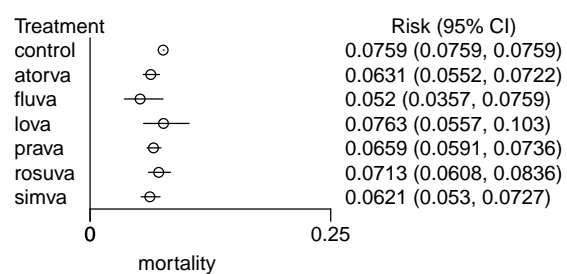
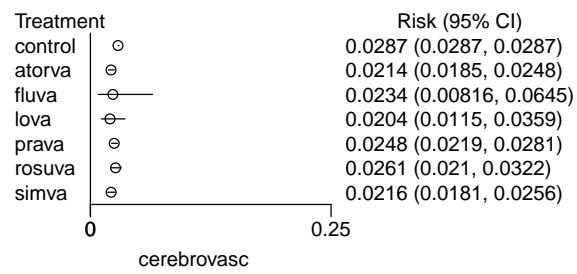
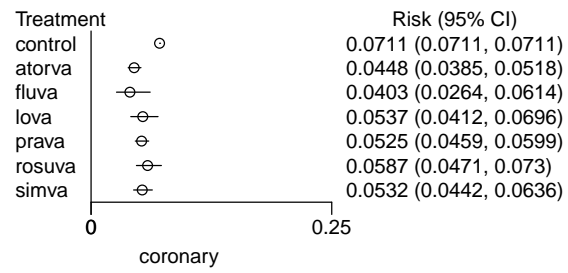


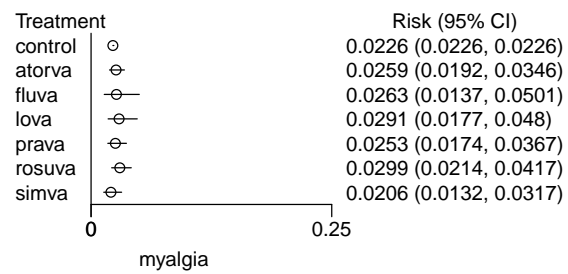
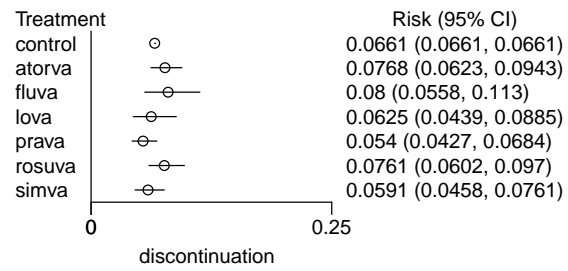
1 Measurements

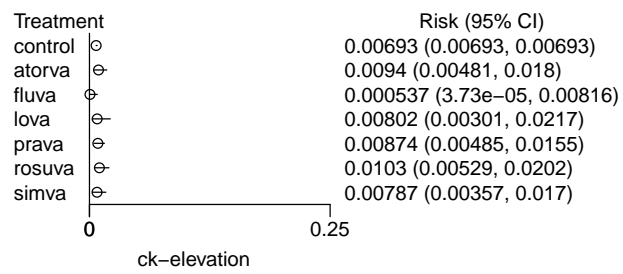
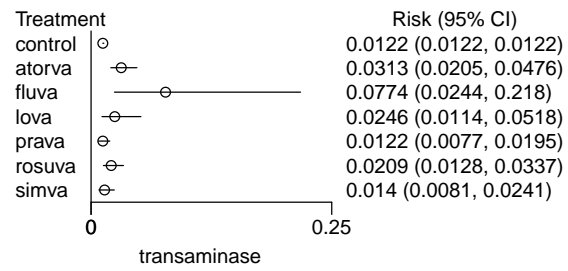
1.1 Absolute risk

Measurement distributions of the absolute risk of events based on the assumed absolute risk for placebo and log-odds ratios derived from an MTC:









1.2 Partial values

Partial value functions derived from the absolute risk (all criteria scaled from 25% incidence as worst (value = 0) to 0% incidence as best (value = 1)):

\$mortality

	control	atorva	fluva	lova	prava	rosuva	simva
2.5%	0.696	0.711	0.697	0.589	0.706	0.666	0.709
50%	0.696	0.748	0.792	0.695	0.736	0.715	0.752
97.5%	0.696	0.779	0.857	0.777	0.764	0.757	0.788

