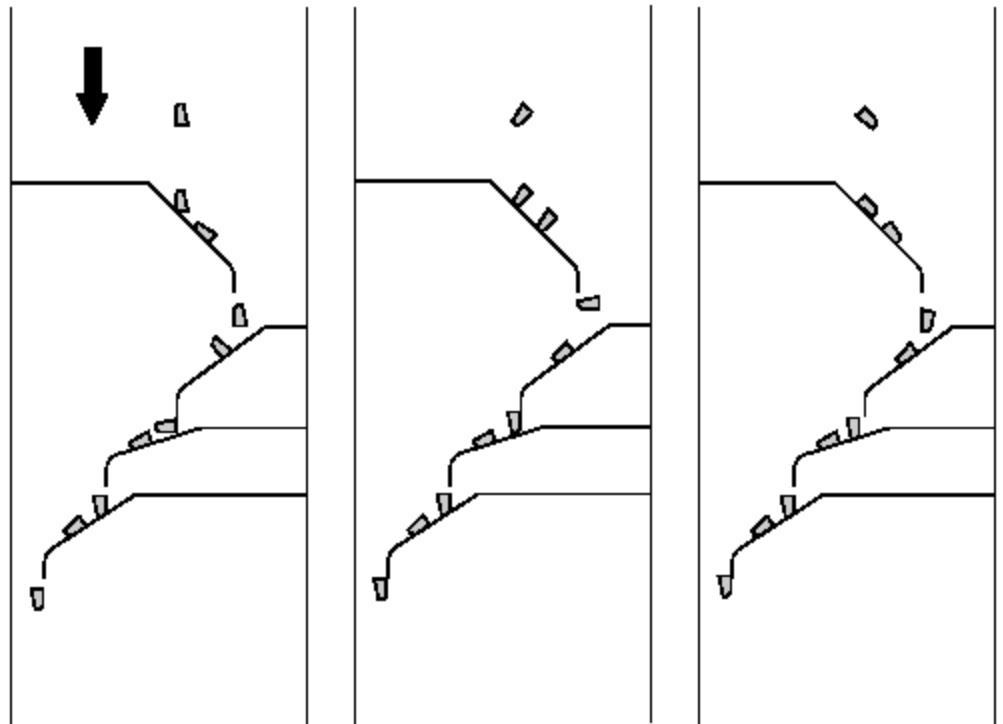
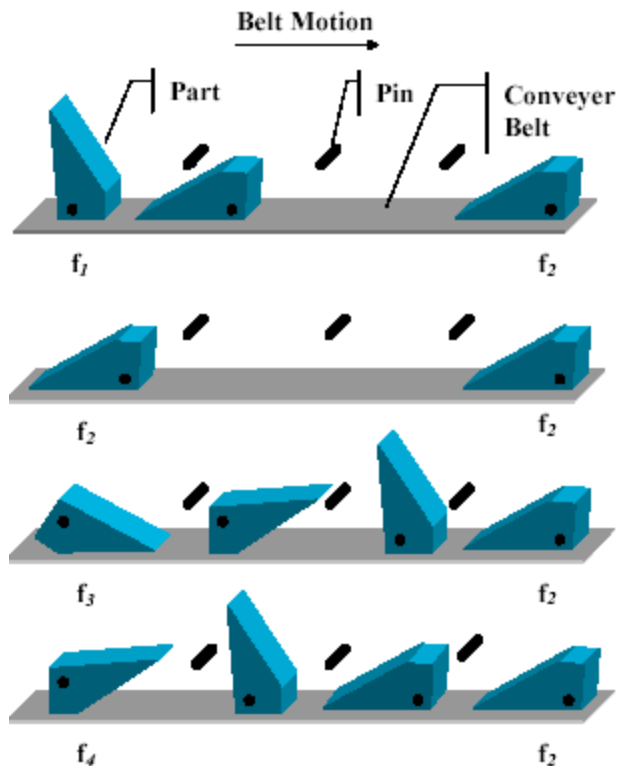


