Binary cohesion mean:

Logistic regression , l1

npw:  Accuracy majority: 54.839%

npw:  Accuracy: 46.774%

npw:  kappa: -0.092%

npw:  auc: 47.243%

npw:  precision: 51.282%

npw:  recall: 58.824%

npw:  tn, fp, fn, tp: [18 38 28 40]

npw             precision    recall  f1-score   support

          0       0.39      0.32      0.35        56

          1       0.51      0.59      0.55        68

avg / total       0.46      0.47      0.46       124

pw:  Accuracy majority: 54.839%

pw:  Accuracy: 53.226%

pw:  kappa: 0.044%

pw:  auc: 55.567%

pw:  precision: 56.579%

pw:  recall: 63.235%

pw:  tn, fp, fn, tp: [23 33 25 43]

pw             precision    recall  f1-score   support

          0       0.48      0.41      0.44        56

          1       0.57      0.63      0.60        68

avg / total       0.53      0.53      0.53       124

accuracy contingency table bothWrong, npwCorrect, pwCorrect, bothCorrect:  [55  3 11 55]

mcnemar test:  3.0  0.057373046875

accuracy wilcoxon:  WilcoxonResult(statistic=22.5, pvalue=0.032509444645719511)

accuracy corrected ttest:  (2.1610564890679576, 0.032628816442780414)

accuracy ttest:  Ttest\_relResult(statistic=2.1698234885104974, pvalue=0.031942559832788091)

random forest

npw:  Accuracy majority: 54.839%

npw:  Accuracy: 55.645%

npw:  kappa: 0.112%

npw:  auc: 58.023%

npw:  precision: 60.317%

npw:  recall: 55.882%

npw:  tn, fp, fn, tp: [31 25 30 38]

npw             precision    recall  f1-score   support

          0       0.51      0.55      0.53        56

          1       0.60      0.56      0.58        68

avg / total       0.56      0.56      0.56       124

pw:  Accuracy majority: 54.839%

pw:  Accuracy: 54.032%

pw:  kappa: 0.088%

pw:  auc: 58.325%

pw:  precision: 59.649%

pw:  recall: 50.000%

pw:  tn, fp, fn, tp: [33 23 34 34]

pw             precision    recall  f1-score   support

          0       0.49      0.59      0.54        56

          1       0.60      0.50      0.54        68

avg / total       0.55      0.54      0.54       124

accuracy contingency table bothWrong, npwCorrect, pwCorrect, bothCorrect:  [32 25 23 44]

mcnemar test:  23.0  0.885433497287

accuracy wilcoxon:  WilcoxonResult(statistic=563.5, pvalue=0.77282999268444752)

accuracy corrected ttest:  (-0.28644337662710373, 0.77502047036929167)

accuracy ttest:  Ttest\_relResult(statistic=-0.28760542349441681, pvalue=0.77413279875166963)

svc rbf

npw:  Accuracy majority: 54.839%

npw:  Accuracy: 49.194%

npw:  kappa: -0.034%

npw:  auc: 45.575%

npw:  precision: 53.425%

npw:  recall: 57.353%

npw:  tn, fp, fn, tp: [22 34 29 39]

npw             precision    recall  f1-score   support

          0       0.43      0.39      0.41        56

          1       0.53      0.57      0.55        68

avg / total       0.49      0.49      0.49       124

pw:  Accuracy majority: 54.839%

pw:  Accuracy: 58.871%

pw:  kappa: 0.163%

pw:  auc: 51.024%

pw:  precision: 61.644%

pw:  recall: 66.176%

pw:  tn, fp, fn, tp: [28 28 23 45]

pw             precision    recall  f1-score   support

          0       0.55      0.50      0.52        56

          1       0.62      0.66      0.64        68

avg / total       0.59      0.59      0.59       124

accuracy contingency table bothWrong, npwCorrect, pwCorrect, bothCorrect:  [45  6 18 55]

mcnemar test:  6.0  0.0226558446884

accuracy wilcoxon:  WilcoxonResult(statistic=75.0, pvalue=0.014305878435429648)

accuracy corrected ttest:  (2.4907428391246311, 0.014080955661585209)

accuracy ttest:  Ttest\_relResult(statistic=2.5008473140389027, pvalue=0.013704789722136134)

svc sigmoid

npw:  Accuracy majority: 54.839%

npw:  Accuracy: 44.355%

npw:  kappa: -0.151%

npw:  auc: 31.801%

npw:  precision: 49.398%

npw:  recall: 60.294%

npw:  tn, fp, fn, tp: [14 42 27 41]

npw             precision    recall  f1-score   support

          0       0.34      0.25      0.29        56

          1       0.49      0.60      0.54        68

avg / total       0.43      0.44      0.43       124

pw:  Accuracy majority: 54.839%

pw:  Accuracy: 56.452%

pw:  kappa: 0.104%

pw:  auc: 57.077%

pw:  precision: 58.750%

pw:  recall: 69.118%

pw:  tn, fp, fn, tp: [23 33 21 47]

pw             precision    recall  f1-score   support

          0       0.52      0.41      0.46        56

          1       0.59      0.69      0.64        68

avg / total       0.56      0.56      0.56       124

accuracy contingency table bothWrong, npwCorrect, pwCorrect, bothCorrect:  [51  3 18 52]

mcnemar test:  3.0  0.00148963928223

accuracy wilcoxon:  WilcoxonResult(statistic=33.0, pvalue=0.0010631149171586032)

accuracy corrected ttest:  (3.3969433702474219, 0.00091843518688922241)

accuracy ttest:  Ttest\_relResult(statistic=3.4107241301599704, pvalue=0.00087708582141171523)

