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yada - yet another decomposition algorithm

Yada is used to decompose a mesh for parallel execution under Salinas. It was written because the standard tools (such as nem_slice) will typically not properly account for mechanisms in the subdomain. Thus, a well connected structure can be decomposed into subdomains that are full of structural mechanisms (zero energy modes). These mechanisms adversely affect convergence of the parallel solvers used in Salinas.

Gotchas

1. To insure no mechanisms are generated, the number of subdomains output may be different than the number requested.
2. Solids and shells usually decompose without a hitch. Combinations of beams and solids can be a mess.
3. Yada must be run on a machine with sufficient memory to store the undecomposed model (kind of obvious).
4. The 'chaco' decomposition library used by **yada** will fail if too many elements connect to a single node. Thus, spoke like connections of beams may cause a failure. A few hundred is usually OK, but thousands cause problems. The 'metis' decomposition is not usually affected the same way.

Disconnected Pieces

Yada has a unique view of connectivity. Click here for details.

Usage

yada [exodus_file] [number_of_subdomains]

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Questions

Address questions to the sierra mechanics email expander,
sierra-help@sandia.gov