\$coronary

	control	atorva	fluva	lova	prava	rosuva	simva
2.5%	0.715	0.793	0.754	0.722	0.760	0.708	0.746
50%	0.715	0.821	0.839	0.785	0.790	0.765	0.787
97.5%	0.715	0.846	0.894	0.835	0.816	0.811	0.823

\$cerebrovasc

	control	atorva	fluva	lova	prava	rosuva	simva
2.5%	0.885	0.901	0.742	0.857	0.888	0.871	0.897
50%	0.885	0.914	0.906	0.919	0.901	0.896	0.914
97.5%	0.885	0.926	0.967	0.954	0.912	0.916	0.928

\$discontinuation

	control	atorva	fluva	lova	prava	rosuva	simva
2.5%	0.736	0.623	0.548	0.646	0.726	0.612	0.696
50%	0.736	0.693	0.680	0.750	0.784	0.696	0.763
97.5%	0.736	0.751	0.777	0.824	0.829	0.759	0.817

\$myalgia

	control	atorva	fluva	lova	prava	rosuva	simva
2.5%	0.909	0.861	0.800	0.808	0.853	0.833	0.873
50%	0.909	0.896	0.895	0.884	0.899	0.881	0.918
97.5%	0.909	0.923	0.945	0.929	0.930	0.914	0.947

\$transaminase

	control	atorva	fluva	lova	prava	rosuva	simva
2.5%	0.951	0.810	0.130	0.793	0.922	0.865	0.904
50%	0.951	0.875	0.691	0.902	0.951	0.916	0.944
97.5%	0.951	0.918	0.902	0.955	0.969	0.949	0.968

\$`ck-elevation`

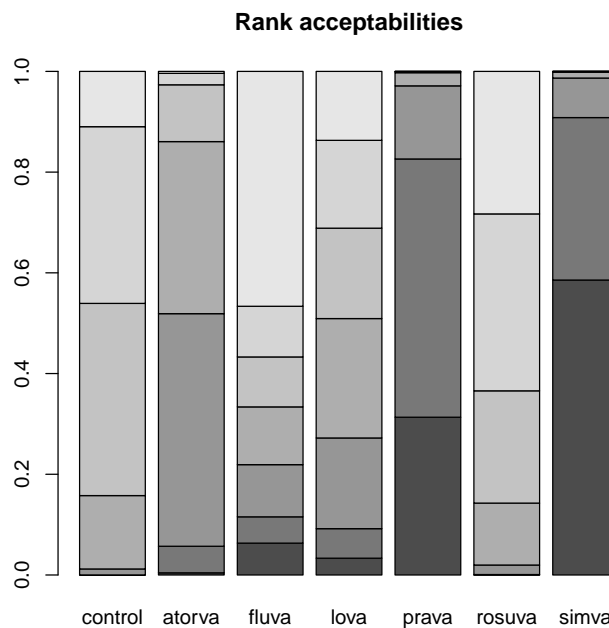
	control	atorva	fluva	lova	prava	rosuva	simva
2.5%	0.972	0.928	0.967	0.913	0.938	0.919	0.932
50%	0.972	0.962	0.998	0.968	0.965	0.959	0.969
97.5%	0.972	0.981	1.000	0.988	0.981	0.979	0.986

2 Analysis

I first reproduce your analysis with arbitrarily fixed weights based on the partial value functions defined above. Then I proceed to some more "advanced" (but also more informative) SMAA type analyses.

2.1 Arbitrarily weighted

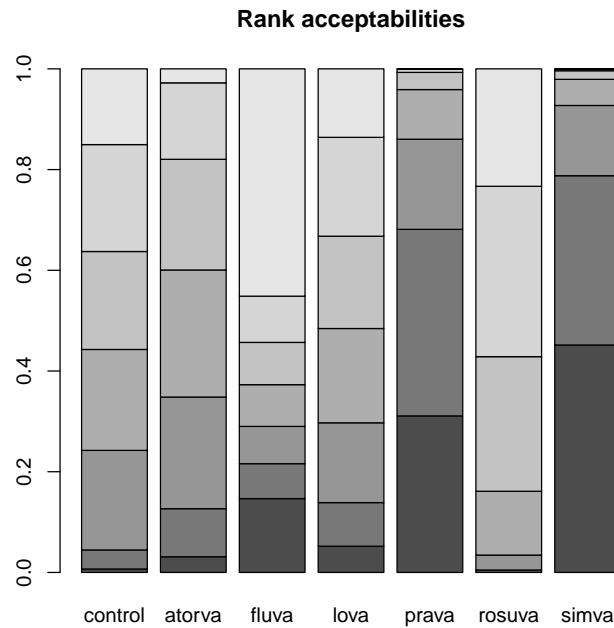
The criteria are weighted as follows: mortality, coronary events, cerebrovascular events 1/6 and all remaining criteria 1/8. This results in the following rank acceptabilities:



Based on this weighting, simvastatin and pravastatin appear to be most likely to be preferred. Fluvastatin and lovastatin have significantly non-zero probabilities for both the worst and best ranks (i.e. have a very high uncertainty). Unfortunately, these results tell us nothing about the sensitivity of these results to the weights.

