Cost-effectiveness acceptability curve plots

```r
library(BCEA)
library(dplyr)
library(reshape2)
library(ggplot2)
library(purrr)
```

The intention of this vignette is to show how to plot different styles of cost-effectiveness acceptability curves using the BCEA package.
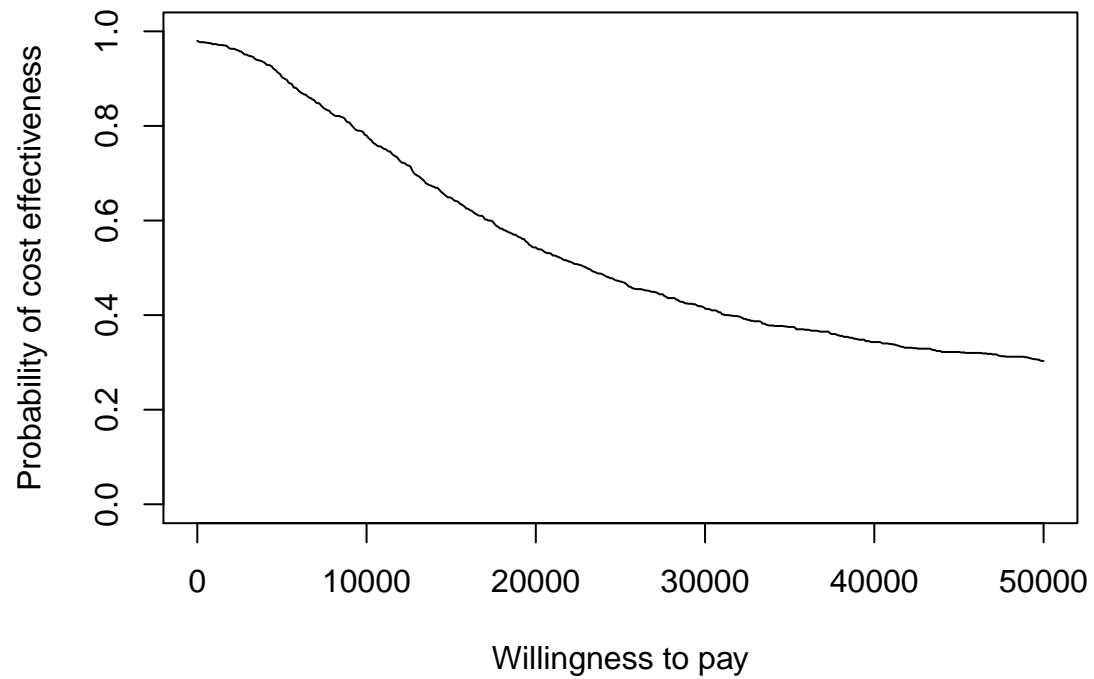
Two interventions only

