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Nominal Logistic Fit for converged**Effect Summary**

| Source | Logworth | PValue |
|--------------------|----------|-----------|
| app_id | 27.334 | 0.00000 |
| version | 19.336 | 0.00000 |
| rag | 6.697 | 0.00000 |
| app_id*rag | 4.270 | 0.00005 |
| app_id*summarized | 2.963 | 0.00109 |
| app_id*version | 1.714 | 0.01931 |
| version*summarized | 1.486 | 0.03266 |
| version*rag | 0.967 | 0.10799 |
| rag*summarized | 0.771 | 0.16934 |
| summarized | 0.092 | 0.80988 ^ |

Converged in Gradient, 6 iterations

Iterations

| Iter | Objective | Relative Gradient | Norm Gradient |
|------|--------------|-------------------|---------------|
| 0 | 658.48982153 | 16.221147173 | 209.36212647 |
| 1 | 515.71433249 | 3.7217968354 | 31.185492474 |
| 2 | 507.83581804 | 1.0732747577 | 5.6653900885 |
| 3 | 507.20937011 | 0.1642613091 | 0.6873093205 |
| 4 | 507.19563221 | 0.0046856837 | 0.0190403869 |
| 5 | 507.19562122 | 4.1247017e-6 | 0.0000172895 |
| 6 | 507.19562122 | 3.286341e-12 | 1.42021e-11 |

Whole Model Test

| Model | -LogLikelihood | DF | ChiSquare | Prob>ChiSq |
|------------|----------------|----|-----------|------------|
| Difference | 150.18008 | 32 | 300.3602 | <.0001* |
| Full | 507.19562 | | | |
| Reduced | 657.37570 | | | |

| | |
|----------------------------|---------|
| RSquare (U) | 0.2285 |
| AICc | 1087.15 |
| BIC | 1254.37 |
| Observations (or Sum Wgts) | 950 |

Fit Details

| Measure | Training Definition |
|------------------------|--|
| Entropy RSquare | 0.2285 1-Loglike(model)/Loglike(0) |
| Generalized RSquare | 0.3617 (1-(L(0)/L(model))^(2/n))/(1-L(0)^(2/n)) |
| Mean -Log p | 0.5339 $\sum -\text{Log}(\rho[j])/\text{n}$ |
| RASE | 0.4250 $\sqrt{\sum (y[j]-\rho[j])^2/\text{n}}$ |
| Mean Abs Dev | 0.3605 $\sum y[j]-\rho[j] /\text{n}$ |
| Misclassification Rate | 0.2789 $\sum (\rho[j] \neq \rho[\text{Max}])/\text{n}$ |
| N | 950 n |

Lack Of Fit

| Source | DF | -LogLikelihood | ChiSquare |
|-------------|----|----------------|------------|
| Lack Of Fit | 27 | 11.18939 | 22.37878 |
| Saturated | 59 | 496.00623 | Prob>ChiSq |
| Fitted | 32 | 507.19562 | 0.7179 |

Parameter Estimates

| Term | | Estimate | Std Error | ChiSquare | Prob>ChiSq | Lower 95% | Upper 95% |
|-----------------------------|--------|------------|-----------|-----------|------------|------------|------------|
| Intercept | Biased | 0.81383202 | 0.1861437 | 19.11 | <.0001* | 0.45449466 | 1.18645236 |
| app_id[WordPress] | Biased | 3.74695354 | 0.6727324 | 31.02 | <.0001* | 2.45603358 | 5.06548476 |
| app_id[Stack4Things] | Biased | -1.7956366 | 0.3592174 | 24.99 | <.0001* | -2.5562873 | -1.1304485 |
| app_id[Open Energy Monitor] | Biased | 0.21784659 | 0.251828 | 0.75 | 0.3870 | -0.2707638 | 0.72169845 |
| app_id[JetRacer] | Biased | -0.6227102 | 0.204375 | 9.28 | 0.0023* | -1.0307529 | -0.2269637 |
| app_id[eWeLink] | Biased | 0.52716586 | 0.2055575 | 6.58 | 0.0103* | 0.12977108 | 0.93884978 |
| version[v3] | | 1.2433406 | 0.1498965 | 68.80 | <.0001* | 0.95999558 | 1.54968113 |
| version[v2] | | -0.5515197 | 0.1449319 | 14.48 | 0.0001* | -0.8411971 | -0.2706157 |