2.2 Preference free

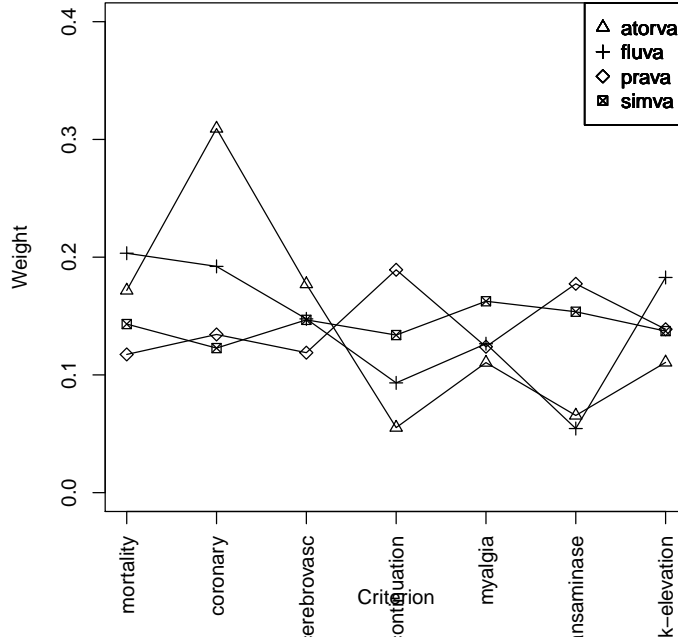
A preference free analysis does not fix the weights at any specific value, but rather allows them to take any reasonable value. Thus, it produces rank acceptabilities 'averaged' over all possible weightings. Because the previous analysis had weights very close to equal, we would expect this analysis to have results similar to the previous one, but with more uncertainty (because sensitivity to the weighting is taken into account).



Because we look at all possible weights, we can also show which weights would ‘typically’ favor a certain alternative: the central weights.

Central weights (N = 10000 iterations):

	mortality	coronary	cerebrovasc	discontinuation	myalgia	transaminase
control	0.0532	0.0323	0.0926	0.0825	0.280	0.2442
atorva	0.1717	0.3093	0.1771	0.0553	0.110	0.0655
fluva	0.2033	0.1922	0.1476	0.0932	0.126	0.0544
lova	0.1015	0.1441	0.2128	0.1533	0.119	0.1149
prava	0.1174	0.1344	0.1189	0.1893	0.124	0.1774
rosuva	0.1339	0.1769	0.1472	0.0667	0.144	0.1529
simva	0.1432	0.1228	0.1468	0.1338	0.163	0.1537
ck-elevation						
control	0.216					
atorva	0.111					
fluva	0.183					
lova	0.155					
prava	0.139					
rosuva	0.179					
simva	0.137					



In the above plot, I only show central weights that have a confidence factor above 0.10, so as to show the most interesting ones. These are all the confidence factors:

control	atorva	fluva	lova	prava	rosuva	simva
0.0603	0.1882	0.3107	0.0503	0.4675	0.0001	0.6135

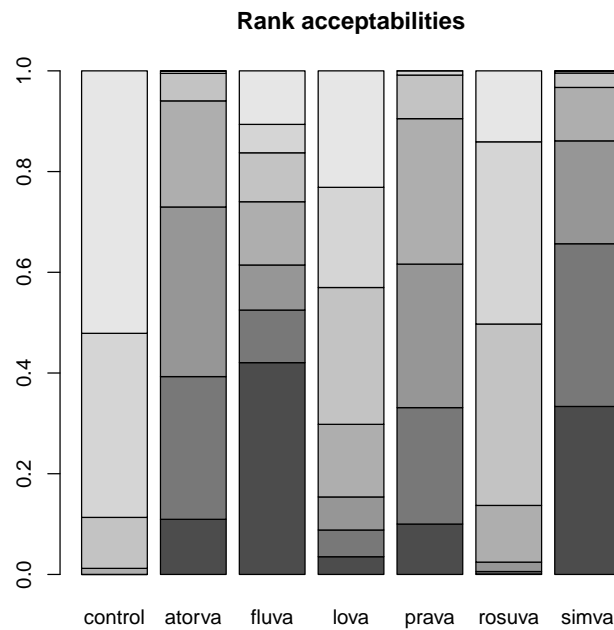
To me, some of these ‘typical’ weightings that would support each alternative are rather unrealistic. For example, I would be surprised if anyone would think that discontinuation due to adverse events is more important than mortality.