This is the simplest case, usually status-quo versus an alternative intervention.

```r
data("Vaccine")

he <- bcea(e, c)
# str(he)

ceac.plot(he)
```
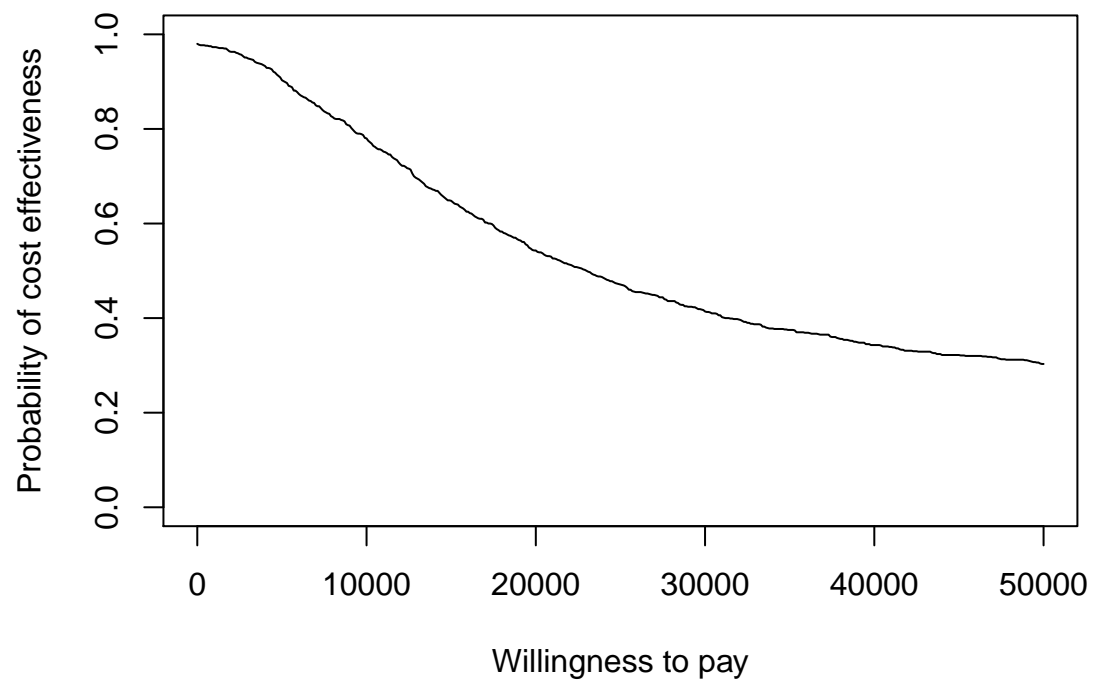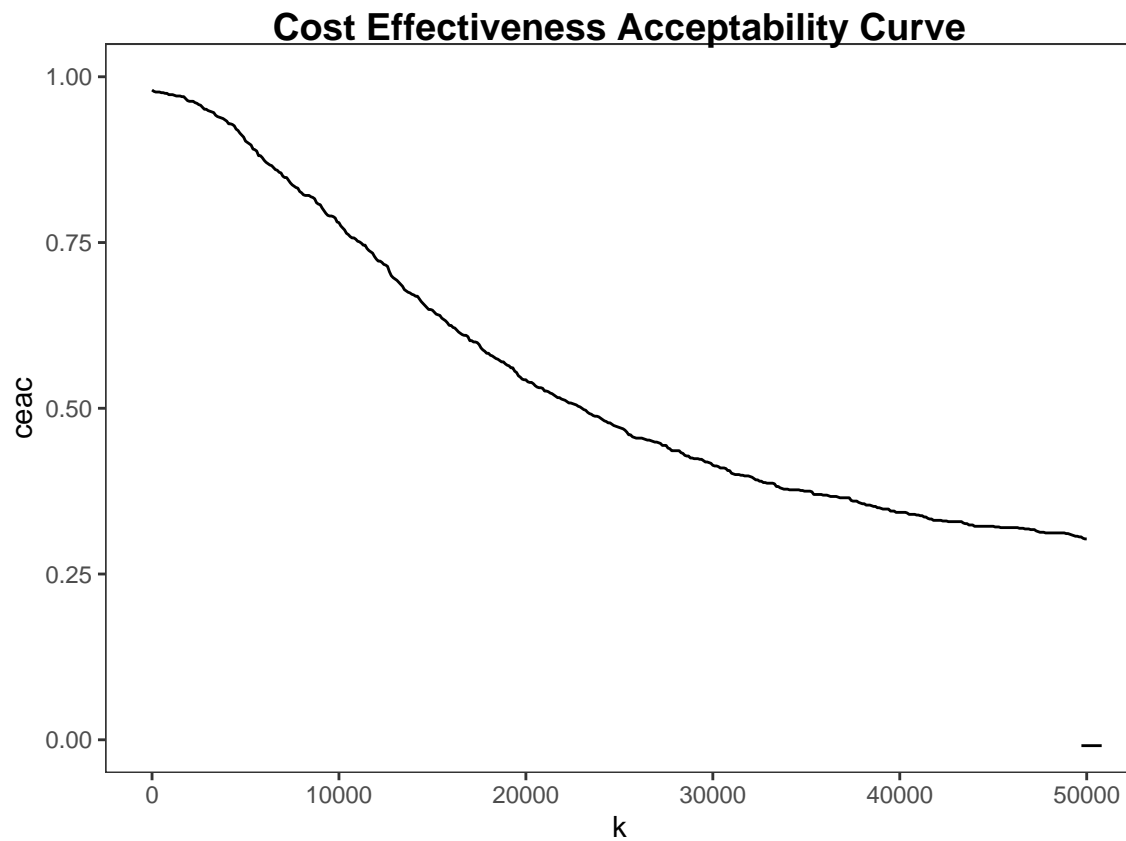
Cost Effectiveness Acceptability Curve