Nominal Logistic Fit for converged**Parameter Estimates**

| Term | | Estimate | Std Error | ChiSquare | Prob>ChiSq | Lower 95% | Upper 95% |
|---|--------|------------|-----------|-----------|------------|------------|------------|
| rag[1] | Biased | 0.86169458 | 0.1770015 | 23.70 | <.0001* | 0.52497156 | 1.221395 |
| summarized[1] | | 0.02245491 | 0.0933165 | 0.06 | 0.8098 | -0.1610106 | 0.20535604 |
| app_id[WordPress]*version[v3] | | -0.8944922 | 0.2668208 | 11.24 | 0.0008* | -1.4159362 | -0.3660279 |
| app_id[WordPress]*version[v2] | | 0.27288112 | 0.285775 | 0.91 | 0.3396 | -0.2789963 | 0.84703192 |
| app_id[Stack4Things]*version[v3] | | 0.41035861 | 0.3480317 | 1.39 | 0.2384 | -0.2397121 | 1.14495261 |
| app_id[Stack4Things]*version[v2] | | 0.28581412 | 0.4089791 | 0.49 | 0.4846 | -0.5334131 | 1.10325234 |
| app_id[Open Energy Monitor]*version[v3] | | 0.78306136 | 0.3083304 | 6.45 | 0.0111* | 0.21919875 | 1.44656874 |
| app_id[Open Energy Monitor]*version[v2] | | -0.3894166 | 0.2393568 | 2.65 | 0.1038 | -0.8704397 | 0.07277291 |
| app_id[JetRacer]*version[v3] | | -0.0680857 | 0.2345715 | 0.08 | 0.7716 | -0.5228314 | 0.39995867 |
| app_id[JetRacer]*version[v2] | | -0.0090627 | 0.2290064 | 0.00 | 0.9684 | -0.4627322 | 0.43720171 |
| app_id[eWeLink]*version[v3] | | 0.08162465 | 0.2997003 | 0.07 | 0.7853 | -0.4870636 | 0.69797953 |
| app_id[eWeLink]*version[v2] | | -0.040421 | 0.2814948 | 0.02 | 0.8858 | -0.5949536 | 0.51244535 |
| app_id[WordPress]*rag[1] | Biased | 2.83753098 | 0.6525542 | 18.91 | <.0001* | 1.5585482 | 4.11651376 |
| app_id[Stack4Things]*rag[1] | Biased | -1.3195785 | 0.3413701 | 14.94 | 0.0001* | -2.0085566 | -0.6632562 |
| app_id[Open Energy Monitor]*rag[1] | Biased | -0.5636834 | 0.2449576 | 5.30 | 0.0214* | -1.0480514 | -0.0856491 |
| app_id[JetRacer]*rag[1] | Zeroed | 0 | 0 | . | . | . | . |
| app_id[eWeLink]*rag[1] | Zeroed | 0 | 0 | . | . | . | . |
| app_id[WordPress]*summarized[1] | | -0.3326169 | 0.192122 | 3.00 | 0.0834 | -0.7108588 | 0.04447981 |
| app_id[Stack4Things]*summarized[1] | | -0.5667722 | 0.2519235 | 5.06 | 0.0245* | -1.0743002 | -0.0792407 |
| app_id[Open Energy Monitor]*summarized[1] | | 0.26454392 | 0.1698756 | 2.43 | 0.1194 | -0.065244 | 0.60183486 |
| app_id[JetRacer]*summarized[1] | | 0.61497718 | 0.1645378 | 13.97 | 0.0002* | 0.29810501 | 0.94465352 |
| app_id[eWeLink]*summarized[1] | | -0.052916 | 0.2013031 | 0.07 | 0.7927 | -0.4472557 | 0.34456224 |
| version[v3]*rag[1] | | 0.13070478 | 0.1459991 | 0.80 | 0.3707 | -0.15078 | 0.42366299 |
| version[v2]*rag[1] | | -0.2804155 | 0.134753 | 4.33 | 0.0374* | -0.5476827 | -0.0182784 |
| version[v3]*summarized[1] | | 0.24277072 | 0.1185337 | 4.19 | 0.0405* | 0.01279514 | 0.4783349 |
| version[v2]*summarized[1] | | -0.2735604 | 0.1127867 | 5.88 | 0.0153* | -0.4962395 | -0.0535275 |
| rag[1]*summarized[1] | | -0.1298131 | 0.0944135 | 1.89 | 0.1691 | -0.3151563 | 0.05542598 |

Confidence limits are likelihood-based.

