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On the modified nonlinear Schrödinger equation in the semiclassical limit.

The modified nonlinear Schrödinger (MNLS) equation is a completely integrable system that appears to be a perturbation of the focusing nonlinear Schrödinger (NLS) equation. However, the perturbation is singular and it turns out that one of its effects is that for certain initial data the problem behaves more like a perturbed defocusing NLS equation than a perturbed focusing NLS equation. This effect is particularly dramatic in the semiclassical limit, in which it can be seen that the modulational instability of the unperturbed problem completely disappears in the perturbed problem for certain initial conditions. This is joint work with Jeffery DiFranco and Benson Muite. (Received December 12, 2011)