The plot defaults to base R plotting. Type of plot can be set explicitly using the `graph` argument.

```
ceac.plot(he, graph = "base")
```
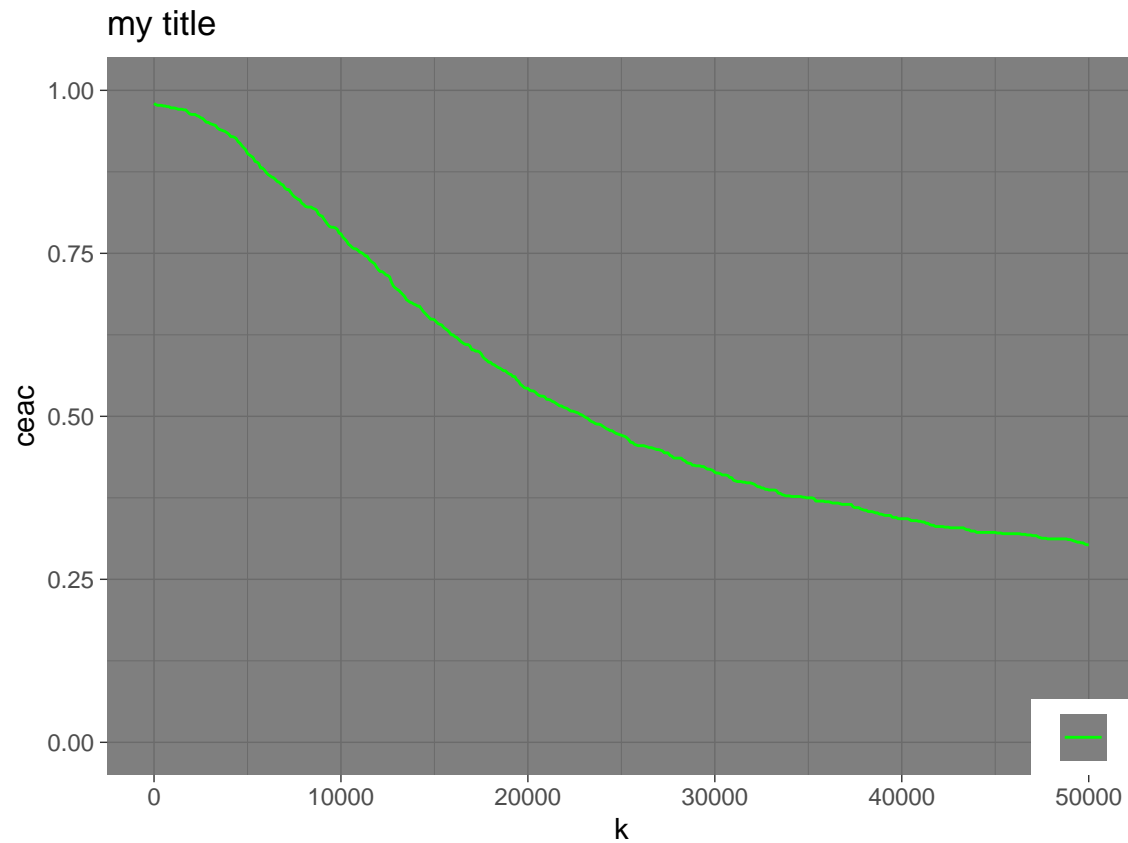
Cost Effectiveness Acceptability Curve


```
ceac.plot(he, graph = "ggplot2")
```