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binary cohesion median

logistic regression l1

npw:  Accuracy majority: 50.000%

npw:  Accuracy: 53.226%

npw:  kappa: 0.065%

npw:  auc: 54.943%

npw:  precision: 53.226%

npw:  recall: 53.226%

npw:  tn, fp, fn, tp: [33 29 29 33]

npw             precision    recall  f1-score   support

          0       0.53      0.53      0.53        62

          1       0.53      0.53      0.53        62

avg / total       0.53      0.53      0.53       124

pw:  Accuracy majority: 50.000%

pw:  Accuracy: 58.065%

pw:  kappa: 0.161%

pw:  auc: 58.377%

pw:  precision: 59.615%

pw:  recall: 50.000%

pw:  tn, fp, fn, tp: [41 21 31 31]

pw             precision    recall  f1-score   support

          0       0.57      0.66      0.61        62

          1       0.60      0.50      0.54        62

avg / total       0.58      0.58      0.58       124

accuracy contingency table bothWrong, npwCorrect, pwCorrect, bothCorrect:  [47  5 11 61]

mcnemar test:  5.0  0.210113525391

accuracy wilcoxon:  WilcoxonResult(statistic=42.5, pvalue=0.13361440253771614)

accuracy corrected ttest:  (1.5015888783004661, 0.13576617341371938)

accuracy ttest:  Ttest\_relResult(statistic=1.5076805417648751, pvalue=0.13420051175807604)

Random forest

npw:  Accuracy majority: 50.000%

npw:  Accuracy: 54.839%

npw:  kappa: 0.097%

npw:  auc: 54.982%

npw:  precision: 55.556%

npw:  recall: 48.387%

npw:  tn, fp, fn, tp: [38 24 32 30]

npw             precision    recall  f1-score   support

          0       0.54      0.61      0.58        62

          1       0.56      0.48      0.52        62

avg / total       0.55      0.55      0.55       124

pw:  Accuracy majority: 50.000%

pw:  Accuracy: 56.452%

pw:  kappa: 0.129%

pw:  auc: 60.016%

pw:  precision: 58.000%

pw:  recall: 46.774%

pw:  tn, fp, fn, tp: [41 21 33 29]

pw             precision    recall  f1-score   support

          0       0.55      0.66      0.60        62

          1       0.58      0.47      0.52        62

avg / total       0.57      0.56      0.56       124

accuracy contingency table bothWrong, npwCorrect, pwCorrect, bothCorrect:  [38 16 18 52]

mcnemar test:  16.0  0.864166240441

accuracy wilcoxon:  WilcoxonResult(statistic=280.0, pvalue=0.73160058895990132)

accuracy corrected ttest:  (0.34039257894759023, 0.73414156299952071)

accuracy ttest:  Ttest\_relResult(statistic=0.3417734875749095, pvalue=0.73310459220312929)

SVC rbf

npw:  Accuracy majority: 50.000%

npw:  Accuracy: 58.065%

npw:  kappa: 0.161%

npw:  auc: 57.596%

npw:  precision: 60.000%

npw:  recall: 48.387%

npw:  tn, fp, fn, tp: [42 20 32 30]

npw             precision    recall  f1-score   support

          0       0.57      0.68      0.62        62

          1       0.60      0.48      0.54        62

avg / total       0.58      0.58      0.58       124

pw:  Accuracy majority: 50.000%

pw:  Accuracy: 54.839%

pw:  kappa: 0.097%

pw:  auc: 43.757%

pw:  precision: 56.000%

pw:  recall: 45.161%

pw:  tn, fp, fn, tp: [40 22 34 28]

pw             precision    recall  f1-score   support

          0       0.54      0.65      0.59        62

          1       0.56      0.45      0.50        62

avg / total       0.55      0.55      0.54       124

accuracy contingency table bothWrong, npwCorrect, pwCorrect, bothCorrect:  [43 13  9 59]

mcnemar test:  9.0  0.523467063904

accuracy wilcoxon:  WilcoxonResult(statistic=103.5, pvalue=0.39376863464299272)

accuracy corrected ttest:  (-0.84841710854134622, 0.39785379832679346)

accuracy ttest:  Ttest\_relResult(statistic=-0.85185897706965508, pvalue=0.39594790399728985)