Conveyors



- Orienting with pins or fences

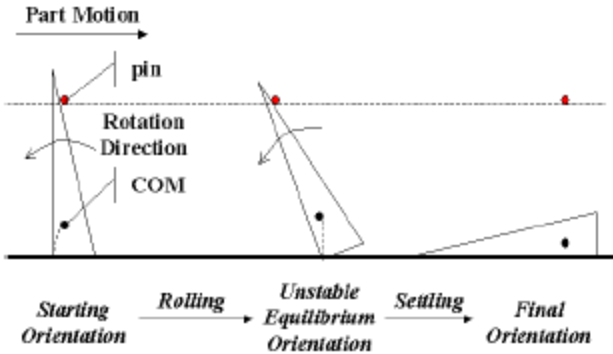


Figure 3. Two phases of toppling: *rolling and settling*.

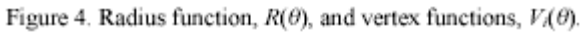


Figure 4. Radius function, $R(\theta)$, and vertex functions, $V_i(\theta)$.

Conveyor part orientation - pins

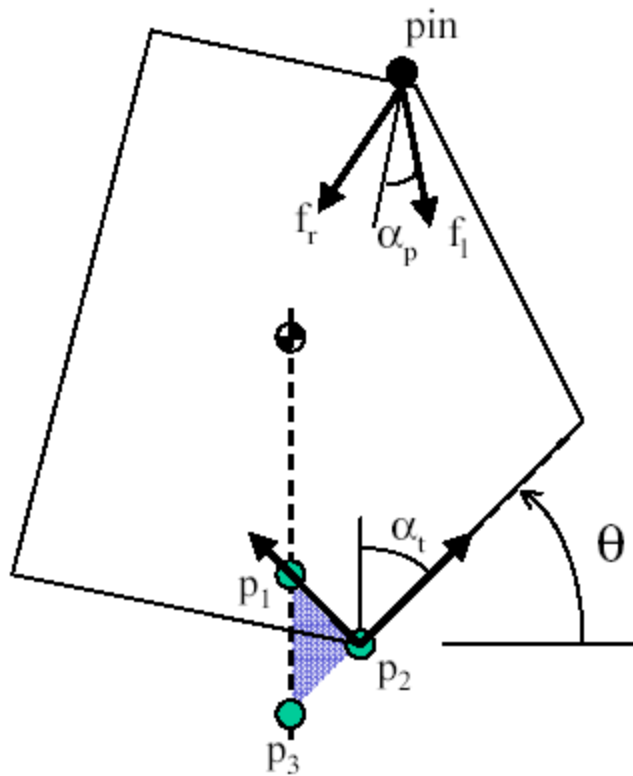


Figure 7. Jamming conditions.