Cost Effectiveness Acceptability Curve


```
# ceac.plot(he, graph = "plotly")
```

Other plotting arguments can be specified such as title, line colours and theme.

```
ceac.plot(he,
          graph = "ggplot2",
          title = "my title",
          line = list(colors = "green"),
          theme = theme_dark())
```

Multiple interventions

This situation is when there are more than two interventions to consider. Incremental values can be obtained either alway against a fixed reference intervention, such as status-quo, or for all pair-wise comparisons.

Against a fixed reference intervention
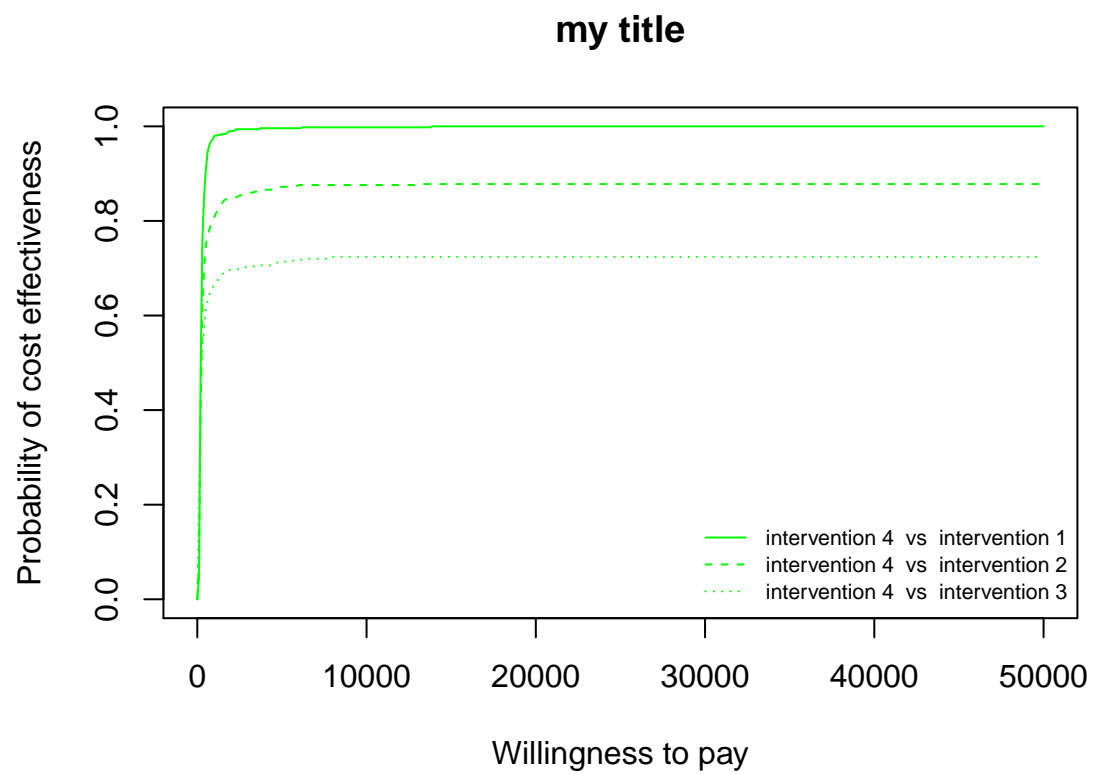
```
data("Smoking")

he <- bcea(e, c, ref = 4)
# str(he)

ceac.plot(he)
#> Wrong number of colours provided. Falling back to default
```