SVC sigmoid

npw:  Accuracy majority: 50.000%

npw:  Accuracy: 45.968%

npw:  kappa: -0.081%

npw:  auc: 30.905%

npw:  precision: 45.614%

npw:  recall: 41.935%

npw:  tn, fp, fn, tp: [31 31 36 26]

npw             precision    recall  f1-score   support

          0       0.46      0.50      0.48        62

          1       0.46      0.42      0.44        62

avg / total       0.46      0.46      0.46       124

pw:  Accuracy majority: 50.000%

pw:  Accuracy: 63.710%

pw:  kappa: 0.274%

pw:  auc: 59.274%

pw:  precision: 64.912%

pw:  recall: 59.677%

pw:  tn, fp, fn, tp: [42 20 25 37]

pw             precision    recall  f1-score   support

          0       0.63      0.68      0.65        62

          1       0.65      0.60      0.62        62

avg / total       0.64      0.64      0.64       124

accuracy contingency table bothWrong, npwCorrect, pwCorrect, bothCorrect:  [41  4 26 53]

mcnemar test:  4.0  5.94761222601e-05

accuracy wilcoxon:  WilcoxonResult(statistic=62.0, pvalue=5.9035780495879955e-05)

accuracy corrected ttest:  (4.2718175261909783, 3.8436360521882539e-05)

accuracy ttest:  Ttest\_relResult(statistic=4.2891474858936522, pvalue=3.5919044010175007e-05)

conflict mean

logistic l1

npw:  Accuracy majority: 58.065%

npw:  Accuracy: 60.484%

npw:  kappa: 0.173%

npw:  auc: 62.179%

npw:  precision: 53.333%

npw:  recall: 46.154%

npw:  tn, fp, fn, tp: [51 21 28 24]

npw             precision    recall  f1-score   support

          0       0.65      0.71      0.68        72

          1       0.53      0.46      0.49        52

avg / total       0.60      0.60      0.60       124

pw:  Accuracy majority: 58.065%

pw:  Accuracy: 62.903%

pw:  kappa: 0.209%

pw:  auc: 62.687%

pw:  precision: 57.895%

pw:  recall: 42.308%

pw:  tn, fp, fn, tp: [56 16 30 22]

pw             precision    recall  f1-score   support

          0       0.65      0.78      0.71        72

          1       0.58      0.42      0.49        52

avg / total       0.62      0.63      0.62       124

accuracy contingency table bothWrong, npwCorrect, pwCorrect, bothCorrect:  [40  6  9 69]

mcnemar test:  6.0  0.607238769531

accuracy wilcoxon:  WilcoxonResult(statistic=48.0, pvalue=0.43857802608099983)

accuracy corrected ttest:  (0.77021560637611508, 0.44264881576588366)

accuracy ttest:  Ttest\_relResult(statistic=0.77334022612848752, pvalue=0.44080475266708397)

Random Forest

npw:  Accuracy majority: 58.065%

npw:  Accuracy: 58.065%

npw:  kappa: 0.115%

npw:  auc: 56.544%

npw:  precision: 50.000%

npw:  recall: 40.385%

npw:  tn, fp, fn, tp: [51 21 31 21]

npw             precision    recall  f1-score   support

          0       0.62      0.71      0.66        72

          1       0.50      0.40      0.45        52

avg / total       0.57      0.58      0.57       124

pw:  Accuracy majority: 58.065%

pw:  Accuracy: 54.032%

pw:  kappa: -0.006%

pw:  auc: 49.559%

pw:  precision: 41.379%

pw:  recall: 23.077%

pw:  tn, fp, fn, tp: [55 17 40 12]

pw             precision    recall  f1-score   support

          0       0.58      0.76      0.66        72

          1       0.41      0.23      0.30        52

avg / total       0.51      0.54      0.51       124

accuracy contingency table bothWrong, npwCorrect, pwCorrect, bothCorrect:  [37 20 15 52]

mcnemar test:  15.0  0.499559833203

accuracy wilcoxon:  WilcoxonResult(statistic=270.0, pvalue=0.39802471950693785)

accuracy corrected ttest:  (-0.84076354594270164, 0.40211188197622139)

accuracy ttest:  Ttest\_relResult(statistic=-0.84417436540803037, pvalue=0.40021085416275903)

svc rbf

npw:  Accuracy majority: 58.065%

npw:  Accuracy: 52.419%

npw:  kappa: -0.012%

npw:  auc: 46.261%

npw:  precision: 41.026%

npw:  recall: 30.769%

npw:  tn, fp, fn, tp: [49 23 36 16]

npw             precision    recall  f1-score   support

          0       0.58      0.68      0.62        72

          1       0.41      0.31      0.35        52

avg / total       0.51      0.52      0.51       124

pw:  Accuracy majority: 58.065%

pw:  Accuracy: 53.226%

pw:  kappa: -0.020%

pw:  auc: 36.725%

pw:  precision: 40.000%

pw:  recall: 23.077%

pw:  tn, fp, fn, tp: [54 18 40 12]

pw             precision    recall  f1-score   support

          0       0.57      0.75      0.65        72

          1       0.40      0.23      0.29        52

avg / total       0.50      0.53      0.50       124

accuracy contingency table bothWrong, npwCorrect, pwCorrect, bothCorrect:  [51  7  8 58]

