

**NAME**

**tred** – transitive reduction filter for directed graphs

**SYNOPSIS**

**tred** [ **-ovr?** ] [ *files* ]

**DESCRIPTION**

**tred** computes the transitive reduction of directed graphs, and prints the resulting graphs to a file or standard output. This removes edges implied by transitivity. Nodes and subgraphs are not otherwise affected. The “meaning” and validity of the reduced graphs is application dependent. **tred** is particularly useful as a preprocessor to *dot* to reduce clutter in dense layouts.

Undirected graphs are silently ignored.

**OPTIONS**

The following options are supported:

**-o FILE**

Redirect output to the given file. By default, output goes to stdout.

**-v**      Verbose output to stderr.

**-r**      Print information of removed edges to stderr.

**-?**      Print usage information.

**OPERANDS**

The following operand is supported:

*files*      Names of files containing 1 or more graphs in dot format. If no *files* operand is specified, the standard input will be used.

**BUGS**

Using bitmaps internally would substantially decrease running time.

**DIAGNOSTICS**

If a graph has cycles, its transitive reduction is not uniquely defined. In this case *tred* emits a warning.

**AUTHORS**

Stephen C. North <north@research.att.com>

Emden R. Gansner <erg@research.att.com>

**SEE ALSO**

*gc*(1), *dot*(1), *acyclic*(1), *gvpr*(1), *gvcolor*(1), *ccomps*(1), *sccmap*(1), *libgraph*(3)