2.3 Ordinal preferences

In this analysis, I incorporated some straightforward qualitative preference information:

- Preventing mortality is more important than either coronary or cerebrovascular events (individually)
- Preventing coronary events is more important than any of the adverse events (individually)
- Preventing cerebrovascular events is more important than any of the adverse events (individually)

No statements are made regarding the relative importance of coronary versus cerebrovascular events, nor regarding the relative importance of the adverse events.



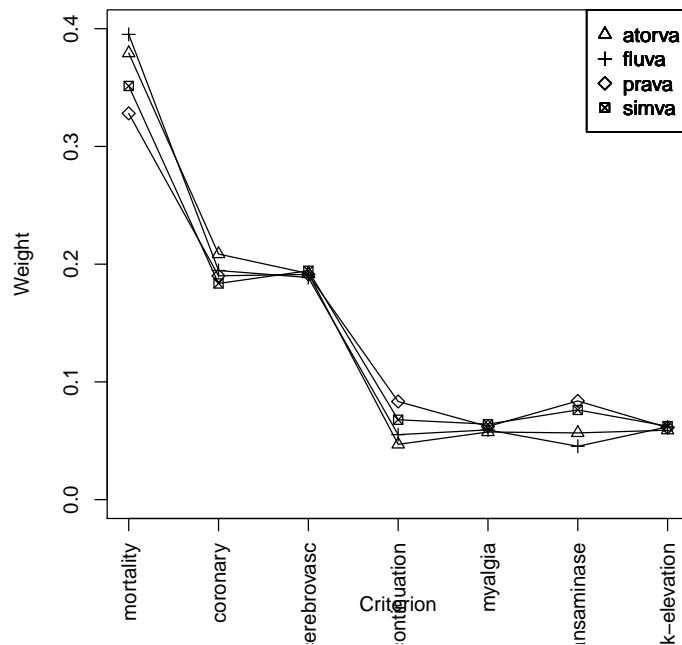
Central weights (N = 10000 iterations):

	mortality	coronary	cerebrovasc	discontinuation	myalgia	transaminase
control	NA	NA	NA	NA	NA	NA
atorva	0.379	0.209	0.192	0.0470	0.0575	0.0567
fluva	0.395	0.195	0.189	0.0552	0.0593	0.0453
lova	0.362	0.188	0.201	0.0647	0.0589	0.0657
prava	0.328	0.190	0.191	0.0833	0.0621	0.0838
rosuva	0.518	0.173	0.156	0.0208	0.0386	0.0569
simva	0.351	0.184	0.194	0.0679	0.0641	0.0762

ck-elevation

control	NA
atorva	0.0590
fluva	0.0618
lova	0.0588
prava	0.0612
rosuva	0.0361
simva	0.0624

control	atorva	fluva	lova	prava	rosuva	simva
0.0000	0.1480	0.5022	0.0370	0.1575	0.0022	0.4147



2.3.1 Benefit and harm scores

I tried to make "something like Figure 4", based on the utility estimated by SMAA. My main conclusion from the plot would be that control, lovastatin and rosuvastatin appear to be (stochastically) dominated by the others.

	control	atorva	fluva	lova	prava	rosuva	simva
2.5%	0.542	0.573	0.557	0.524	0.562	0.539	0.564
25%	0.542	0.582	0.588	0.549	0.570	0.553	0.575
50%	0.542	0.587	0.601	0.561	0.574	0.560	0.580
75%	0.542	0.591	0.613	0.572	0.578	0.567	0.586
97.5%	0.542	0.599	0.631	0.592	0.585	0.578	0.595

	control	atorva	fluva	lova	prava	rosuva	simva
2.5%	0.251	0.231	0.160	0.232	0.248	0.235	0.245
25%	0.251	0.237	0.206	0.241	0.252	0.241	0.250
50%	0.251	0.239	0.221	0.245	0.253	0.243	0.252
75%	0.251	0.242	0.232	0.249	0.255	0.245	0.253
97.5%	0.251	0.246	0.246	0.254	0.257	0.249	0.257