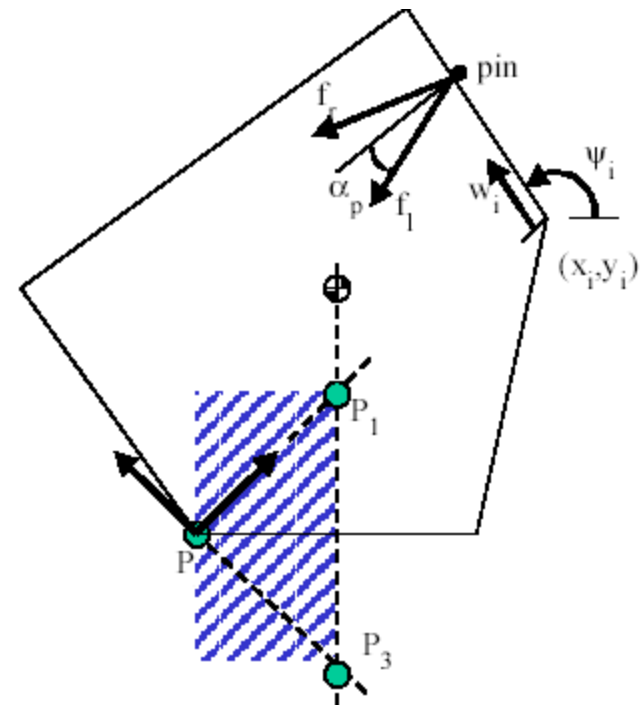
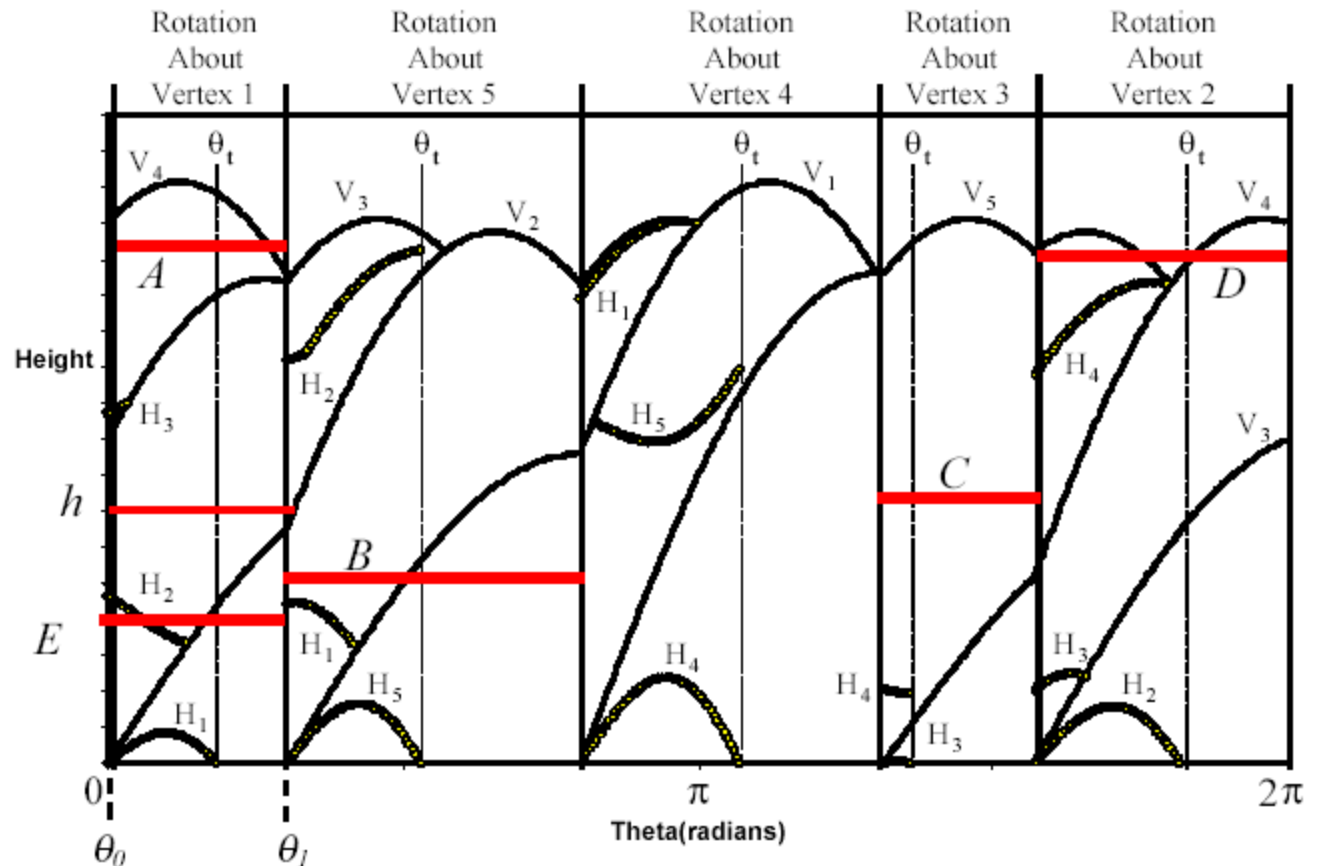
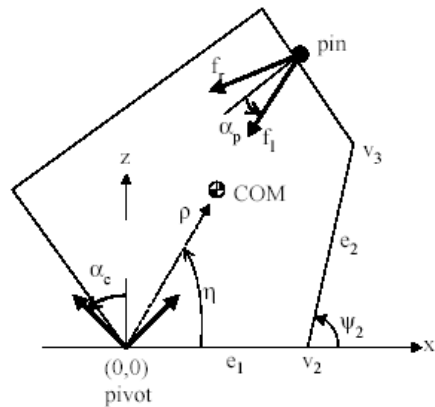


