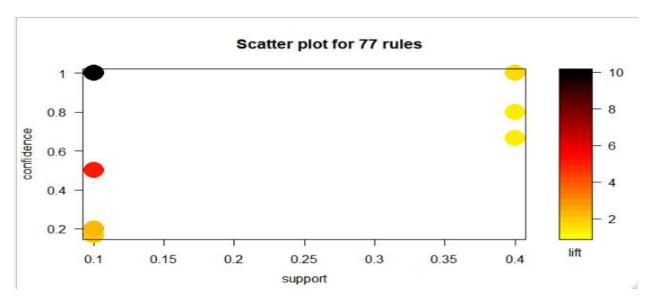
Association Rules

Example-My Movies Dataset

Based on Apriori algorithm with support 0.005 and confidence 0.05 and minimum length as 3 we are getting 77 rules.



> inspect(head(sort(Mrules, by = "lift")))

```
rhs
                                                              support confidence lift count
    {Gladiator, Green. Mile}
                                               {LOTR}
                                                              0.1
                                                                       1.0
                                                                                   10
[2]
[3]
[4]
    {Sixth.Sense,Gladiator,Green.Mile} =>
                                                             0.1
                                                                                         1
                                               {LOTR}
                                                                       1.0
                                                                                   10
                                               {Green.Mile}
                                                             0.1
                                                                       1.0
                                                                                    5
                                                                                         1
    {Gladiator,LOTR}
                                           =>
                                                                                         1
    {Sixth.Sense.LOTR}
                                               {Green.Mile}
                                                             0.1
                                                                       1.0
                                                                                    5
                                                                                         1
    {Sixth.Sense,Green.Mile}
                                               {LOTR}
                                                                      0.5
                                                              0.1
    {LOTR1, Harry. Potter1}
                                               {LOTR2}
                                                              0.1
```

> inspect(head(sort(Mrules, by = "confidence")))

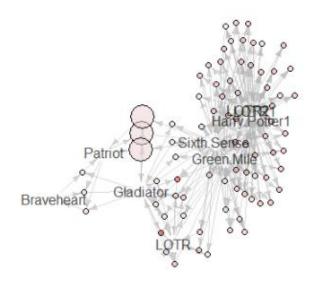
```
rhs
                                                 support confidence lift
[1]
[2]
[3]
[4]
                                 {Gladiator}
    {Patriot, Braveheart}
                                                 0.1
                                                                       1.428571 1
                                                          1
    {Gladiator,Braveheart} =>
                                 {Patriot}
                                                 0.1
                                                                       1.666667
                                 {Gladiator}
    {LOTR,Green.Mile}
                                                 0.1
                                                          1
                                                                       1.428571
                              =>
                                                                        5.000000
                                                                                 1
                                                          1
    {Gladiator,LOTR}
                                  {Green.Mile}
                                                 0.1
    {Gladiator, Green. Mile} =>
                                 {LOTR}
                                                 0.1
                                                          1
                                                                      10.000000 1
    {LOTR, Green. Mile}
                              => {Sixth.Sense} 0.1
                                                                       1.666667 1
```

> inspect(head(sort(Mrules, by = "support")))

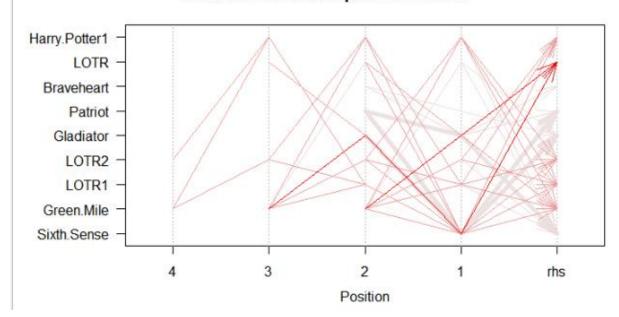
```
support confidence lift
                              rhs
                                                                            count
{Gladiator, Patriot}
                              {Sixth.Sense} 0.4
                                                      0.6666667
                                                                  1.111111 4
                                                                  1.4285\overline{71} 4
                               Gladiator}
                                                      1.0000000
 {Sixth.Sense,Patriot}
                                             0.4
                          =>
 {Sixth.Sense,Gladiator} =>
                              {Patriot}
                                             0.4
                                                      0.8000000
                                                                  1.333333
                              {Gladiator}
                                                      1.0000000
                                                                  1.428571 1
{Patriot,Braveheart}
                          =>
                                             0.1
                                                      1.0000000
                                                                  1.666667
 {Gladiator,Braveheart}
                              {Patriot}
                                             0.1
                          =>
{Gladiator, Patriot}
                              {Braveheart}
                                             0.1
                                                      0.1666667
                                                                  1.666667
```