mcnemar test:  7.0  1.0

accuracy wilcoxon:  WilcoxonResult(statistic=56.0, pvalue=0.79625341473763922)

accuracy corrected ttest:  (0.25618551696956754, 0.79823556473347979)

accuracy ttest:  Ttest\_relResult(statistic=0.25722481339509823, pvalue=0.79743503986023878)

svc sigmoid

npw:  Accuracy majority: 58.065%

npw:  Accuracy: 50.000%

npw:  kappa: -0.032%

npw:  auc: 42.201%

npw:  precision: 40.000%

npw:  recall: 38.462%

npw:  tn, fp, fn, tp: [42 30 32 20]

npw             precision    recall  f1-score   support

          0       0.57      0.58      0.58        72

          1       0.40      0.38      0.39        52

avg / total       0.50      0.50      0.50       124

pw:  Accuracy majority: 58.065%

pw:  Accuracy: 54.839%

pw:  kappa: 0.042%

pw:  auc: 53.819%

pw:  precision: 45.000%

pw:  recall: 34.615%

pw:  tn, fp, fn, tp: [50 22 34 18]

pw             precision    recall  f1-score   support

          0       0.60      0.69      0.64        72

          1       0.45      0.35      0.39        52

avg / total       0.53      0.55      0.54       124

accuracy contingency table bothWrong, npwCorrect, pwCorrect, bothCorrect:  [47  9 15 53]

mcnemar test:  9.0  0.307456254959

accuracy wilcoxon:  WilcoxonResult(statistic=112.5, pvalue=0.22067136191984693)

accuracy corrected ttest:  (1.2222832323964448, 0.22393762715710827)

accuracy ttest:  Ttest\_relResult(statistic=1.2272418054236873, pvalue=0.22207544537534518)

conflict median

logistic l1

npw:  Accuracy majority: 50.000%

npw:  Accuracy: 63.710%

npw:  kappa: 0.274%

npw:  auc: 65.193%

npw:  precision: 63.492%

npw:  recall: 64.516%

npw:  tn, fp, fn, tp: [39 23 22 40]

npw             precision    recall  f1-score   support

          0       0.64      0.63      0.63        62

          1       0.63      0.65      0.64        62

avg / total       0.64      0.64      0.64       124

pw:  Accuracy majority: 50.000%

pw:  Accuracy: 58.065%

pw:  kappa: 0.161%

pw:  auc: 62.279%

pw:  precision: 57.812%

pw:  recall: 59.677%

pw:  tn, fp, fn, tp: [35 27 25 37]

pw             precision    recall  f1-score   support

          0       0.58      0.56      0.57        62

          1       0.58      0.60      0.59        62

avg / total       0.58      0.58      0.58       124

accuracy contingency table bothWrong, npwCorrect, pwCorrect, bothCorrect:  [43  9  2 70]

mcnemar test:  2.0  0.0654296875

accuracy wilcoxon:  WilcoxonResult(statistic=12.0, pvalue=0.034808478811867126)

accuracy corrected ttest:  (-2.1322073321900739, 0.034978034825030618)

accuracy ttest:  Ttest\_relResult(statistic=-2.1408572960328738, pvalue=0.034258773701559504)

random forest

npw:  Accuracy majority: 50.000%

npw:  Accuracy: 60.484%

npw:  kappa: 0.210%

npw:  auc: 61.811%

npw:  precision: 61.818%

npw:  recall: 54.839%

npw:  tn, fp, fn, tp: [41 21 28 34]

npw             precision    recall  f1-score   support

          0       0.59      0.66      0.63        62

          1       0.62      0.55      0.58        62

avg / total       0.61      0.60      0.60       124

pw:  Accuracy majority: 50.000%

pw:  Accuracy: 66.129%

pw:  kappa: 0.323%

pw:  auc: 66.480%

pw:  precision: 68.519%

pw:  recall: 59.677%

pw:  tn, fp, fn, tp: [45 17 25 37]

pw             precision    recall  f1-score   support

          0       0.64      0.73      0.68        62

          1       0.69      0.60      0.64        62

avg / total       0.66      0.66      0.66       124

accuracy contingency table bothWrong, npwCorrect, pwCorrect, bothCorrect:  [23 19 26 56]

mcnemar test:  19.0  0.371298034471

accuracy wilcoxon:  WilcoxonResult(statistic=437.0, pvalue=0.29671752632206039)

accuracy corrected ttest:  (1.0396579518744309, 0.30053821127307667)

accuracy ttest:  Ttest\_relResult(statistic=1.0438756485106002, pvalue=0.29859019030109074)

svc rbf

npw:  Accuracy majority: 50.000%

npw:  Accuracy: 62.903%

npw:  kappa: 0.258%

npw:  auc: 61.863%

npw:  precision: 61.765%

npw:  recall: 67.742%

npw:  tn, fp, fn, tp: [36 26 20 42]

