1.0 Supplement: VIOLIN Algorithm

1. Take LEE set and Baseline Model as input
2. Calculate Evidence Score and identify duplicate LEEs
3. Calculate Match Score for each LEE
4. Calculate Kind Score for Each LEE
   - 4.1. Get LEE connection Type
   - 4.2. Get LEE sign
   - 4.3. Get LEE OAs (Other Attributes)
   - 4.4. Get MI information
     - 4.4.1. If S and T in model:
       - 4.4.1.1. If S is in same sign regulators for T
         - 4.4.1.1.1. If LEE = “I” and MI = “I”:
           - **4.4.1.1.1.1.** OAs match: **STRONG CORROBORATION**
           - **4.4.1.1.1.2.** OAs in MI only: **WEAK CORROBORATION**
           - **4.4.1.1.1.3.** OAs in LEE only: **SPECIFICATION**
           - **4.4.1.1.1.4.** OAs mismatch: **CONTRADICTION**
         - 4.4.1.1.2. If LEE = “I” and MI = “D”:
           - **4.4.1.1.2.1.** OAs match OR in MI only OR in LEE only: **WEAK CORROBORATION**
           - **4.4.1.1.2.2.** OAs mismatch: **CONTRADICTION**
         - 4.4.1.1.3. If LEE = “D” and MI = “I”:
           - **4.4.1.1.3.1.** OAs match OR in MI only OR in LEE only: **SPECIFICATION**
           - **4.4.1.1.3.2.** OAs mismatch: **CONTRADICTION**
         - 4.4.1.1.4. If LEE = “D” and MI = “D”:
           - **4.4.1.1.4.1.** OAs match: **STRONG CORROBORATION**
           - **4.4.1.1.4.2.** OAs in MI only: **WEAK CORROBORATION**
           - **4.4.1.1.4.3.** OAs in LEE only: **SPECIFICATION**
           - **4.4.1.1.4.4.** OAs mismatch: **CONTRADICTION**
       - 4.4.1.2. If S is in opposite sign regulators for T
         - **4.4.1.2.1.** If LEE = “I” and MI = “I”: **SIGN CONTRADICTION**
         - **4.4.1.2.2.** If LEE = “I” and MI = “D”: **SIGN CONTRADICTION**
         - **4.4.1.2.3.** If LEE = “D” and MI = “I”: **SIGN CONTRADICTION**
         - **4.4.1.2.4.** If LEE = “D” and MI = “D”: **SIGN CONTRADICTION**
       - 4.4.1.3. If T is in same sign regulators for S
         - **4.4.1.3.1.** If LEE = “I” and MI = “I”: **DIRECTION CONTRADICTION**
         - 4.4.1.3.2. If LEE = “I” and MI = “D”:
           - **4.4.1.3.2.1.** OAs match OR in MI only OR in LEE only: **FLAGGED**
           - **4.4.1.3.2.2.** OAs mismatch: **ATTRIBUTE CONTRADICTION**
         - **4.4.1.3.3.** If LEE = “D” and MI = “I”: **DIRECTION CONTRADICTION**
         - 4.4.1.3.4. If LEE = “D” and MI = “D”:
           - **4.4.1.3.4.1.** OAs match OR in MI only OR in LEE only: **FLAGGED**

4.4.1.3.4.2. OAs mismatch: **ATTRIBUTE CONTRADICTION**

4.4.1.4. If T is in opposite sign regulators for S

4.4.1.4.1. If LEE = "I" and MI = "I": **DIRECTION CONTRADICTION**

4.4.1.4.2. If LEE = "I" and MI = "D":

4.4.1.4.2.1. OAs match OR in MI only OR in LEE only: **FLAGGED**

4.4.1.4.2.2. OAs mismatch: **ATTRIBUTE CONTRADICTION**

4.4.1.4.3. If LEE = "D" and MI = "I": **DIRECTION CONTRADICTION**

4.4.1.4.4. If LEE = "D" and MI = "D":

4.4.1.4.4.1. OAs match OR in MI only OR in LEE only: **FLAGGED**

4.4.1.4.4.2. OAs mismatch: **ATTRIBUTE CONTRADICTION**

4.4.1.5. Else: Check for path

4.4.1.5.1. If S→T Path and LEE = "D": **INTERNAL EXTENSION**

4.4.1.5.2. If S→T Path and LEE = "I":

4.4.1.5.2.1. If path sign matches LEE sign:

4.4.1.5.2.1.1. OAs match OR in MI only OR in LEE only: **WEAK CORROBORATION**

4.4.1.5.2.1.2. OAs mismatch: **FLAGGED**

4.4.1.5.2.2. If path sign mismatches LEE sign: **FLAGGED**

4.4.1.5.3. If T→S Path and LEE = "D": **INTERNAL EXTENSION**

4.4.1.5.4. If T→S Path and LEE = "I": **FLAGGED**

4.4.1.5.5. If no path: **INTERNAL EXTENSION**

4.4.2. If S or T not in model: **HANGING EXTENSIONS**

4.4.3. If S and T not in model: **FULL EXTENSION**

5. Identify Epistemic Value if available
   5.1. If not available, $S_B = 1$
6. Calculate Total Score
7. Generate VIOLIN output