

Adjectives in the LinGO Grammar Matrix

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Adjectives

- What is an adjective?
 - Adjectives in a multilingual grammar resource
 - Adjective complement copulas too

Adjectives

- i-**kure**-re (Bororo, Crowell 1979)
 - I am tall
- tungkwaltiringa **pumpuka** (Tiwi, Osborne 1974)
 - the stringy bark is good
- wə-níh-l-ək-on **màt**-ahsəm (Penobscot, Quinn 2006)
 - the bad dog kills him

Adjectives

- So: What is an adjective?
- Define semantically
 - [syntactically, morphologically, or semantically distinct] word with prototypical adjectival meaning
- Leave it up to the grammarian

Adjectives

- Syntax of adjectives: two primary constructions
 - Attributive: the **big** dog barks
 - Predicative: the dog is **big**

Adjectives

- *Attributive variations*
 - word order
 - agreement

Adjectives

- Agreement in only one construction
 - der große Hund bellt [deu]
 - der Hund ist groß [deu]
- Planned construction-specific agreement solution
 - Lexical rule divergence in morphotactics for inflected vs uninflected

Adjectives

- Predicatives
 - Copula complement
 - Stative predicate
 - Mixed

Adjectives

- Copula complement
 - about half the world's languages (Stassen 2013)
 - Most common in Indo-European
 - the dog **is** big

Adjectives

- Stative Predicate
 - just under half the world's languages (Stassen 2013)
 - adjective directly combines with subject
 - i-**kure**-re (Bororo Crowell 1979)
1.SG-tall-NEUTRAL
'I am tall' [bor]
 - Includes "zero copula" phenomena (such as Russian)
on **molodoj**
1.SG.MASC.NOM young
'I am young' [rus]

Adjectives

- Mixed
 - Split
 - Different adjectives behave different
- Switching
 - One adjective behaves in multiple ways
- different inflection, copula complement, etc.

Adjectives

- Split
 - Rama (Colette Grinevald, from Stassen 2013)
 - nsut tiiskibadut s-angaling-i
1.PL children 1.PL-hungry-PRES
'We children are hungry' [rma]
 - ning suurak mliima
this pineapple good
'This pineapple is good' [rma]

Adjectives

- Switching
 - Maori (Biggs 1969)
 - ka pai te whare nei
INCEP good DET.DEF house this
'This house is good' [mri]
 - he pai te koorero
INDEF good DET.DEF talk
'This talk is good' [mri]

Adjectives

- Switching
 - two phenomena
 - optional inflection / multiple inflection paths
 - optionally copula complement
- Both phenomena: divergent lexical rules

Adjectives

- Incorporation (Baker 1988)
- Penobscot (Quinn 2006)
 - $mk^w\dot{i}htək^we$
 $məhk^w-əhtək^w-e-w$
red-river.LV^{NI}-W
‘it is a red river’ [aaq-pen]
- REL added through lexical rule