npw             precision    recall  f1-score   support

          0       0.64      0.58      0.61        62

          1       0.62      0.68      0.65        62

avg / total       0.63      0.63      0.63       124

pw:  Accuracy majority: 50.000%

pw:  Accuracy: 57.258%

pw:  kappa: 0.145%

pw:  auc: 59.417%

pw:  precision: 56.164%

pw:  recall: 66.129%

pw:  tn, fp, fn, tp: [30 32 21 41]

pw             precision    recall  f1-score   support

          0       0.59      0.48      0.53        62

          1       0.56      0.66      0.61        62

avg / total       0.57      0.57      0.57       124

accuracy contingency table bothWrong, npwCorrect, pwCorrect, bothCorrect:  [40 13  6 65]

mcnemar test:  6.0  0.167068481445

accuracy wilcoxon:  WilcoxonResult(statistic=60.0, pvalue=0.10829365589900902)

accuracy corrected ttest:  (-1.6097873548466444, 0.11000782497677483)

accuracy ttest:  Ttest\_relResult(statistic=-1.6163179591663075, pvalue=0.10858760515863225)

svc sigmoid

npw:  Accuracy majority: 50.000%

npw:  Accuracy: 56.452%

npw:  kappa: 0.129%

npw:  auc: 51.613%

npw:  precision: 55.882%

npw:  recall: 61.290%

npw:  tn, fp, fn, tp: [32 30 24 38]

npw             precision    recall  f1-score   support

          0       0.57      0.52      0.54        62

          1       0.56      0.61      0.58        62

avg / total       0.57      0.56      0.56       124

pw:  Accuracy majority: 50.000%

pw:  Accuracy: 55.645%

pw:  kappa: 0.113%

pw:  auc: 58.169%

pw:  precision: 55.224%

pw:  recall: 59.677%

pw:  tn, fp, fn, tp: [32 30 25 37]

pw             precision    recall  f1-score   support

          0       0.56      0.52      0.54        62

          1       0.55      0.60      0.57        62

avg / total       0.56      0.56      0.56       124

accuracy contingency table bothWrong, npwCorrect, pwCorrect, bothCorrect:  [47  8  7 62]

mcnemar test:  7.0  1.0

accuracy wilcoxon:  WilcoxonResult(statistic=56.0, pvalue=0.79625341473763922)

accuracy corrected ttest:  (-0.25618551696956754, 0.79823556473347979)

accuracy ttest:  Ttest\_relResult(statistic=-0.25722481339509823, pvalue=0.79743503986023878)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Accuracy majority  mean | Accu mean | Accu weighted mean | Accu majority  median | Accu median | Accu weighted median |
| Logistic regression l1 | 54.84 | 46.77 | 53.23\* | 50 | 53.23 | 58.06 |
| Random forest | 54.84 | 55.65 | 54.03 | 50 | 54.84 | 56.45 |
| Svc rbf | 54.84 | 49.19 | 58.87\* | 50 | 58.06 | 54.84 |
| Svc sigmoid | 54.84 | 44.35 | 56.45\* | 50 | 45.97 | 63.71\* |

Cohesion

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Recall of low  mean | Recall of low weighted mean | Recall of low median | Recall of low weighted median |
| Logistic regression l1 | 0.32 | 0.41 | 0.53 | 0.66 |
| Random forest | 0.55 | 0.59 | 0.61 | 0.66 |
| Svc rbf | 0.39 | 0.50 | 0.68 | 0.65 |
| Svc sigmoid | 0.25 | 0.41 | 0.50 | 0.68 |

Cohesion, no significant test

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Accuracy majority  mean | Accu mean | Accu weighted mean | Accu majority  median | Accu median | Accu weighted median |
| Logistic regression l1 | 58.06 | 60.48 | 62.90 | 50 | 63.71\* | 58.06 |
| Random forest | 58.06 | 58.06 | 54.03 | 50 | 60.48 | 66.13 |
| Svc rbf | 58.06 | 52.42 | 53.23 | 50 | 62.90 | 57.26 |
| Svc sigmoid | 58.06 | 50 | 54.84 | 50 | 56.45 | 55.64 |

Conflict

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Recall of low  mean | Recall of low weighted mean | Recall of low median | Recall of low weighted median |
| Logistic regression l1 | 0.71 | 0.78 | 0.63 | 0.56 |
| Random forest | 0.71 | 0.76 | 0.66 | 0.73 |
| Svc rbf | 0.68 | 0.75 | 0.58 | 0.48 |
| Svc sigmoid | 0.58 | 0.69 | 0.52 | 0.52 |

Conflict, no significant test

Cohesion median

Logistic regression l1

All [ 8 npw features, 8 pw features]

[[ 0.          0.          0.          0.         -0.241489    0.          0.

   0.0144065  -0.22452512 -0.05689652 -0.24681574  0.51141133  0.43250636

   0.          0.08790475  0.39560619]]

[[ 0.          0.          0.          0.         -0.15816002  0.          0.

   0.04584138 -0.20024367 -0.014367   -0.19171035  0.50828965  0.28106475

  -0.00641858  0.06015498  0.33545561]]

[[-0.0240515   0.          0.          0.         -0.17657017  0.          0.