Cost Effectiveness Acceptability Curve

Plot axes: y-axis "Probability of cost effectiveness" (0.0 to 1.0), x-axis "Willingness to pay" (0 to 50000)

Legend:
- intervention 4 vs intervention 1
- intervention 4 vs intervention 2
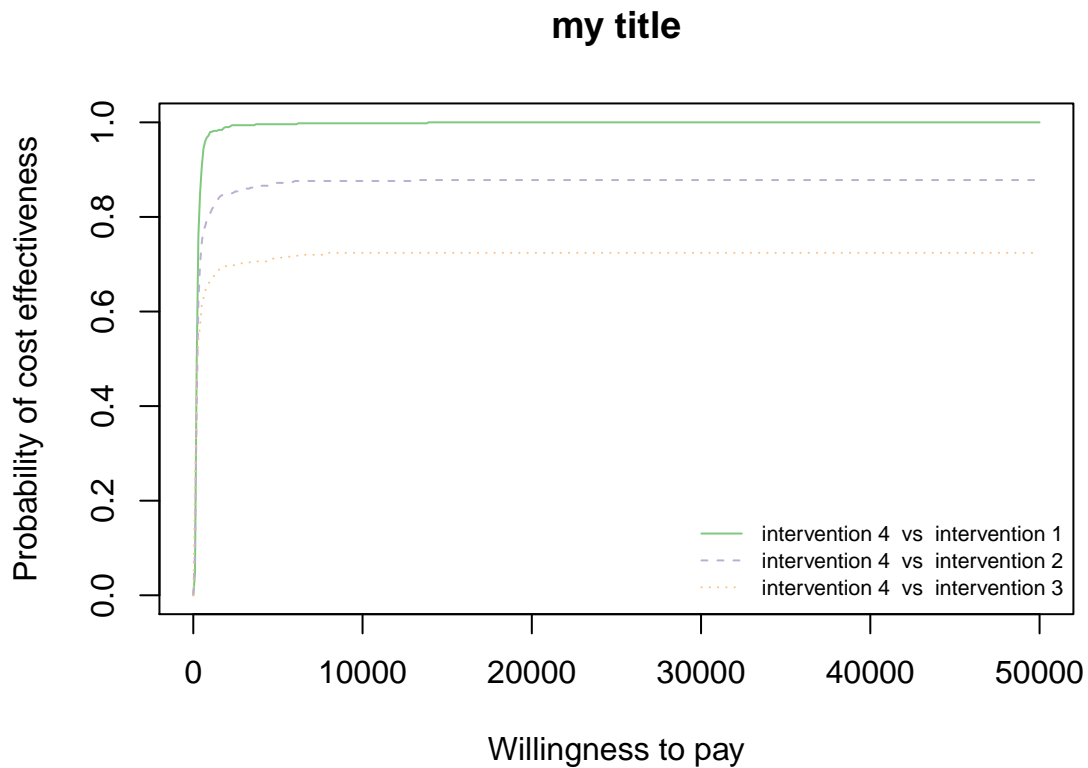- intervention 4 vs intervention 3

```r
ceac.plot(he,
        graph = "base",
        title = "my title",
        line = list(colors = "green"),
        pos = FALSE)
#> Wrong number of colours provided. Falling back to default
```
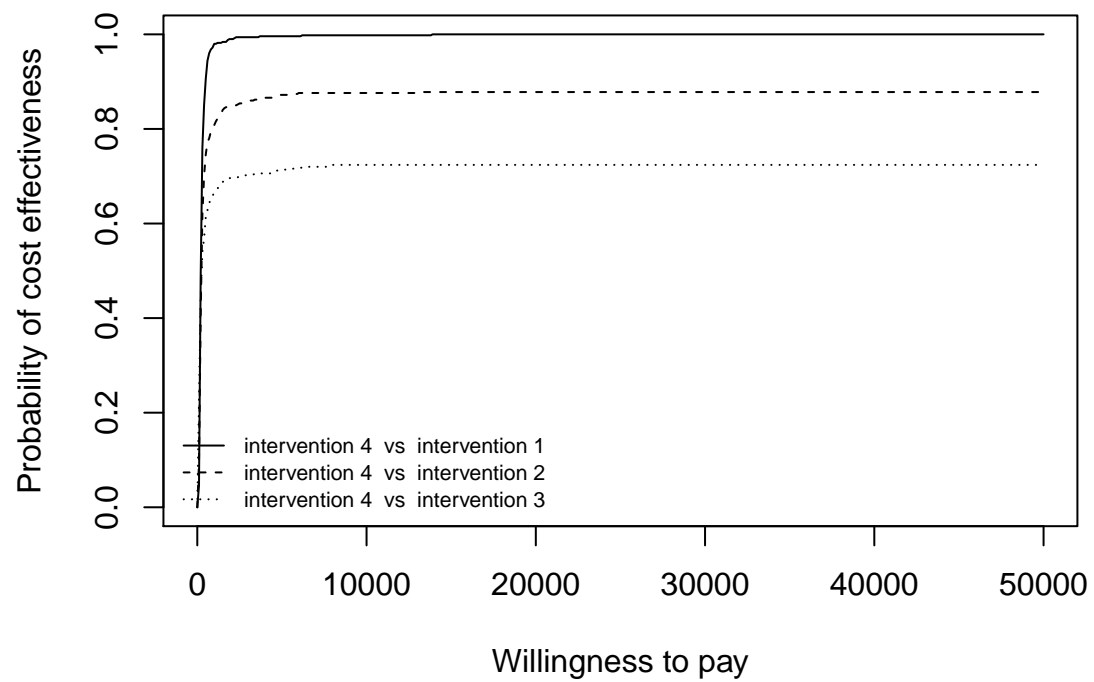
my title


```
mypalette <- RColorBrewer::brewer.pal(3, "Accent")

ceac.plot(he,
          graph = "base",
          title = "my title",
          line = list(colors = mypalette),
          pos = FALSE)
```