Copulas

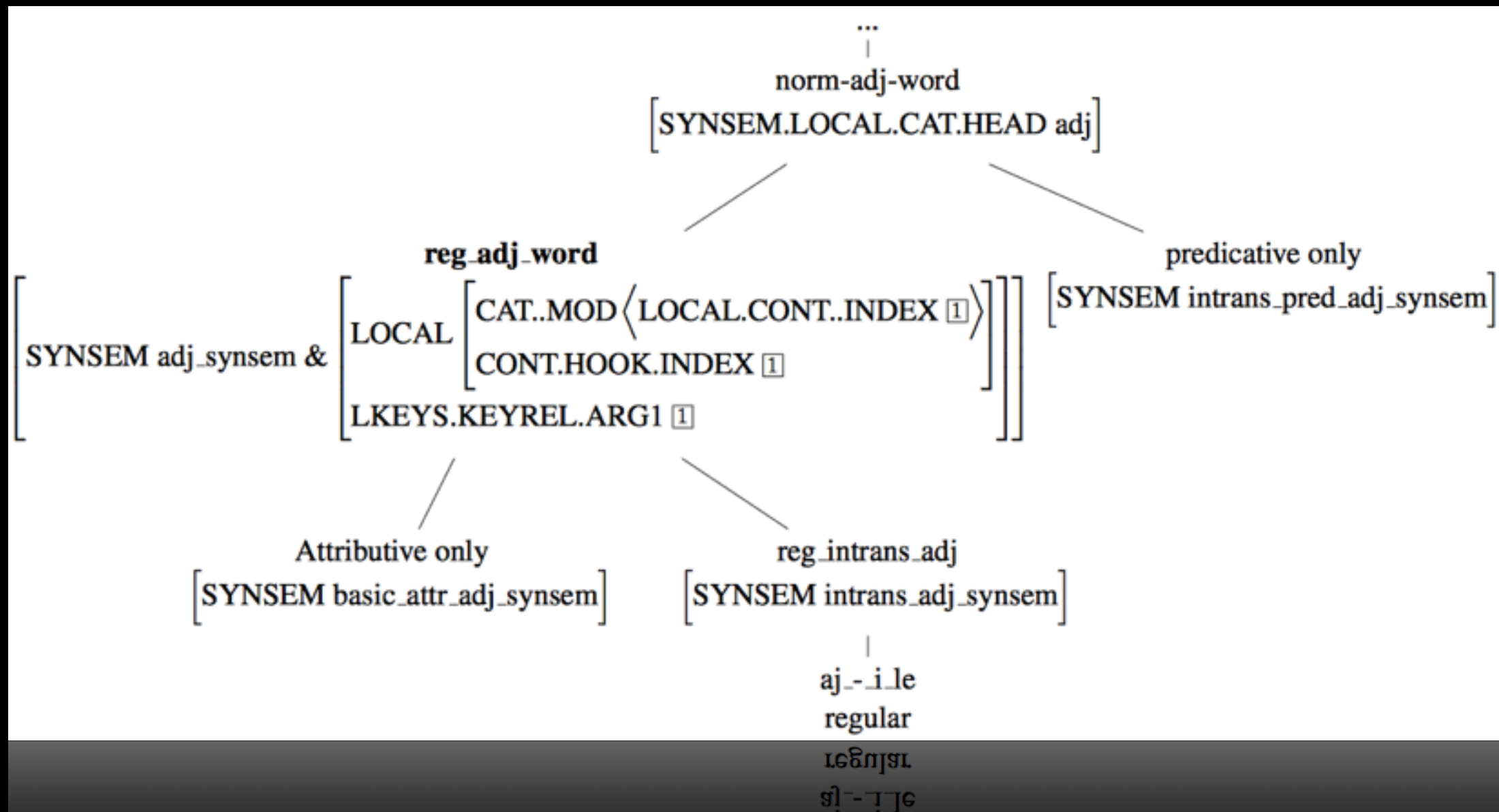
- Complement type
 - Some languages have different copulas for different complement types
 - Constrain to APs for now
- Copula inflection

Analysis

- Process: compare ERG (and other grammars), existing grammar matrix definitions to typology: fix as necessary

Analysis

- ERG adjective type hierarchy



Analysis

- ERG adjective type (simplified)

| | | |
|--------|-------|--|
| SYNSEM | LOCAL | [CAT.HEAD.MOD.LOCAL.CONT.HOOK.INDEX 2] |
| | CONT | [HOOK [INDEX 1] XARG 2] |
| | | [VAL.SPR.FIRST.LOCAL.CONT.HOOK.XARG 1] |
| | LKEYS | [KEYREL [ARG0 1] ARG1 2] |