For log odds of 1/0

Effect Likelihood Ratio Tests

| Source | Nparm | DF | L-R | Prob>ChiSq |
|--------------------|-------|----|------------|------------|
| | | | ChiSquare | |
| app_id | 5 | 5 | 138.055969 | <.0001* |
| version | 2 | 2 | 89.0433996 | <.0001* |
| rag | 1 | 1 | 27.0264336 | <.0001* |
| summarized | 1 | 1 | 0.05787917 | 0.8099 |
| app_id*version | 10 | 10 | 21.2662982 | 0.0193* |
| app_id*rag | 5 | 3 | 22.4046403 | <.0001* |
| app_id*summarized | 5 | 5 | 20.3176233 | 0.0011* |
| version*rag | 2 | 2 | 4.45144847 | 0.1080 |
| version*summarized | 2 | 2 | 6.8431878 | 0.0327* |
| rag*summarized | 1 | 1 | 1.88877428 | 0.1693 |

Some tests might be conditional on dropping other effects.

Odds Ratios

For converged odds of 1 versus 0

Odds Ratios for app_id

| Level1 | /Level2 | Odds Ratio | Prob>Chisq | 95% Confidence Interval (Wald) | |
|---------------------|----------|------------|------------|--------------------------------|----------|
| | | | | Lower | Upper |
| WordPress | BookInfo | 337.1651 | <.0001* | 62.72615 | 1812.327 |
| Stack4Things | BookInfo | 1.320463 | 0.4890 | 0.600836 | 2.901995 |
| Open Energy Monitor | BookInfo | 9.889423 | <.0001* | 5.746469 | 17.01926 |
| JetRacer | BookInfo | 4.266991 | <.0001* | 2.595848 | 7.013975 |
| eWeLink | BookInfo | 13.47431 | <.0001* | 6.97001 | 26.04832 |
| BookInfo | eWeLink | 0.074215 | <.0001* | 0.03839 | 0.143472 |
| WordPress | eWeLink | 25.02281 | <.0001* | 6.142933 | 101.9287 |
| Stack4Things | eWeLink | 0.097999 | <.0001* | 0.040242 | 0.238648 |

Nominal Logistic Fit for converged**Odds Ratios****Odds Ratios for app_id**

| Level1 | /Level2 | Odds Ratio | Prob>Chisq | 95% Confidence Interval (Wald) | |
|---------------------|---------------------|------------|------------|--------------------------------|----------|
| | | | | Lower | Upper |
| Open Energy Monitor | eWeLink | 0.733946 | 0.3680 | 0.374257 | 1.439324 |
| JetRacer | eWeLink | 0.316676 | <.0001* | 0.174718 | 0.573975 |
| eWeLink | JetRacer | 3.157802 | <.0001* | 1.742237 | 5.723511 |
| BookInfo | JetRacer | 0.234357 | <.0001* | 0.142573 | 0.385231 |
| WordPress | JetRacer | 79.01706 | <.0001* | 16.14859 | 386.6403 |
| Stack4Things | JetRacer | 0.30946 | <.0003* | 0.141592 | 0.676348 |
| Open Energy Monitor | JetRacer | 2.317657 | <.0013* | 1.388999 | 3.867198 |
| JetRacer | Open Energy Monitor | 0.43147 | <.0013* | 0.258585 | 0.719943 |
| eWeLink | Open Energy Monitor | 1.362497 | 0.3680 | 0.694771 | 2.67196 |
| BookInfo | Open Energy Monitor | 0.101118 | <.0001* | 0.058757 | 0.17402 |
| WordPress | Open Energy Monitor | 34.09351 | <.0001* | 6.356621 | 182.8593 |
| Stack4Things | Open Energy Monitor | 0.133523 | <.0001* | 0.059155 | 0.301385 |
| Open Energy Monitor | Stack4Things | 7.489358 | <.0001* | 3.318016 | 16.90483 |
| JetRacer | Stack4Things | 3.231435 | <.0003* | 1.478528 | 7.062546 |
| eWeLink | Stack4Things | 10.20423 | <.0001* | 4.19028 | 24.84949 |
| BookInfo | Stack4Things | 0.75731 | 0.4890 | 0.344591 | 1.664348 |
| WordPress | Stack4Things | 255.3385 | <.0001* | 41.28006 | 1579.401 |
| Stack4Things | WordPress | 0.003916 | <.0001* | 0.000633 | 0.024225 |
| Open Energy Monitor | WordPress | 0.029331 | <.0001* | 0.005469 | 0.157316 |
| JetRacer | WordPress | 0.012655 | <.0001* | 0.002586 | 0.061925 |
| eWeLink | WordPress | 0.039964 | <.0001* | 0.009811 | 0.162789 |
| BookInfo | WordPress | 0.002966 | <.0001* | 0.000552 | 0.015942 |

