NAME
>   mingle − fast edge bundling

SYNOPSIS
>   **mingle** [*options*] [**−o** *outfile*] [*files*]

DESCRIPTION
>   **mingle** takes as input a graph in DOT format with node position information (the *pos* attribute) and bundles
>   the edges.

OPTIONS
>   The following options are supported:

>   **−m** *k*   indicates which method to use for bundling. A value of 0 corresponds to a force-directed bundling.
>   A value of 2 uses a cluster plus ink saving approach. If available, a value 1 denotes an agglomera-
>   tive ink saving method. Normally, the last is the default.

>   **−a** *k*   specifies the maximum turning angle, in degrees, as a non-negative real. The larger the value, the
>   more edges may bend. If the value is 0, there is no limitation on the turning angle. The default is
>   40. The parameter is not used in force-directed bundling.

>   **−c** *v*   specifies which compatability measure to use. The value 0, the default, uses a distance metric,
>   while a value of 1 relies on full compatability. This value is only used in force-directed bundling.

>   **−i** *k*   gives the maximum number of iterative divisions of edges allowd in force-directed bundling. The
>   default is 4.

>   **−k** *k*   gives the number of neighbors to be used in forming a nearest neighbor graph. This parameter is
>   only used in the agglomerative method. The default is 10.

>   **−K** *k*   is a positive real value giving the force constant used in force-directed bundling. By default, the
>   value is determined automatically.

>   **−o** *file*   puts output in *file*. Default output is stdout

>   **−p** *k*   Except for the force-directed method, bundling minimizes *ink* * (*k* − *cos*(*turningangle*)). The
>   larger the value of *k*, the less emphasis is put on avoiding sharp turning angles and the faster the
>   bundling. The default value is -1.

>   **−r** *k*   is a non-negative integer giving the maximum recursion level used in the agglomerative method.
>   The default is 100.

>   **−T** *fmt*   specifies the output format. At present, the output is always in the DOT format. If *fmt* is "simple",
>   the output is a simple, schematic representation of the drawing. Only the node positions and edges
>   are retained from the original graph. If *fmt* is "gv", the drawing information is attached to the input
>   graph.

>   **−v** *k*   determines the verbose level used for tracing the algorithm. The value *k* is optional; if not pro-
>   vided, the value 1 is used.

>   **−?**   Print usage and exit.

BUGS
>   At present, **mingle** does not handle graphs with loops or directed multiedges. So, a graph with edges *a -> b*
>   and *b -> a* is acceptable, but not if it has edges *a -> b* and *a -> b* or *a -- b* and *a -- b*.

AUTHOR
>   Emden R. Gansner <erg@research.att.com> Yifan Hu <yifanhu@research.att.com>

SEE ALSO
>   sfdp(1), neato(1), gvpr(1)

>   Emden R. Gansner, Yifan Hu, Stephen C. North and Carlos Scheidegger, ''Multilevel Agglomerative Edge
>   Bundling for Visualizing Large Graphs'', IEEE Pacific Visualization Symposium PacificVis, pp. 187-194,
>   2011.