   0.01497832 -0.23528594 -0.03184687 -0.184958    0.50445112  0.3102637

   0.          0.07967525  0.3719877 ]]

[[ 0.          0.          0.          0.         -0.1986419   0.          0.

   0.02859687 -0.23934831 -0.04461301 -0.26038008  0.49813783  0.3247621

   0.          0.09674524  0.38302036]]

[[ 0.          0.          0.          0.         -0.13711787  0.          0.

   0.02199031 -0.22416725 -0.03272196 -0.22813805  0.48334094  0.27198523

   0.          0.0848337   0.36607232]]

[[ 0.          0.         -0.0016554   0.         -0.07768156  0.          0.

   0.0408082  -0.3304575  -0.0377235  -0.1857688   0.54937542  0.17784193

   0.          0.10493371  0.34933931]]

[[ 0.          0.          0.          0.         -0.20978505  0.          0.

   0.02137852 -0.22632953 -0.03202874 -0.20585624  0.4960412   0.32517162

  -0.00634708  0.06822428  0.36595798]]

[[ 0.          0.          0.          0.         -0.20161238  0.          0.

   0.02389079 -0.21817845  0.         -0.22157024  0.51535565  0.34777583

   0.          0.04708044  0.37551947]]

[[ 0.          0.          0.          0.         -0.13756649  0.          0.

   0.02152016 -0.20178173 -0.05058045 -0.18169319  0.50786257  0.25846031

   0.          0.0687184   0.35297582]]

all:  Accuracy majority: 50.000%

all:  Accuracy: 56.452%

all:  kappa: 0.129%

all:  auc: 56.842%

all:  precision: 57.692%

all:  recall: 48.387%

all:  tn, fp, fn, tp: [40 22 32 30]

all             precision    recall  f1-score   support

          0       0.56      0.65      0.60        62

          1       0.58      0.48      0.53        62

avg / total       0.57      0.56      0.56       124

Random Forest

[ 0.05611497  0.03995493  0.04044181  0.08331699  0.03948838  0.06566725

  0.07391523  0.09508429  0.11212786  0.05214812  0.04514106  0.07786151

  0.04468403  0.06167778  0.05230551  0.06007026]

[ 0.07173295  0.04270625  0.0263065   0.09351256  0.04308521  0.10883982

  0.04107497  0.08282883  0.06124691  0.05014975  0.01864764  0.12083936

  0.06325262  0.045703    0.07051095  0.05956268]

[ 0.05893128  0.05420619  0.05422175  0.11374629  0.06653232  0.05427687

  0.06996679  0.05496286  0.04827719  0.02577012  0.05696094  0.12519968

  0.04001804  0.06518651  0.06552221  0.04622094]

[ 0.05625977  0.06793325  0.07827158  0.10849749  0.04428006  0.02740319

  0.08858583  0.06231956  0.08622426  0.0537284   0.05174933  0.06928162

  0.05709065  0.03287183  0.047878    0.06762517]

[ 0.07275243  0.06825495  0.02492269  0.05919993  0.07457994  0.04798801

  0.07450253  0.06560164  0.07124278  0.04799206  0.055939    0.12924943

  0.08429558  0.01982102  0.05071609  0.05294192]

[ 0.05559049  0.04971502  0.06192633  0.07118388  0.0441721   0.07616148

  0.03150702  0.06729491  0.08512275  0.03278615  0.03594289  0.14229353

  0.07036823  0.05417701  0.06240045  0.05935776]

[ 0.03972479  0.08401034  0.04081256  0.11617321  0.05117432  0.02053244

  0.05281208  0.0818395   0.11248517  0.05800282  0.0310754   0.07001544

  0.07110044  0.05604939  0.05425383  0.05993826]

[ 0.05797235  0.07451438  0.05280878  0.09992787  0.06460019  0.03936436

  0.03870025  0.07420817  0.07677351  0.04021299  0.03223359  0.15329307

  0.04949715  0.05064525  0.05561242  0.03963567]

[ 0.08504503  0.07176755  0.03547517  0.12297483  0.02659713  0.03547564

  0.04526195  0.08395437  0.14042627  0.05562841  0.06538725  0.07332132

  0.02198499  0.0364227   0.05101809  0.04925931]

[ 0.07440183  0.01840315  0.03156429  0.10927189  0.06533847  0.03795671

  0.08338655  0.05416647  0.07851477  0.03987793  0.06139654  0.09677162

  0.05116419  0.0412356   0.05188998  0.10466003]

[ 0.11244852  0.06500855  0.0270897   0.01919487  0.06743661  0.04797995

  0.09461403  0.05791614  0.11076093  0.05136539  0.04142187  0.14572698

  0.06001703  0.02599969  0.04250639  0.03051335]

