

Introduction to the **RKEA** Package

Ingo Feinerer

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Abstract

A short introduction to the **RKEA** package.

Introduction

The **RKEA** package provides a R interface to KEA¹, a tool for keyword extraction in texts.

Loading the Package

Before actually working we need to load the package:

```
> library("RKEA")
```

Creating a Keyword Extraction Model

KEA needs a keyword extraction model for keyword extraction. You can build your own models by manually indexing the keywords in a small set of texts, and then call `createModel()`.

```
> library("tm")
> data("crude")
> keywords <- list(c("Diamond", "crude oil", "price"),
+                 c("OPEC", "oil", "price"),
+                 c("Texaco", "oil", "price", "decrease"),
+                 c("Marathon Petroleum", "crude", "decrease"),
+                 c("Houston Oil", "revenues", "decrease"),
+                 c("Kuwait", "OPEC", "quota"))
> tmpdir <- tempfile()
> dir.create(tmpdir)
> model <- file.path(tmpdir, "crudeModel")
> createModel(crude[1:6], keywords, model)
```

Please note that we just wrap the functionality of the original KEA program which always uses files for in- and output (and that is the reason you also need to use a directory in R as shown in the above example). We deliberately decided not

¹<http://www.nzdl.org/Kea/>

to modify the KEA java archive shipped with this R package for compatibility reasons. However this may induce some warnings in R (e.g., because some internal KEA paths might not be available) but nevertheless you should get the full functionality out of it.

Keyword Extraction

Once you have a KEA model you can extract keywords from texts.

```
> extractKeywords(crude, model)

[[1]]
[1] "Diamond"          "cut its contract" "cut"
[4] "reduction"        "contract"         "crude oil"
[7] "dlrs a barrel"    "prices"           "today"
[10] "crude"

[[2]]
[1] "OPEC"          "problems"  "production" "analysts"  "Energy"
[6] "meet"          "OPEC's"    "oil prices" "meeting"    "June"

[[3]]
[1] "Texaco Canada"          "Texaco"
[3] "Canada"                "it lowered the contract price"
[5] "crude oil"              "crude"
[7] "price"                  "it"
[9] "oil"                    "Edmonton/Swann"

[[4]]
[1] "it reduced the contract price" "reduced"
[3] "grades of crude"              "grades"
[5] "crude"                        "price"
[7] "it"                           "West Texas Intermediate"
[9] "posted"                       "posted price"

[[5]]
[1] "future"          "future net"          "reserves"
[4] "estimates"       "Trust said"          "Trust"
[7] "study"           "future net revenues" "net"
[10] "revenues"

[[6]]
[1] "Kuwait"          "OPEC"          "bpd"          "Minister"
[5] "Sheikh Ali"      "Sheikh"        "Ali"          "members"
[9] "international"  "quota"

[[7]]
[1] "says"          "Indonesia"  "economy"  "government"  "report says"
[6] "report"        "appears"    "measures"  "sector"      "investment"
```

[[8]]

[1]	"higher levels"	"riyal"	"deposits"	"higher"
[5]	"OPEC"	"market"	"yesterday's"	"said"
[9]	"yesterday"	"quotes"		

[[9]]

[1]	"billion"	"budget"	"billion riyals"
[4]	"riyals"	"government"	"Sheikh Abdul-Aziz"
[7]	"Abdul-Aziz"	"expenditure"	"decline"
[10]	"Sheikh"		

[[10]]

[1]	"Saudi"	"accord"	"Nazer"	"commitment"	"OPEC"
[6]	"OPEC accord"	"SPA"	"free"	"free market"	"market"

[[11]]

[1]	"Saudi"	"exports"	"January"
[4]	"bpd"	"output"	"fell"
[7]	"average"	"Ju'aymah"	"Ju'aymah terminals"
[10]	"February"		

[[12]]

[1]	"official"	"oil ministers"	"ministers"	"Gulf"
[5]	"Arab"	"states"	"Emirates"	"crude oil"
[9]	"crude"	"oil"		

[[13]]

[1]	"Saudi"	"commitment"	"OPEC accord"
[4]	"OPEC"	"Nazer"	"commitment to last"
[7]	"OPEC accord to boost"	"accord"	"oil prices"
[10]	"kingdom's"		

[[14]]

[1]	"oil minister said"	"OPEC"
[3]	"oil minister"	"meeting"
[5]	"oil prices"	"prices"
[7]	"oil"	"pumping above its OPEC"
[9]	"daily"	"pumping"

[[15]]

[1]	"power"	"port"	"closed"
[4]	"lines"	"oil"	"ship"
[7]	"nuclear power plant"	"nuclear power"	"nuclear"
[10]	"plant"		

[[16]]

[1]	"group"	"strategic"
[3]	"mln barrels"	"oil prices on the domestic"
[5]	"reserve"	"present"
[7]	"U.S"	"mln"

```

[9] "barrels"                "prices"

[[17]]
[1] "group"                    "strategic"
[3] "mln barrels"              "oil prices on the domestic"
[5] "reserve"                  "U.S"
[7] "study"                    "present"
[9] "policy"                   "industry"

[[18]]
[1] "Union"                    "Union Oil Co"        "Union Oil"
[4] "Union Oil Co said"      "posted"               "posted prices"
[7] "lowered"                "Corp's"               "crude oil"
[10] "dlrs"

[[19]]
[1] "NYMEX"                    "Exchange"
[3] "futures"                  "transaction"
[5] "change"                   "hold a futures position"
[7] "hold a futures"           "futures position"
[9] "position"                 "traders"

[[20]]
[1] "January"
[2] "mln barrels"
[3] "pct"
[4] "mln"
[5] "Yacimientos Petroliferos Fiscales"
[6] "Yacimientos Petroliferos"
[7] "Yacimientos"
[8] "Petroliferos"
[9] "Petroliferos Fiscales"
[10] "Fiscales"

> unlink(tmpdir, recursive = TRUE)

```