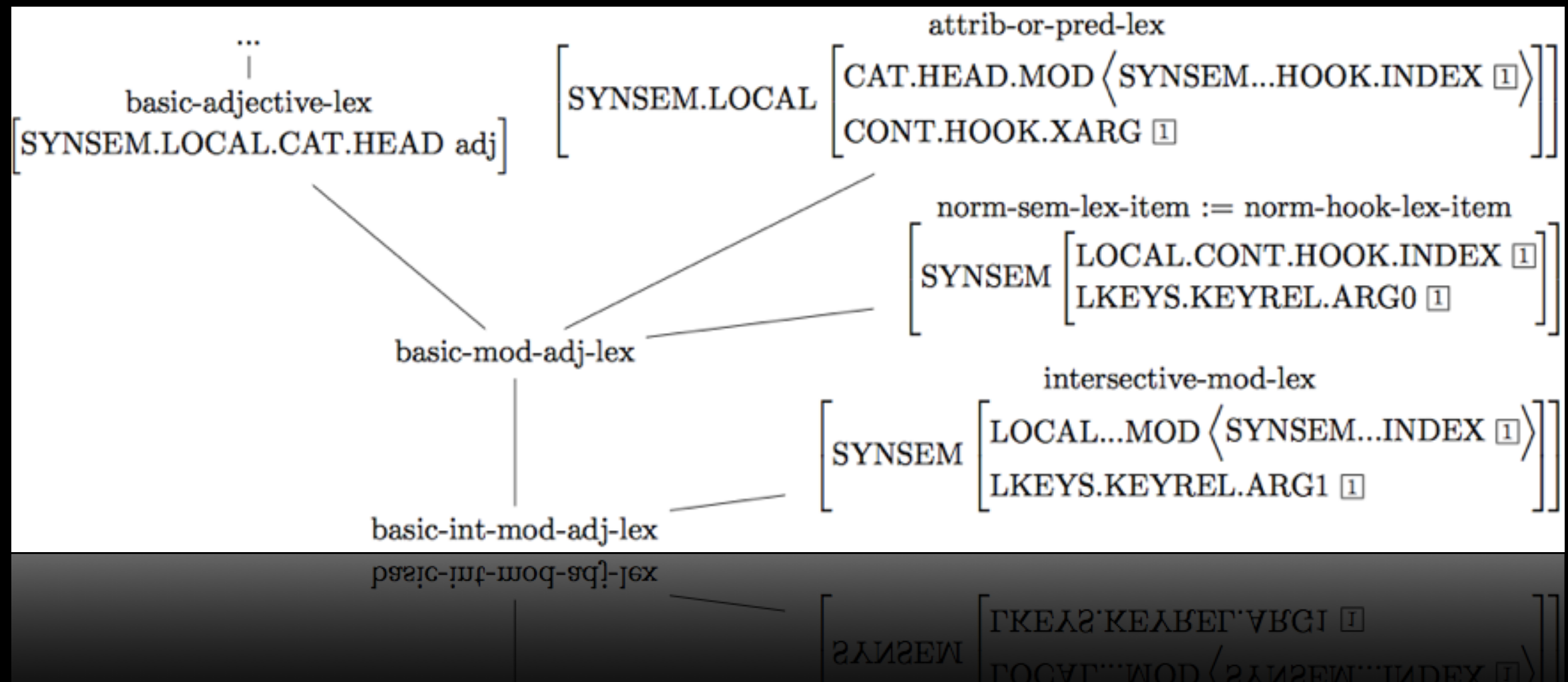
| | | |
|--|-------|-----------------------------|
| | LKEYS | [KEYREL [ARG0 1] ARG1 2] |
|--|-------|-----------------------------|

Analysis

- Construction availability
 - Attributive only: PRD –
 - Predicative only: PRD +
 - Both: underspecified
- Modification direction: POSTHD

