OVERVIEW

• Effect of basal shear

• Effect of oblique convergence

• Effect of strength inhomogeneity
Figure 1: Map of the Midcontinent Rift system and the Grenville Front (modified from Hinze and Kelly, 1988). Also shown is the location of gravity profile in Figure 2.3.
Figure 2: A schematic representation of the evolution of the Midcontinent Rift system (MCR). (i) Initiation of rifting by a mantle plume in a compressive regime. (ii) Rifting progressed as the plume developed and matured. During this time the North American lithosphere changed from a compressive to tensile regime. (iii) When the plume activity ceased, compressive forces from the Grenville Tectonic Zone (GTZ) transformed back the North American plate from tensile to compressive regime. This caused uplift of the hot and weak volcanic rocks of the MCR. P is the lateral end load and T is the basal shear traction.