[ 0.05571518  0.04115404  0.04301965  0.07502308  0.06925075  0.02586393

  0.07405099  0.07981736  0.07528365  0.06763554  0.03580199  0.11218975

  0.05479735  0.05778022  0.09029511  0.04232142]

all:  Accuracy majority: 50.000%

all:  Accuracy: 58.871%

all:  kappa: 0.177%

all:  auc: 64.178%

all:  precision: 60.000%

all:  recall: 53.226%

all:  tn, fp, fn, tp: [40 22 29 33]

all             precision    recall  f1-score   support

          0       0.58      0.65      0.61        62

          1       0.60      0.53      0.56        62

avg / total       0.59      0.59      0.59       124

cohesion mean

logistic

[[-0.20562973  0.00352167  0.23118879  0.         -0.32587901  0.0232447

   0.          0.          0.          0.         -0.57292828  0.43794601

   0.34788422  0.          0.11805551  0.32948993]]

[[-0.14604995  0.00325941  0.12929306  0.         -0.30076971  0.02720695

   0.00333545  0.          0.          0.         -0.45239933  0.44025241

   0.31207607  0.          0.10800714  0.31160034]]

[[-0.12120292  0.          0.11982109  0.         -0.34088069  0.01829416

   0.02414127  0.         -0.03288817  0.         -0.43351191  0.45536091

   0.34256226  0.          0.08987267  0.32282222]]

[[-0.03085562  0.02760284  0.          0.         -0.25658202  0.04446456

   0.          0.         -0.20284086  0.         -0.36804351  0.48279347

   0.21980979  0.          0.13945327  0.31813848]]

[[-0.15004952  0.0057864   0.04530422  0.         -0.37066912  0.02353178

   0.          0.          0.          0.         -0.4242809   0.43546505

   0.35869448  0.          0.10768956  0.32249599]]

[[-0.11242962  0.          0.13561411  0.         -0.3068953   0.02091162

   0.          0.         -0.03675578  0.         -0.47241871  0.43040264

   0.30767077  0.          0.12859137  0.31496376]]

[[-0.12151041  0.          0.18579067  0.         -0.3133155   0.04244814

   0.          0.          0.          0.         -0.5260928   0.44101745

   0.31231221  0.          0.09946574  0.30431158]]

all:  Accuracy majority: 54.839%

all:  Accuracy: 48.387%

all:  kappa: -0.052%

all:  auc: 50.263%

all:  precision: 52.703%

all:  recall: 57.353%

all:  tn, fp, fn, tp: [21 35 29 39]

all             precision    recall  f1-score   support

          0       0.42      0.38      0.40        56

          1       0.53      0.57      0.55        68

avg / total       0.48      0.48      0.48       124

random forest

[ 0.06023705  0.087701    0.0367452   0.10010404  0.05142587  0.04352825

  0.05008036  0.0603652   0.07279726  0.04981252  0.08419446  0.07084894

  0.0648265   0.03495703  0.03706944  0.09530688]

[ 0.04107282  0.03555328  0.02765819  0.11338345  0.11557568  0.03987022

  0.08417244  0.0464375   0.05038131  0.04580024  0.04527498  0.08061703

  0.04810552  0.07615154  0.06748761  0.08245818]

[ 0.06767384  0.03178437  0.05460885  0.07607783  0.08113622  0.06229543

  0.06270543  0.04648205  0.06342856  0.05656901  0.04577486  0.09436171

  0.0523475   0.08186183  0.07167165  0.05122086]

[ 0.0798557   0.01499279  0.05358042  0.05529783  0.08393225  0.03505806

  0.09407341  0.05303359  0.08298196  0.04055512  0.06965002  0.1123754

  0.05897846  0.07427925  0.03770221  0.05365352]

[ 0.06275957  0.03170799  0.03917237  0.10268723  0.09361112  0.02956886

  0.09228148  0.07028631  0.0938203   0.07834112  0.03934223  0.11406096

  0.04409848  0.02923     0.03747495  0.04155703]

[ 0.13655143  0.03108059  0.03975354  0.11516444  0.08674132  0.06327043

  0.06896246  0.02016595  0.03906142  0.0437684   0.08353813  0.08113899

  0.0544153   0.03088037  0.04443559  0.06107166]

all:  Accuracy majority: 54.839%

all:  Accuracy: 56.452%

all:  kappa: 0.124%

all:  auc: 60.504%

all:  precision: 60.606%

all:  recall: 58.824%

all:  tn, fp, fn, tp: [30 26 28 40]

all             precision    recall  f1-score   support

          0       0.52      0.54      0.53        56

          1       0.61      0.59      0.60        68

avg / total       0.57      0.56      0.57       124

permuted vs real, game1

random forest

npw:  Accuracy majority: 50.000%

npw:  Accuracy: 55.645%

npw:  kappa: 0.113%

npw:  auc: 57.648%

npw:  precision: 56.364%

npw:  recall: 50.000%

npw:  tn, fp, fn, tp: [38 24 31 31]

npw             precision    recall  f1-score   support

          0       0.55      0.61      0.58        62

          1       0.56      0.50      0.53        62

avg / total       0.56      0.56      0.56       124

pw:  Accuracy majority: 50.000%

pw:  Accuracy: 58.065%

pw:  kappa: 0.161%

pw:  auc: 59.573%

pw:  precision: 58.929%

pw:  recall: 53.226%

pw:  tn, fp, fn, tp: [39 23 29 33]