Analysis

- Precedents
 - Current Grammar Matrix Adjectives



Analysis

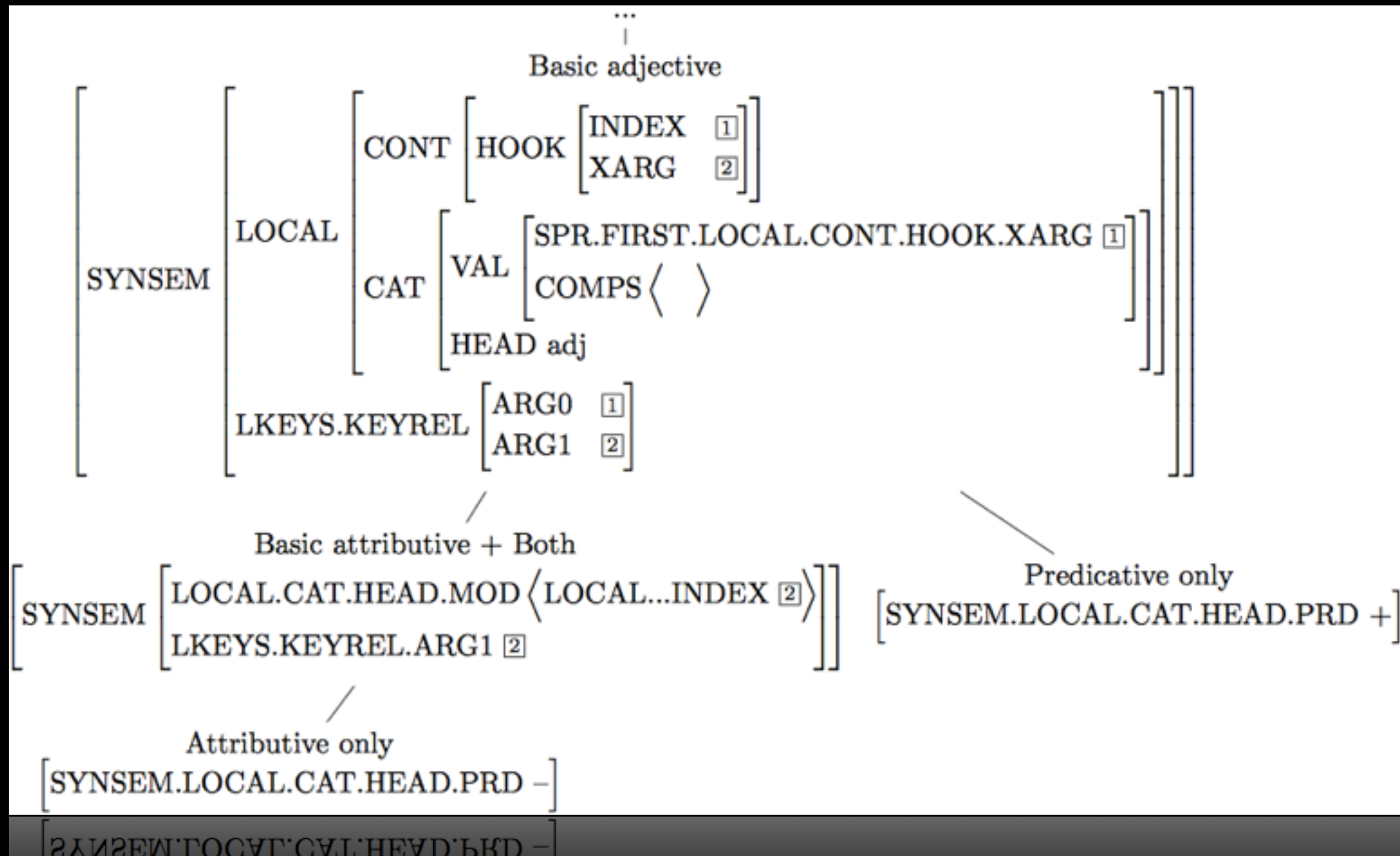
- Problems with the ERG
 - Doesn't do stative predicates, agreement, etc.

Analysis

- Problems with the Grammar Matrix
 - Doesn't handle predicative or attributive only adjectives

Analysis

- Simplify the ERG?