my title

Probability of cost effectiveness (y-axis)
Willingness to pay (x-axis)

Legend:
- intervention 4 vs intervention 1
- intervention 4 vs intervention 2
- intervention 4 vs intervention 3

Pair-wise comparisons

First we must determine all combinations of paired interventions using the `multi.ce()` function.

```
he <- multi.ce(he)
```

We can use the same plotting calls as before i.e. `ceac.plot()` and BCEA will deal with the pairwise situation appropriately. Note that in this case the probabilities at a given willingness to pay sum to 1.

```
ceac.plot(he, graph = "base")
#> Wrong number of colours provided. Falling back to default
```

Cost Effectiveness Acceptability Curve

Probability of cost effectiveness vs Willingness to pay

Legend:
- intervention 1
- intervention 2
- intervention 3
- intervention 4

```r
ceac.plot(he,
        graph = "base",
        title = "my title",
        line = list(colors = "green"),
        pos = FALSE)
#> Wrong number of colours provided. Falling back to default
```

my title

Probability of cost effectiveness

intervention 1
intervention 2
intervention 3
intervention 4

Willingness to pay
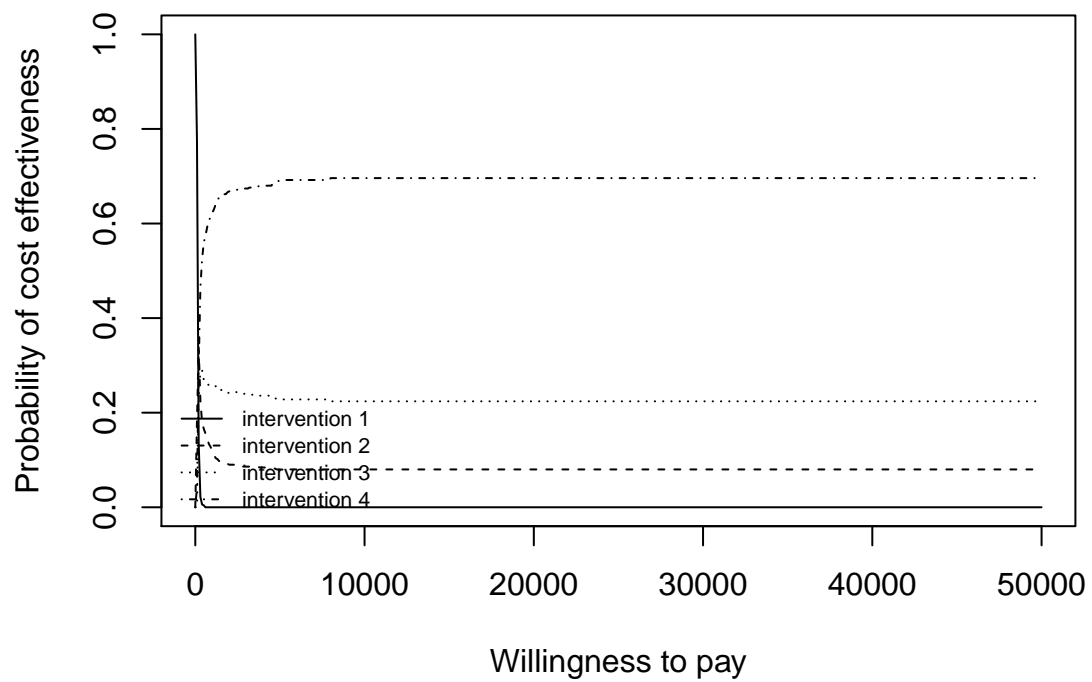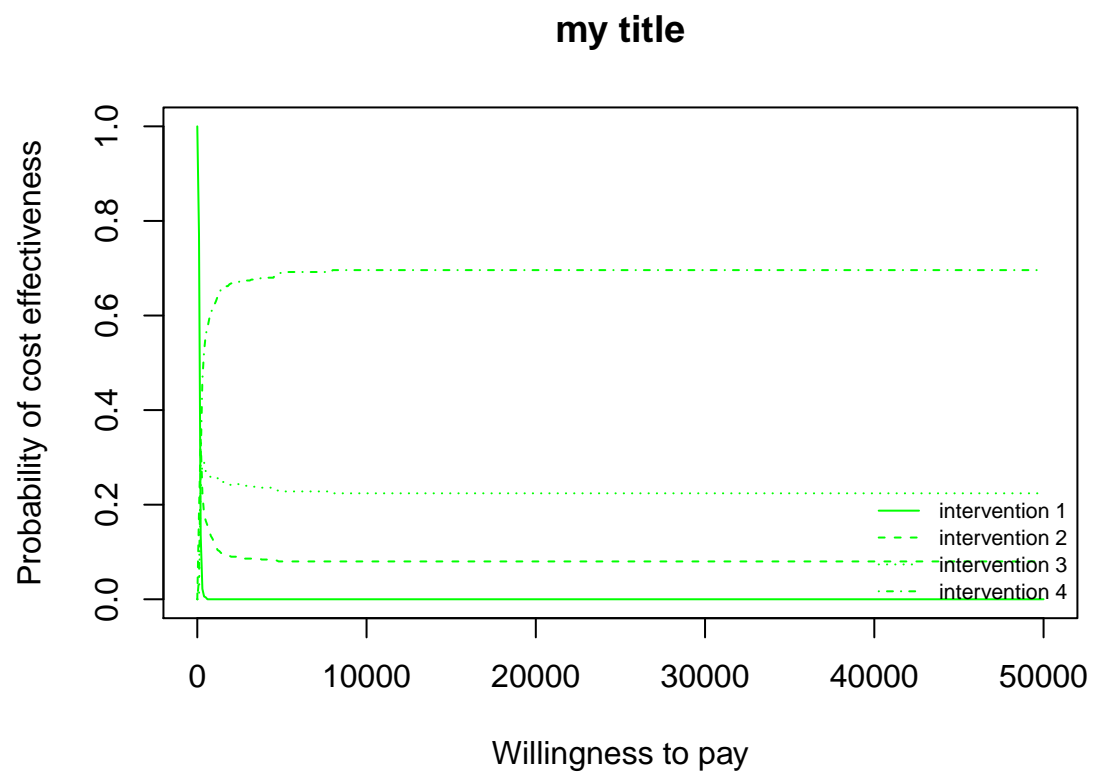
```
mypalette <- RColorBrewer::brewer.pal(4, "Dark2")

ceac.plot(he,
          graph = "base",
          title = "my title",
          line = list(colors = mypalette),
          pos = c(0,1))
```

