

## UAI to MSC NASTRAN Update

### 1. NASTRAN Capabilities List

- Provided MSC Software with our NASTRAN Capabilities list in Dec. 1999
- MSC Software addressed each in memorandum of January 20, 2000
- All capabilities (except the items listed below) are in MSC/NASTRAN now or will be in the software by Version 71 which will be released in Dec. 2000.

Exceptions include:

**- Item 3. MPC option for AutoSPC**

MSC Software's response: "Shell normals in MSC.Nastran are the technically correct approach to out-of-plane singularities and the MPC option isn't recommended (or available) at this time."

**- Item 13. Buckling Analysis-classical bifurcation and finite disturbance**

MSC Software's response: "Please elaborate on "finite disturbance". MSC.Nastran's buckling analysis contains buckling modes (load factors) in Sol 103, nonlinear buckling (snap-through problems) in Sol 106, and user definable buckling criteria via the DEQATN entry in Sol 200, does(sic) these capabilities address this need."

**- Item 18. Dynamics analysis features- Auto-omit option to perform Guyan reduction without requiring the user to manually specify the A-set DOFs; instead, the user should be able to specify a percentage of retained DOFs based on mass.**

MSC Software's response: "A-set DOF retention based on mass approximation not directly available (currently available in checka alter, portions of which are to be added in V71.) There are no immediate plans to include an automated a-set retention based on mass approximation quality (checka alter currently provides reduced mass checks via GPWG and will be included in V71), though further clarification sought."

- This is the time to ask for things we want in the software. We already mentioned thermally expanding rigid elements, interface elements with h-elements, and the recently developed model correlation effort by UAI.

### 2. DMAP Conversion

- A list of our most frequently used UAI DMAPs provided to Bill Case. Most of these DMAPs are available in MSC or Bill is willing to modify them to make them work in MSC.

### **3. Cost**

- For 12 simultaneous on-site users, unlimited NASTRAN capabilities, 3 days of training (chosen from an already developed MSC course list)

\$150,000 for the first year with linear increases to \$300,000 for the fifth year.

- MSC Software to provide GSFC with a draft contract

### **4. NASTRAN Alternatives**

- Ryan working with MI/NASTRAN to set up a visit with a demo of the software

- ANSYS: How much does it cost? What are its capabilities?

Sandra and Reg