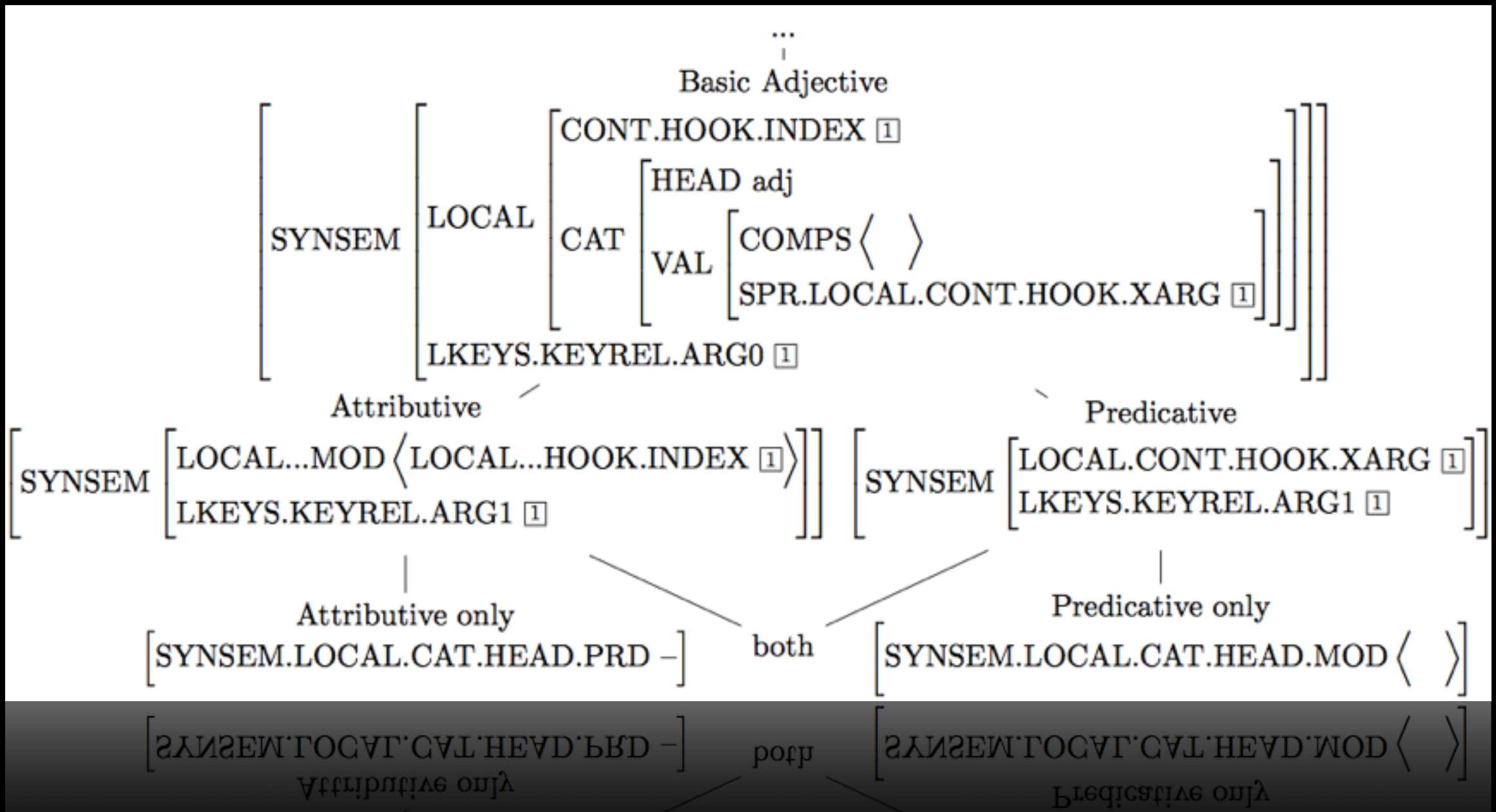


Analysis

- Issues:
 - Attributive only has non-empty XARG value
 - How to constrain for stative predicate?
 - Is attributive only really a special case of regular adjectives?
 - Is predicative only really not associated with regular adjectives?
- Split these apart

Analysis

- Split the ERG?