Odds Ratios for version

| Level1 | /Level2 | Odds Ratio | Prob>Chisq | 95% Confidence Interval (Wald) | |
|--------|---------|------------|------------|--------------------------------|----------|
| | | | | Lower | Upper |
| v3 | v1 | 6.925163 | <.0001* | 4.131129 | 11.6089 |
| v2 | v1 | 1.15062 | 0.5824 | 0.697874 | 1.897088 |
| v1 | v2 | 0.869096 | 0.5824 | 0.527124 | 1.432924 |
| v3 | v2 | 6.018634 | <.0001* | 3.663206 | 9.888592 |
| v2 | v3 | 0.166151 | <.0001* | 0.101127 | 0.272985 |
| v1 | v3 | 0.144401 | <.0001* | 0.086141 | 0.242065 |

Odds Ratios for rag

| Level1 | /Level2 | Odds Ratio | Prob>Chisq | 95% Confidence Interval (Wald) | |
|--------|---------|------------|------------|--------------------------------|----------|
| | | | | Lower | Upper |
| 1 | 0 | 5.603487 | <.0001* | 2.799823 | 11.21466 |
| 0 | 1 | 0.17846 | <.0001* | 0.089169 | 0.357165 |

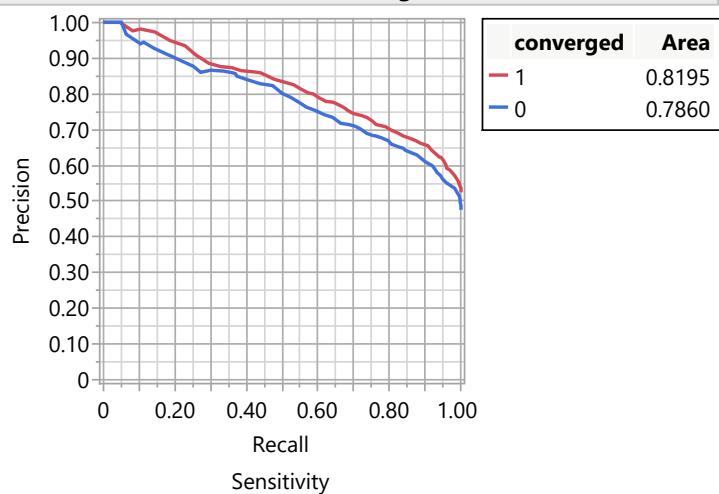
Odds Ratios for summarized

| Level1 | /Level2 | Odds Ratio | Prob>Chisq | 95% Confidence Interval (Wald) | |
|--------|---------|------------|------------|--------------------------------|----------|
| | | | | Lower | Upper |
| 1 | 0 | 1.045934 | 0.8098 | 0.725507 | 1.507878 |
| 0 | 1 | 0.956084 | 0.8098 | 0.663183 | 1.378346 |

Normal approximations used for ratio confidence limits effects:

app_id version rag summarized

Tests and confidence intervals on odds ratios are Wald based.

Nominal Logistic Fit for converged**Precision-Recall Curve on Training Data****Prediction Profiler**