pw             precision    recall  f1-score   support

          0       0.57      0.63      0.60        62

          1       0.59      0.53      0.56        62

avg / total       0.58      0.58      0.58       124

accuracy contingency table bothWrong, npwCorrect, pwCorrect, bothCorrect:  [35 17 20 52]

mcnemar test:  17.0  0.742829358729

accuracy wilcoxon:  WilcoxonResult(statistic=323.0, pvalue=0.621873424330741)

accuracy corrected ttest:  (0.48970011027228733, 0.62521837301606786)

accuracy ttest:  Ttest\_relResult(statistic=0.49168673145293929, pvalue=0.62381712796646149)

svc rbf

npw:  Accuracy majority: 50.000%

npw:  Accuracy: 58.065%

npw:  kappa: 0.161%

npw:  auc: 58.403%

npw:  precision: 57.143%

npw:  recall: 64.516%

npw:  tn, fp, fn, tp: [32 30 22 40]

npw             precision    recall  f1-score   support

          0       0.59      0.52      0.55        62

          1       0.57      0.65      0.61        62

avg / total       0.58      0.58      0.58       124

pw:  Accuracy majority: 50.000%

pw:  Accuracy: 54.032%

pw:  kappa: 0.081%

pw:  auc: 45.565%

pw:  precision: 53.846%

pw:  recall: 56.452%

pw:  tn, fp, fn, tp: [32 30 27 35]

pw             precision    recall  f1-score   support

          0       0.54      0.52      0.53        62

          1       0.54      0.56      0.55        62

avg / total       0.54      0.54      0.54       124

accuracy contingency table bothWrong, npwCorrect, pwCorrect, bothCorrect:  [44 13  8 59]

mcnemar test:  8.0  0.383310317993

accuracy wilcoxon:  WilcoxonResult(statistic=88.0, pvalue=0.27523352407483426)

accuracy corrected ttest:  (-1.0875233794161598, 0.27893204245344405)

accuracy ttest:  Ttest\_relResult(statistic=-1.0919352570830876, pvalue=0.27699576851357133)

svc sigmoid

npw:  Accuracy majority: 50.000%

npw:  Accuracy: 59.677%

npw:  kappa: 0.194%

npw:  auc: 63.293%

npw:  precision: 57.895%

npw:  recall: 70.968%

npw:  tn, fp, fn, tp: [30 32 18 44]

npw             precision    recall  f1-score   support

          0       0.62      0.48      0.55        62

          1       0.58      0.71      0.64        62

avg / total       0.60      0.60      0.59       124

pw:  Accuracy majority: 50.000%

pw:  Accuracy: 63.710%

pw:  kappa: 0.274%

pw:  auc: 58.247%

pw:  precision: 62.687%

pw:  recall: 67.742%

pw:  tn, fp, fn, tp: [37 25 20 42]

pw             precision    recall  f1-score   support

          0       0.65      0.60      0.62        62

          1       0.63      0.68      0.65        62

avg / total       0.64      0.64      0.64       124

accuracy contingency table bothWrong, npwCorrect, pwCorrect, bothCorrect:  [37  8 13 66]

mcnemar test:  8.0  0.383310317993

accuracy wilcoxon:  WilcoxonResult(statistic=88.0, pvalue=0.27523352407483426)

accuracy corrected ttest:  (1.0875233794161596, 0.27893204245344405)

accuracy ttest:  Ttest\_relResult(statistic=1.0919352570830876, pvalue=0.27699576851357133)

logistic l1

npw:  Accuracy majority: 50.000%

npw:  Accuracy: 61.290%

npw:  kappa: 0.226%

npw:  auc: 65.401%

npw:  precision: 60.938%

npw:  recall: 62.903%

npw:  tn, fp, fn, tp: [37 25 23 39]

npw             precision    recall  f1-score   support

          0       0.62      0.60      0.61        62

          1       0.61      0.63      0.62        62

avg / total       0.61      0.61      0.61       124

pw:  Accuracy majority: 50.000%

pw:  Accuracy: 62.097%

pw:  kappa: 0.242%

pw:  auc: 63.866%

pw:  precision: 60.563%

pw:  recall: 69.355%

pw:  tn, fp, fn, tp: [34 28 19 43]

pw             precision    recall  f1-score   support

          0       0.64      0.55      0.59        62

          1       0.61      0.69      0.65        62

avg / total       0.62      0.62      0.62       124

accuracy contingency table bothWrong, npwCorrect, pwCorrect, bothCorrect:  [35 12 13 64]

mcnemar test:  12.0  1.0

accuracy wilcoxon:  WilcoxonResult(statistic=156.0, pvalue=0.84148058112179391)

accuracy corrected ttest:  (0.19841910243654184, 0.84304475568064352)

accuracy ttest:  Ttest\_relResult(statistic=0.19922405139056013, pvalue=0.84241644642666347)