Analysis

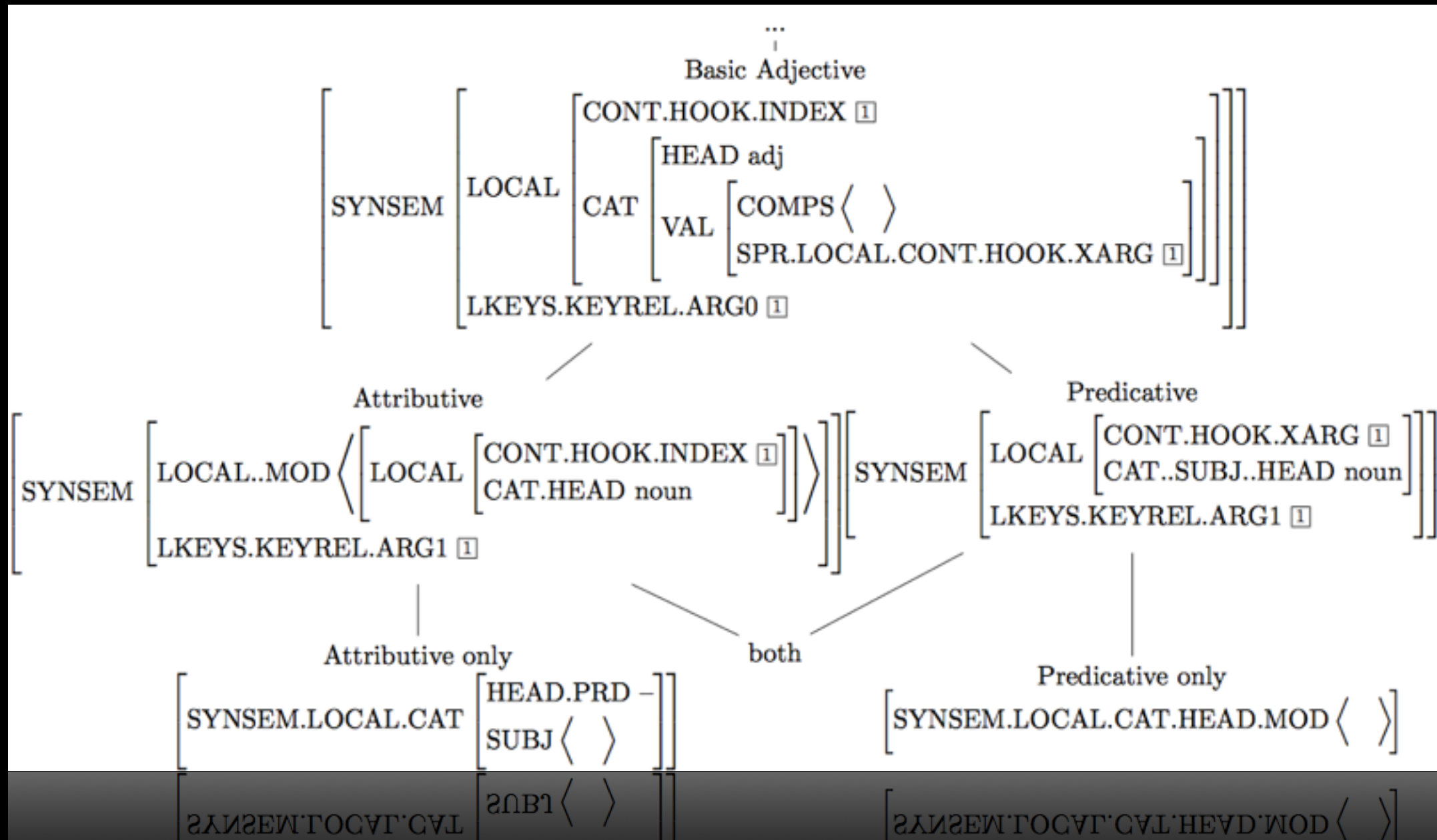
- PRD +/- for copula... how to constrain for stative predicates?
- SUBJ < > to keep attributive only out of stative predicate
- PRD – to keep attributive only out of copula complement

