Introduction — Constraint Types as a Macro-Classification of Locality

- Project description
  We use mathematical tools to investigate under which conditions complex constraints can be replaced by simpler ones and relate our findings to the study of locality.

- Starting point
  Müller (2005) orders the constraint classes of Müller and Sternefeld (2000) with respect to their application domain, thereby connecting locality and constraint classes.

- Specific questions
  - What can we learn from constraints about locality?
  - What can we learn from locality about constraints?
  - How does the use of specific constraints translate into claims about locality?

General Definitions of Non-Comparative Constraints

- Framework
  Multi-dimensional trees (Rogers 2003) function as a general encoding system. Hence our results hold across a wide range of syntactic theories:
  - GB
  - Classic Minimalism
  - Phasal Minimalism
  - Mirror Theory
  - GPSG
  - TAG
  - ...

- Definition of constraint classes
  A constraint is
  - d-global iff it restricts nodes at dimension \( k \leq d \).
  - d-local iff it restricts nodes at dim. \( k < d \) or adjacent nodes at dim. \( d \).

Reducibility of Comparative Constraints

- Comparative constraints are modeled by optimality systems (Jäger 2002), a restricted variant of OT.
- The output language of an optimality system is at most as complex as its input language if global optimality is satisfied for every optimal output:
  - If output \( o \) is optimal for input \( i \), then there is no input \( i' \) for which \( o \) is an output candidate but not optimal.
- Therefore, some but not all comparative constraints can be reduced to global ones.

Significance of Results

Our study confirms the big picture of Müller’s hierarchy and adds the following observations:

- Locality in flux
  Locality isn’t a fixed notion, it may vary between different theories, so be cautious with comparisons!

- Qualitative dimension of locality studies
  Attempts to reduce the size of locality domains can be thought to investigate whether there are any irreducibly global constraints in syntax.

- Looks can be deceiving
  Constraints may embody stronger locality assumptions than their definitions suggest.

- Opacity of feature coding
  Feature coding obscures the role of locality conditions in natural language and should be avoided.

References

