An A Priori Algorithm R Example

Loading required package: arules
Loading required package: Matrix

Attaching package: ‘arules’

The following objects are masked from ‘package:base’:

%in%, write

> #Example of Association Rules
> #Here is one (crude) way to prepare a list of transactions for the 602X Problem
> #require(arules)

> a_list <- list(
+ c("Crest TP", "Crest TB"),
+ c("Oral BTB"),
+ c("Barb SC"),
+ c("Colgate TP", "Barb SC"),
+ c("Old Spice SC"),
+ c("Crest TP", "Crest TB"),
+ c("AIM TP", "GUM TB", "Old Spice SC"),
+ c("Colgate TP", "GUM TB"),
+ c("AIM TP", "Oral BTB"),
+ c("Crest TP", "Barb SC"),
+ c("Colgate TP", "Gillette SC"),
+ c("Crest TP", "Oral BTB"),
+ c("AIM TP"),
+ c("AIM TP", "GUM TB", "Barb SC"),
+ c("Colgate TP", "Crest TB", "Gillette SC"),
+ c("Crest TP", "Crest TB", "Old Spice SC"),
+ c("Oral BTB"),
+ c("AIM TP", "Oral BTB", "Old Spice SC"),
+ c("Colgate TP", "Gillette SC"),
+ c("Oral BTB", "Old Spice SC"),
+ c(),
+ c(),
+ c(),

> names(a_list) <- paste("Tr", c(1:100), sep = "")

> a_list

$Tr1
[1] "Crest TP" "Crest TB"

$Tr2
[1] "Oral BTB"
```r
trans <- as(a_list, "transactions")
```

There were 50 or more warnings (use warnings() to see the first 50)

```r
# Analyze transactions
```
> summary(trans)

transactions as itemMatrix in sparse format with
100 rows (elements/itemsets/transactions) and
9 columns (items) and a density of 0.04444444

most frequent items:

    OralBTB  AIMTP  ColgateTP  CrestTP  OldSpiceSC (Other)
    6          5          5          5          5         14

element (itemset/transaction) length distribution:

    sizes
  0  1  2  3
80  5 10  5

  Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
  0.0     0.0     0.0     0.4     0.0     3.0

includes extended item information - examples:

    labels
  1   AIMTP
  2  BarbSC
  3 ColgateTP

includes extended transaction information - examples:

    transactionID
1   Tr1
2   Tr2
3   Tr3

> inspect(trans)

          items              transactionID
1   {CrestTB, CrestTP}            Tr1
2   {OralBTB}            Tr2
3   {BarbSC}             Tr3
4   {BarbSC, ColgateTP}          Tr4
5   {OldSpiceSC}         Tr5
6   {CrestTB, CrestTP}            Tr6
7   {AIMTP, GUMTB, OldSpiceSC}       Tr7
8   {ColgateTP, GUMTB}            Tr8
9   {AIMTP, OralBTB}            Tr9
10  {BarbSC, CrestTP}          Tr10
11  {ColgateTP, GilletteSC}        Tr11
12  {CrestTP, OralBTB}          Tr12
13  {AIMTP}              Tr13
14  {AIMTP, BarbSC, GUMTB}        Tr14
15  {ColgateTP, CrestTB, GilletteSC}     Tr15
16  {CrestTB, CrestTP, OldSpiceSC}    Tr16
```r
rules <- apriori(trans, parameter=list(supp=.02, conf=.5, target="rules"))

inspect(head(sort(rules, by="lift"), n=20))
```