Analysis

- How to keep predicative only stative predicate adjectives out of attributive construction?
 - MOD < >

Analysis

- MOD < > + SUBJ < >



Status

- ~75% working
- Still need to implement divergent inflection paths for:
 - optional copula complement
 - divergent morphological paths
 - agreement in only one construction

Works cited

- P. T. Abraham. Apatani Grammar, volume 12 of CIIL Grammar Series. Central Institute of Indian Languages, Manasagangotri, Mysore, 1985.
- Mark C Baker. Incorporation: A theory of grammatical function changing. 1988.
- Winifred Bauer, William Parker, et al. The Reed reference grammar of Maori. Reed Publishing (NZ), 1997.
- Emily M. Bender. Language collage: Grammatical description with the lingo grammar matrix. In LREC.

Works cited

- Emily M. Bender, Dan Flickinger, and Stephan Oepen. The Grammar Matrix: An Open-Source Starter-Kit for the Rapid Development of Cross-Linguistically Consistent Broad-Coverage Precision Grammars. In Proceedings of the Workshop on Grammar Engineering and Evaluation at the 19th International Conference on Computational Linguistics, Taipei, Taiwan, 2002.
- Emily M. Bender, Scott Drellishak, Antske Fokkens, Laurie Poulson, and Safiyyah Saleem. Grammar Customization. *Research on Language & Computation*, 8(1):23–72, 2010.
- D.N.S. Bhat. The adjectival category: criteria for differentiation and identification. *Studies in the Language Companion Series* 24, page 295, 1994.
- Bruce Biggs. *Let's Learn Maori*. Reed., Wellington, 1969.

Works cited

- Greg N Carlson. A unified analysis of the english bare plural. *Linguistics and philosophy*, 1(3): 413–457, 1977a.
- Gregory Norman Carlson. Reference to kinds in english. 1977b.
- Ann A Copestake and Dan Flickinger. An open source grammar development environment and broad-coverage english grammar using hpsg. In *LREC*, 2000.
- Ann Copestake, Dan Flickinger, Carl Pollard, and Ivan A. Sag. Minimal Recursion Semantics: An Introduction. *Research on Language & Computation*, 3(4):281–332, 2005.

Works cited

- Thomas Harris Crowell. A grammar of bororo, 1979.
- Joshua Crowgey. The Syntactic Exponence of Negation: A Model for the LinGO Grammar Matrix. Master's thesis, University of Washington, 2012.
- Robert M. W. Dixon. A Grammar of Yidin, volume 19 of Cambridge Studies in Linguistics. Cambridge University Press, Cambridge, 1977.
- Robert M. W. Dixon. 'Where Have All the Adjectives Gone?' and other Essays in Semantics and Syntax. Mouton de Gruyter, Berlin, 1982.
- Robert M. W. Dixon. A Grammar of Boumaa Fijian. University of Chicago Press, Chicago, 1988. Robert M. W. Dixon. Adjective classes in typological perspective. Adjective Classes: A Cross-linguistic Typology, 2004.

Works cited

- Scott Drellishak. Widespread but Not Universal: Improving the Typological Coverage of the Grammar Matrix. PhD thesis, University of Washington, 2009.
- Matthew Dryer. Word order. *Clause Structure, Language Typology and Syntactic Description*, Vol. 1, 1:61–131, 2007a.
- Matthew Dryer. Noun phrase structure. *Complex Constructions, Language Typology and Syntactic Description*, Vol. 2, 2:151–205, 2007b.
- Matthew S. Dryer. Order of Adjective and Noun. Max Planck Institute for Evolutionary Anthropology, Leipzig, 2013. URL <http://wals.info/chapter/87>.

