I have one important addition and one important correction to my talk today (2:00pm talk titled "Grade Restriction Rule for ..." at the Workshop *Gauged Sigma-Models in Two Dimensions*).

Addition

The talk is based on a joint work with Richard Eager, Johanna Knapp and Mauricio Romo.

Correction

During the talk, Tudor Dimofte asked me what do I mean by "empty brane", and whether it means supersymmetry breaking. I answered, "No it does not mean supersymmetry breaking". But the correct answer is: "Yes, it means supersymmetry breaking at the boundary". For example, let us consider the matrix factorization of the superpotential $W = pF(x)$ in Example 1,

$$Q = \begin{pmatrix} 0 & p \\ F(x) & 0 \end{pmatrix}, \tag{0.1}$$

which I said to be empty in the $\zeta \ll 0$ phase (Landau-Ginzburg orbifold phase). The boundary potential of this brane is

$$\{Q, Q^\dagger\} = (|p|^2 + |F(x)|^2)\mathbf{1}_2. \tag{0.2}$$

In the $\zeta \ll 0$ phase, p is non-zero in the classical vacuum in the bulk and thus the potential (0.2) is positive. Hence the ground state has a positive energy at the boundary and supersymmetry is spontaneopusly broken. In quantum field theory, "empty" is often used for "absence of degrees of freedoom in the deep infra-red". That is *not* the meaning of the adjective here, from the view point of the worldsheet. However, when there is a spacetime picture, a complete tachyon condensation means absence of D-brane, and that is why "empty" is used. I confused myself with my own use of the term.

My apologies. November 6, 2014, Kentaro Hori