```r
# evplot()
# Plot eigenvalues and percentages of variation
# Kaiser rule and broken stick model
#
# License: GPL-2
# Author: Francois Gillet, Octber 2007

evplot = function(ev) {
    # Broken stick model (MacArthur 1957)
    n = length(ev)
    bsm = data.frame(j=seq(1:n), p=0)
    bsm$p[1] = 1/n
    for (i in 2:n) {
        bsm$p[i] = bsm$p[i-1] + (1/(n + 1 - i))
    }
    bsm$p = 100*bsm$p/n
    # Plot eigenvalues and % of variation for each axis
    op = par(mfrow=c(2,1))
    barplot(ev, main="Eigenvalues", col="bisque", las=2)
    abline(h=mean(ev), col="red")
    legend("topright", "Average eigenvalue", lwd=1, col=2, bty="n")
    barplot(t(cbind(100*ev/sum(ev), bsm$p[n:1])), beside=T,
        main="% variation", col=c("bisque",2), las=2)
    legend("topright", c("% eigenvalue", "Broken stick model"),
        pch=15, col=c("bisque",2), bty="n")
    par(op)
}
```

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