Two-Dimensional Constraints

**General**



























**Scleronomic constraints**

independent of time such as mechanical joints







**Revolute**

** Note:** Haug uses ****

















**Double revolute**

****

















**Parallel vectors (planar parallel-1)**



 constant















**Pin-in-slot (planar parallel-2)**



















**Relative angle driver**

****

















**Gear pair driver (chain/sprockets, belt/pulleys)**

****













**Gear pair on rotating link k**

****















**Relative coordinate driver (translation, rotation, gears, pure rolling)**

****





















**Planar parallel-2 distance driver (see pin-in-slot)**















**Pure rolling along planar parallel-2 distance**















**Planar relative distance driver (see double revolute)**

****













**Acceleration Right-hand Side for Revolute**



****



















 for body i

 for body j