my title
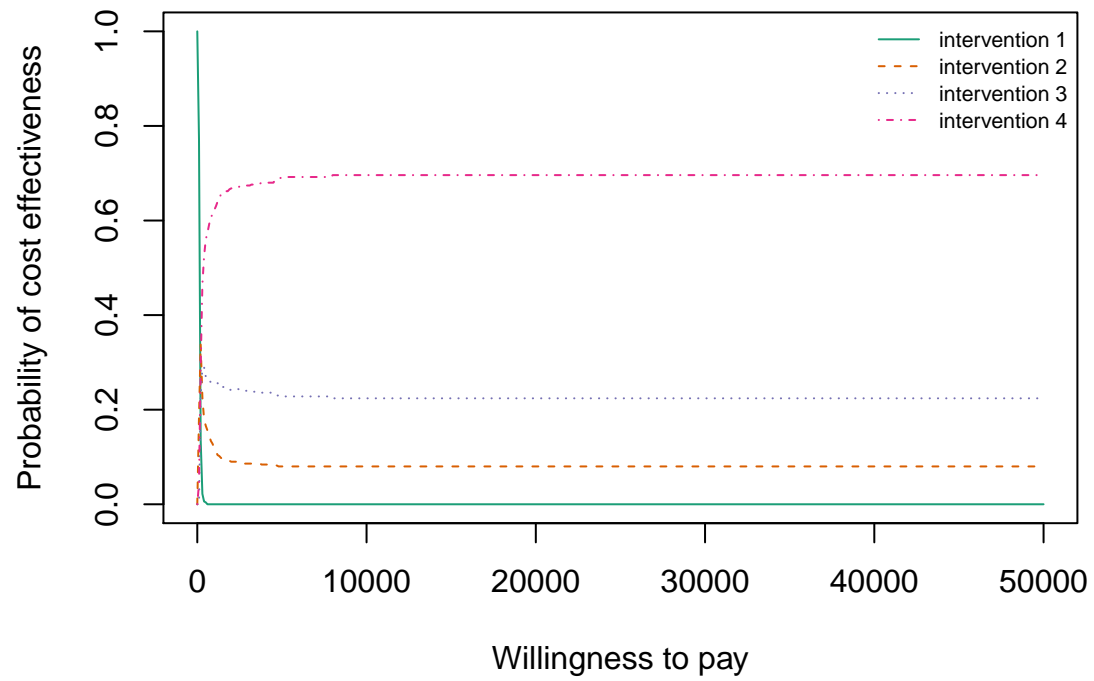

```
# rmarkdown::render(input = "vignettes/ceac.Rmd", output_format = "pdf", output_file = "vignette_ceac",
```