Works cited

- Nolue Emenanjo. Elements of Modern Igbo Grammar - a descriptive approach. Oxford University Press, Ibadan, Nigeria, 1978.
- Dan Flickinger. On building a more efficient grammar by exploiting types. Natural Language Engineering, 6 (1):15 – 28, 2000.
- Dan Flickinger, Emily M Bender, and Stephan Oepen. Mrs in the lingo grammar matrix: A practical users guide. Technical report, Technical report, Deep Thought Project Deliverable 3.5, 2003.
- Antske Fokkens. Metagrammar engineering: Towards systematic exploration of implemented grammars. In Proceedings of the 49th Annual Meeting of the Association for Computational Linguistics: Human Language Technologies, pages 1066–1076, Portland, Oregon, USA, June 2011. Association for Computational Linguistics.

Works cited

- Hyun-Jong Hahm, Stephen Wechsler, Miriam Butt, and Tracy Holloway King. Untangling the russian predicate agreement knot. In The Proceedings of the LFG07 Conference. Stanford CA: CSLI Publications, pages 233–249, 2007.
- Barbara Partee. Lexical semantics and compositionality. An invitation to cognitive science: Language, 1:311–360, 1995.
- Carl Pollard and Ivan A. Sag. Head-Driven Phrase Structure Grammar. The University of Chicago Press, Chicago, IL, 1994.
- Regina Pustet. Copulas: Universals in the Categorization of the Lexicon: Universals in the Categorization of the Lexicon. Oxford University Press, 2003.

Works cited

- Conor Quinn. personal communication.
- Conor Quinn. Referential-access dependency in Penobscot. PhD thesis, Harvard University, 2006.
Jamie Rankin and Larry D Wells. Handbuch zur deutschen Grammatik. Cengage Learning, 2010.
- Helmut Richter. German declension, 2006. URL <http://hhr-m.userweb.mwn.de/de-decl/>.
- Mark Jary. Indicative mood, assertoric force and relevance. *Philosophica*, 4:2, 2004.

Works cited

- Christopher Kennedy. *Adjectives*. *Routledge Companion to Philosophy of Language*. Routledge, 2012.
- Margaret H. Langdon. *A Grammar of Diegueo: The Mesa Grande Dialect*, volume 66 of *University of California Publications in Linguistics*. University of California Press, Berkeley, 1970.
- Vera Lee-Schoenfeld. *Beyond coherence: The syntax of opacity in German*, volume 114. John Benjamins Publishing, 2007.
- Thomas McFadden. *German inherent datives and argument structure*. *Datives and Other Cases*. Amsterdam: Benjamins, pages 49–77, 2006.

Works cited

- C. R. Osborne. The Tiwi Language, volume 55 of Australian Aboriginal Studies. Australian Institute of Aboriginal Studies, Canberra, 1974.
- Safiyyah Saleem. Argument Optionality: A New Library for the Grammar Matrix Customization System. Master's thesis, University of Washington, 2010.
- Melanie Siegel and Emily M. Bender. Efficient deep processing of Japanese. In Proceedings of the 3rd Workshop on Asian Language Resources and International Standardization at the 19th International Conference on Computational Linguistics, Taipei, Taiwan, 2002.
- Sanghoun Song. A Grammar Library for Information Structure . PhD thesis, University of Washington, 2013.

Works cited

- Leon Stassen. *Predicative Adjectives*. Max Planck Institute for Evolutionary Anthropology, Leipzig, 2013. URL <http://wals.info/chapter/118>.
- Harrie Wetzter. "nouny" and "verby" adjectivals: a typology of predicate adjectival constructions. *Meaning and grammar: cross-linguistic perspectives*, pages 223–262, 1992.
- Harrie Wetzter. *The typology of adjectival predication*. Mouton de Gruyter, 1996.

Thanks!