A study of Moenat Ladin word-initial consonant clusters:

- **Question:** Why are SCI- clusters in Moenat exceedingly rare despite SC-, Cr-, and SCr- being well-formed?
- **Key contributions:**
  1. Experimental evidence that word-initial S before C is external to the syllable onset.
  2. Analysis of exclusion of SCI- as a threshold effect in Harmonic Grammar (HG) from combined markedness of onset-external S and a Cl onset.

2. Background: Ladin Clusters

**Ladin** is a threatened minority Romance language. Moenat is the variety spoken in Moenat (Trentino, Italy).[1,2]

1) Moenat word-initial clusters include:
- SC, Cr, SCr (S is sibilant, C = stop, exx. with [p], [b])
- SCI is exceedingly rare.
- Cr ([’plста] “plate” [blkt] “block”)
- SCr ([prJigoJa] “to frighten” [’brbJOn] “scratch”)

2) Markedness in clusters:
- In closely-related Italian, S in a word-initial SC cluster is external to the syllable onset.[3,4] Onset-external S is plausibly marked.
- /l/ is more marked than /r/ in second position of an onset.[5,6]

3) Hypothesis: The combination of onset-external S with a Cl onset gives rise to a markedness threshold effect that SCI clusters exceed in contrast to SC, CI, and SCr.

4) Prediction: SC clusters should show evidence of temporal coordination consistent with onset-external S.

3. Experiment

- Experiment using acoustic data to examine temporal coordination in Moenat clusters (following methodology of Durvasula et al.[7,8]).
- SC in syllable onset is expected to show a C-centering effect with respect to following V anchor (Fig. 1).
- Onset-external S is not expected to affect alignment of onset C, showing a right edge effect (Fig. 2).[9,10]

4. HG Analysis

1) Analysis of Phonotactics
   - Word-initial S clusters are subject to a threshold effect, implemented in HG:[11,12]
   - Constraints (AVO + assign one violation)
     1. *SC: AVO to tautosyllabic SC sequence.[13]
     2. *CI: AVO to a tautosyllabic CI sequence.[14]
   - Parse: AVO to a syllable-external segment.
   - MParse: AVO to the null parse.[15]

Structure of analysis
- Parse and *CI each have a lesser weight than MParse, so that SCr/CV and *CV forms are permissible.
- But their combined weight exceeds the threshold of the weight of MParse, causing SCr/CV forms to be ruled out.

5. Conclusion

1) In this study,
   - we reported experimental evidence suggesting that word-initial S before C is external to the syllable onset in Moenat.
   - we provided an analysis of exclusion of SCI- as a threshold effect in HG.
2) The combined markedness account allows syllable-external S to interact with syllable-internal phonotactics.
3) Future work: Probe temporal alignment in Cl clusters by examining duration of the preceding vowel.