Nabellen offertes	20 000	1	1				
O-SELECTED	20 000	112	1				
O-CANCELLED	20 000	112	1				
O-CREATED	20 000	112	1	A-SUBMITTED	11 838	112	0
O-SENT	20 000	112	1	A-PARTLYSUBMITTED	23 074	112	0
W-Nabellen offertes	20 000	112	1	A-PREACCEPTED	17 859	861	0
W-Nabellen offertes	20 000	112	1	A-ACCEPTED	12 755	935	0
W-Nabellen offertes	20 000	11181	1	O-SELECTED	10 052	112	0
W-Nabellen offertes	20 000	113	1	W-Completeren aanvraag	17 745	149	0
W-Nabellen offertes	20 000	111	1	W-Nabellen offertes	-5 005	149	0
W-Nabellen offertes	20 000	982	1	O-SELECTED	15 726	779	0
W-Nabellen offertes	20 000	103	1	W-Nabellen offertes	9 432	11119	0
W-Nabellen offertes	20 000	111	1	W-Nabellen offertes	12 500	861	0
A-CANCELLED	20 000	111	1	W-Nabellen offertes	28 599	11319	0
O-CANCELLED	20 000	111	1	W-Nabellen offertes	12 582	11319	0
W-Nabellen offertes	20 000	111	1	A-CANCELLED	3 868	149	0
				A-APPROVED	8 820	913	0

Table 2: Shows a factual and the corresponding counterfactual generated. This counterfactuals was generated by the case-based model. The counterfactual seems far more viable than the one generated by the evolutionary algorithm.

Factual Sequence Activity	Amount	Resource	Outcome	Counterfactual Sequence Activity	Amount	Resource	Outcome
A-SUBMITTED	5 000	112	0				
A-PARTLYSUBMITTED	5 000	112	0				
A-PREACCEPTED	5 000	112	0				
A-ACCEPTED	5 000	11169	0				
O-SELECTED	5 000	11169	0				
A-FINALIZED	5 000	11169	0				
O-CREATED	5 000	11169	0				
O-SENT	5 000	11169	0				
W-Completeren aanvraag	5 000	11169	0				
W-Nabellen offertes	5 000	912	0	A-SUBMITTED	9 200	112	1
W-Nabellen offertes	5 000	933	0	A-PARTLYSUBMITTED	9 200	112	1
O-SENT-BACK	5 000	11259	0	A-PREACCEPTED	9 200	112	1
W-Nabellen offertes	5 000	11259	0	A-ACCEPTED	9 200	931	1
W-Valideren aanvraag	5 000	138	0	O-SELECTED	9 200	931	1
W-Valideren aanvraag	5 000	138	0	A-FINALIZED	9 200	931	1
W-Nabellen incomplete dossiers	5 000	11181	0	O-CREATED	9 200	931	1
W-Nabellen incomplete dossiers	5 000	899	0	O-SENT	9 200	931	1
A-APPROVED	5 000	138	0	W-Completeren aanvraag	9 200	931	1
O-ACCEPTED	5 000	138	0	W-Nabellen offertes	9 200	913	1
A-REGISTERED	5 000	138	0	A-CANCELLED	9 200	112	1
A-ACTIVATED	5 000	138	0	O-CANCELLED	9 200	112	1
W-Valideren aanvraag	5 000	138	0	W-Nabellen offertes	9 200	913	1

Across all examples, we see the bias of the viability measure. Every counterfactual is shorter in length than their factual counterpart. We also see, that the value for *Amount* fluctuates heavily for the evolutionary generator. **[FOR XIXI: Should I just average the amount?]** Similar, holds for

the resource field. All models manage to capture the first three activities and its resource. Also, the counterfactual outcome is the opposite of the factual outcome in all cases. Hence, the each generator successfully inverts the model prediction. Furthermore, each model captures the starting events, quite well.

We see this in Table 1 and Table 2. Furthermore, the model with the highest feasibility among the Evolutionary Algorithm Generator generated counterfactuals, is also the one with the highest viability.

Table 2 displays a counterfactual generated by the Casebased-Search Generator . We see that its result appears to be more viable upon inspection. Here, all Amount variables are below the factual Amount. Hsieh et al. interprets this as a reasonable result. The authors state, that we can interpret the result as having better chances of a successful loan application process if we request a lower loan. The results for the Casebased-Search Generator tells us, that the viability measure *does* capture a notion of viability. However, it is not enough to generated realistic counterfactuals for models that optimize it.