Package ‘ao’

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Title Alternating Optimization
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Description Alternating optimization of high-dimensional functions is an iterative procedure for minimizing (or maximizing) jointly over all parameters by alternately optimizing for parameter subsets. For a reference, see Bezdek and Hathaway (2002) "Some Notes on Alternating Optimization" <doi:10.1007/3-540-45631-7_39>.
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ao

| Alternating Optimization |

Description

This function performs alternating optimization on the function f.
Usage

\texttt{ao(f, npar, groups, sequence, initial, minimize = TRUE, progress = FALSE, ...)}

Arguments

\begin{itemize}
\item \texttt{f} A function of \(n\) variables to be optimized.
\item \texttt{npar} An integer, the number \(n\) of variables of \(f\).
\item \texttt{groups} A list of vectors of parameter indices \(1, \ldots, n\) of \(f\). This determines the grouping of parameters. Indices can be present in multiple groups. If one group equals \(1, \ldots, n\), full estimation is carried out.
\item \texttt{sequence} A vector of indices of the list \texttt{groups}. This determines the sequence in which parameter groups get optimized.
\item \texttt{initial} A vector of length \(n\) of initial parameter values. If not supplied, they are randomly drawn.
\item \texttt{minimize} A boolean, determining whether to minimize (\texttt{minimize = TRUE}) or to maximize (\texttt{minimize = FALSE}) the function \(f\).
\item \texttt{progress} A boolean, determining whether progress should be printed.
\item \ldots Arguments that get passed on to \texttt{nlm}.
\end{itemize}

Value

A list containing the following components:

\begin{itemize}
\item \texttt{optimum} The optimal value of \(f\).
\item \texttt{estimate} The parameter vector at which the optimum of \(f\) is obtained.
\item \texttt{time} The total optimization time.
\end{itemize}

Examples

\begin{verbatim}
npar = 2
sequence = rep(c(1,2),10)
groups = list(1,2)
ao(f = f, npar = npar, sequence = sequence, groups = groups)
\end{verbatim}
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