Graph for 77 rules

size: support (0.1 - 0.4) color: lift (0.714 - 10)



Parallel coordinates plot for 77 rules



10

Grouped Matrix for 77 Rules

3 rules: {Harry.Potter1, LOTR2, +2 items}

8 rules: (LOTR, Gladiator, +4 items)

5 rules: [Green.Mile, Sixth.Sense]

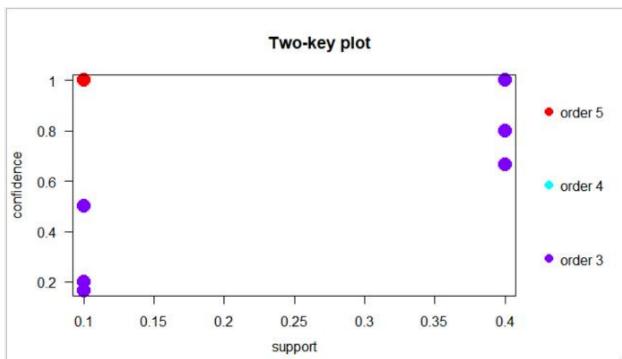
3 rules: {LOTR1, LOTR2}

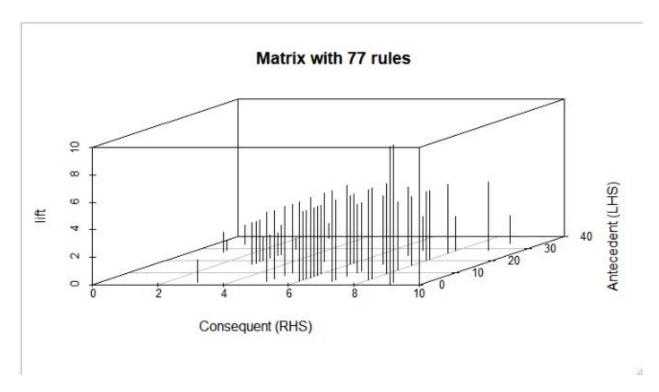


Items in LHS Group 3 rules: {Gladiator, Green.Mile, +1 items} 9 rules: {LOTR2, Sixth.Sense} 9 rules: {LOTR1, Sixth.Sense} 2 rules: {LOTR1, LOTR2, +1 items} 5 rules: {LOTR1, Harry.Potter1, +1 items} 5 rules: {LOTR1, Green.Mile, +1 items} 5 rules: {LOTR1, Green.Mile, +1 items} 5 rules: {LOTR1, Green.Mile, +1 items} 5 rules: {LOTR1, Harry.Potter1} 3 rules: {LOTR1, Harry.Potter1} 3 rules: {LOTR1, Harry.Potter1} 3 rules: {LOTR1, Harry.Potter1}



4 rules: (LOTR, Green.Mile, +4 items) Grules: (Patriot, Braveheart, +4 items)





> inspect(Harrypotter[1:5])

```
support confidence lift count
                                                            rhs
       {LOTR1, Harry.Potter1} => 
{LOTR1, LOTR2} =>
                                                                                                                                     5.0
                                                            {LOTR2}
                                                                                             0.1
                                                                                                              1.0
                                                                                                                                                1
[2] {LOTR1,LOTR2} => {Harry.Potter1} 0.1
[3] {Harry.Potter1,LOTR2} => {LOTR1} 0.1
[4] {LOTR1,Harry.Potter1} => {Green.Mile} 0.1
[5] {LOTR1,Green.Mile} => {Harry.Potter1} 0.1
                                                                                                              0.5
                                                                                                                                                1
                                                                                                                                     5.0
5.0
5.0
                                                                                                              1.0
                                                                                                                                                1
                                                                                                                                                1
1
                                                                                                              1.0
                                                                                                              1.0
```

The people who buy Harry Potter most likely to buy Lord of the ring.