1. Intermediate stages

- Children sometimes acquire marked structures of the target language in a two-step fashion:
  1. The structure is only produced in some privileged position(s).
  2. It is produced in all positions found in the target language.
- Rose (2000) observes such a stage in the acquisition of complex onsets in Quebec French:
  \[(1) \text{Initial: } CCV \rightarrow \text{C}XY, \text{CCV} \rightarrow \text{XCV} \]

- Intermediate stages have been analyzed in terms of positional faithfulness constraints (schema and constraints from Tessler 2009):
  \[(4) \text{Positional } F \Rightarrow M \Rightarrow \text{General } F \Rightarrow \text{Complex} \Rightarrow \text{Max} \]
  Under this characterization, they are called intermediate faithfulness stages (Tessler 2009).

- Intermediate stages can also be analyzed in terms of contextual markedness constraints:
  \[(5) \text{Contextual } M \Rightarrow F \Rightarrow \text{General } M \Rightarrow \text{Complex} \Rightarrow \text{Max} \]

- If a positional faithfulness constraint is necessary, it must remain low-ranked in intermediate faithfulness stages.

2. Intermediate faithfulness cannot be predicted by Gradual OT Learners

- **Problem**: Using Magri’s (2012) GLA update rule, a GLA-based learner in the initial stage will map CCV → XCV:
  \[(8) \begin{align*}
  \text{CCV} & \rightarrow \text{Complex} \Rightarrow \text{Max} \\
  a. \text{CCV} & \rightarrow \text{L} \Rightarrow \text{W} \\
  b. \text{CCV} & \rightarrow \text{!} \\
  \text{Max} & \rightarrow \text{!} \\
 \end{align*}\]

- From this stage, the grammar continues to produce updates triggered by CCV → XCV until complex onsets are produced in all environments.

3. Intermediate markedness can be predicted

- **A Solution**: if the intermediate stage is characterized in terms of positional markedness, the GLA will be able to predict an intermediate stage.

4. Other conditions on constraints

- Examining English unstressed syllable acquisition (Kehoe & Stoel-Gammon 1997, Kehoe 2000) shows that if a positional faithfulness constraint is necessary, it must remain low-ranked in the child’s grammar.

5. Discussion

- **Québec French**
  - The more the learner attempts to produce the errors damping multiple constraints, the shorter its intermediate stage will be.
  - This may account for its relative rarity in child language corpora.
  - The analysis of English predicts a pattern not present in Kehoe’s (2000) data, one in which the Third stage has all medial syllables (\(\text{CCV, XT} \)), but no initial syllables (\(\text{L} \)).
  - Either this is an accidental gap or the constraint set needs to be revised.

- **English**
  - This just one solution to this puzzle. Other solutions include:
    - Changing the learning algorithm so that it works through HG rather than OT and allows the F constraints to gang up on the M constraint (Jenney & Tessler 2007, Tessler 2009).
    - Using a non-standard initial stage, such that
      \[(15) M \Rightarrow \text{Positional } F \Rightarrow \text{General } F \]
      biasing the Positional F constraints to be re-ranked above the M constraints sooner (Hayes 2004, Tessler 2009).
      - Posting a fixed ranking between F constraints using the PMap (Steriade 2001), e.g. \(\Delta(C - \sigma)/\Delta(C - \sigma) \Rightarrow \text{Max} \Rightarrow \text{Max}\), so that \(\text{Max} \Rightarrow \text{Max}\) is guaranteed to be re-ranked over \(M \Rightarrow \text{Max}\).