Figure 5. Conditions for the rolling phase.

Conveyor part orientation - pins



Conveyor part orientation - fences

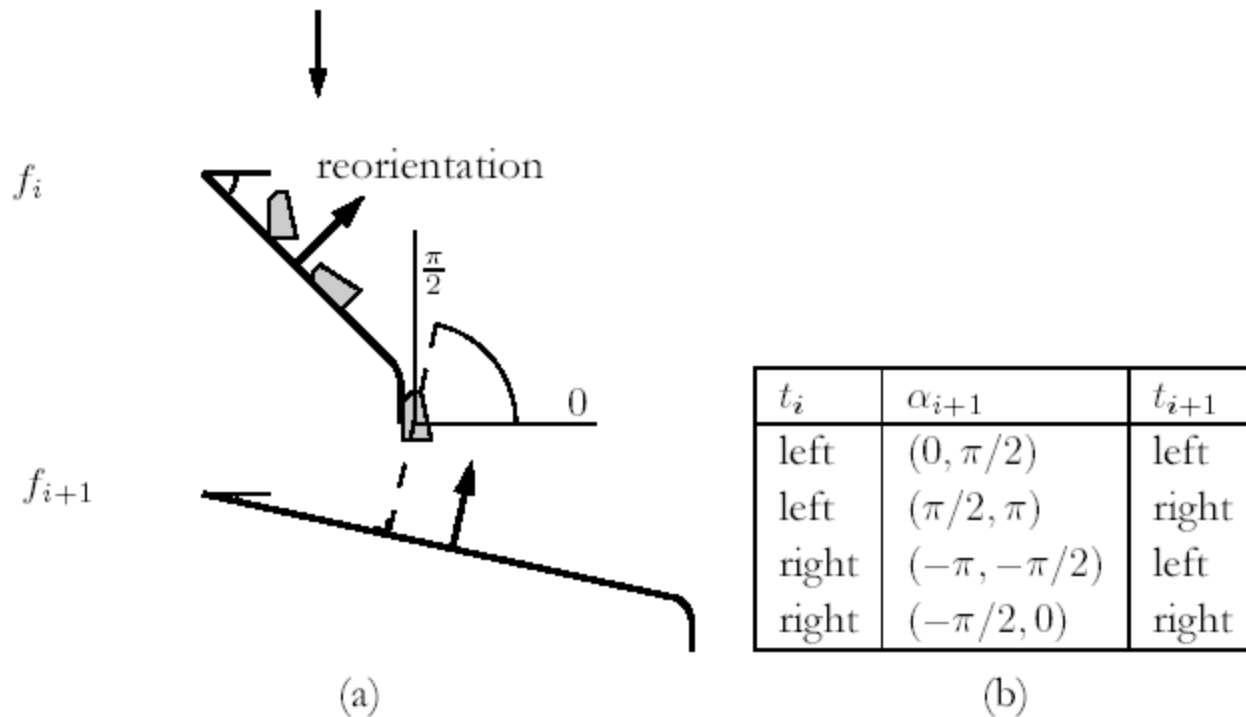
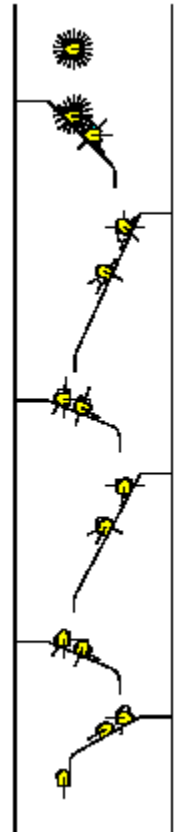
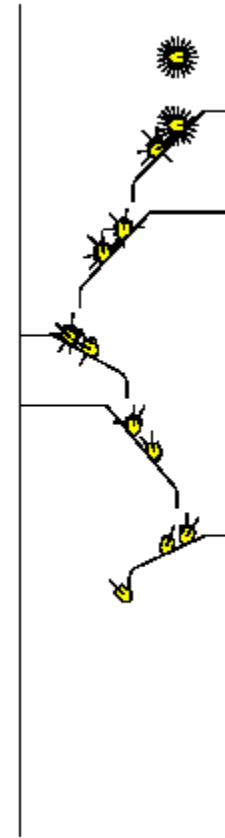
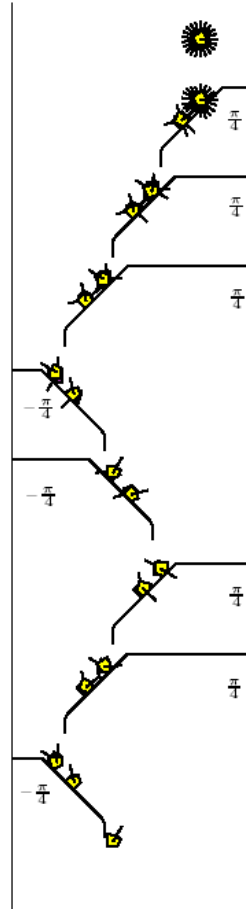
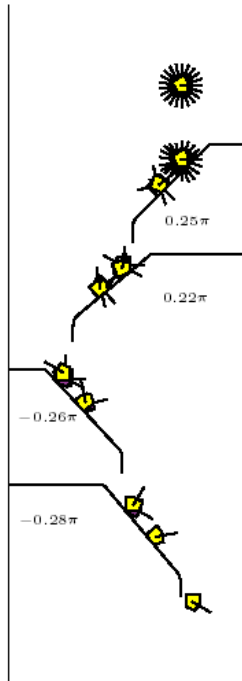


