Package ‘plugdensity’

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Title Plug-in Kernel Density Estimation
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Description Kernel density estimation with global bandwidth selection
  via `"plug-in"`
Imports utils
License GPL (>= 2)
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  https://r-forge.r-project.org/scm/viewvc.php/pkg/plugdensity/?root=curves-etc
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R topics documented:

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Kernel Density Estimation by Plug-In Bandwidth Selection

**Description**

The function `plugin.density()` provides kernel density estimation with iterative plug-in bandwidth selection.

`bw.EH()` computes the bandwidth (smoothing parameter) which `plugin.density()` also uses.

**Usage**

```r
plugin.density(x, nout = 201, xout = NULL, na.rm = FALSE)
bw.EH(x)
```

**Arguments**

- `x` vector of numbers whose density is to be estimated.
- `nout` integer specifying the number of equispaced `xout` values to use only when `xout` = `NULL` (as by default).
- `xout` numeric vector of abscissa values at which the density is to be evaluated. By default, an equispaced sequence of values covering (slightly more than) the range of `x`.
- `na.rm` logical; if `TRUE`, missing values are removed from `x`. If `FALSE` any missing values cause an error.

**Value**

`bw.EH()` returns the bandwidth `h` computed by Eva Herrmann’s plugin bandwidth selector.

`plugin.density()` returns an object of class "densityEHpi" inheriting also from class "density". It is a list with components

- `x` the `n` coordinates of the points where the density is estimated.
- `y` the estimated density values.
- `bw` the bandwidth used.
- `n` the sample size after elimination of missing values.
- `call` the call which produced the result.
- `data.name` the deparsed name of the `x` argument.

**Author(s)**

Algorithm and C code: Eva Herrmann <eherrmann@mathematik.tu-darmstadt.de>; R interface: Martin Maechler <maechler@R-project.org>.

**Source**

Original code, no longer available, from ‘http://www.unizh.ch/biostat/Software/’.
plugin.density

References


See Also
density.

Examples
data(co2)
plot(dco2 <- density(co2), ylim = c(0, 0.03))
(pdco2 <- plugin.density(co2, xout = dco2$x))
lines(pdco2, col = "red")

plot(pdco2)# calls 'plot.density' method

str(pdco2 <- plugin.density(co2))
xo <- pdco2$x
str(d.co2 <- density(co2, n = length(xo), from=xo[1], to=max(xo),
        width= 4 * pdco2$bw))
nms <- c("x", "y", "bw", "n")
all.equal(d.co2[nms], pdco2[nms])
## are close: "Component 2 (= 'y'): Mean relative difference: 0.0009..."
## be.EH() directly computes the bandwidth only:
stopifnot(all.equal(bw.EH(co2), pdco2$bw, tol = 3e-16))
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