Figure 3.2 (a) For two successive left fences, the reorientation of the push direction lies in the range $(0, \pi/2)$. (b) The ranges of possible reorientations of the push direction for all pairs of fence types.

- Any polygonal part can be oriented up to symmetry by a fence design

Conveyor part orientation - fences



Conveyor part orientation - fences



Conveyor part orienting - 3D parts

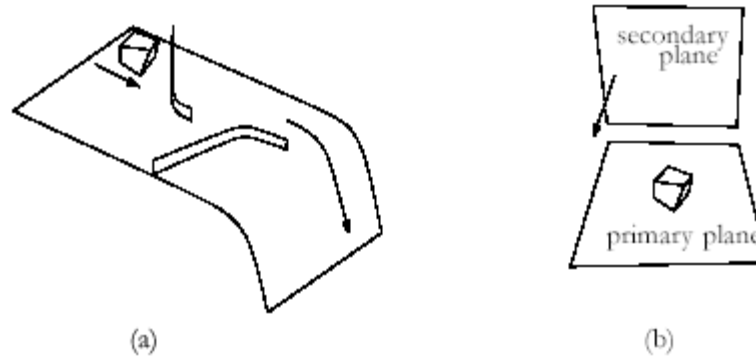


Figure 5.3 (a) A part sliding down a plate with fences. (b) The same part on the jaw.