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Adjectives and Kind Modification

Goals

All adjectives except modal As:

- are predicates (not predicate modifiers)
- denote properties of individuals
- have intersective semantics (not subsective)
- Polish prenominal As → properties of objects
- Polish postnominal As → properties of kinds

Outline

- Introduction: typologies of As
- Data: prenominal & postnominal As in Polish
- Framework: syntax & semantics
- Proposal: properties of kinds & objects
- Extension: privative adjectives

Introduction

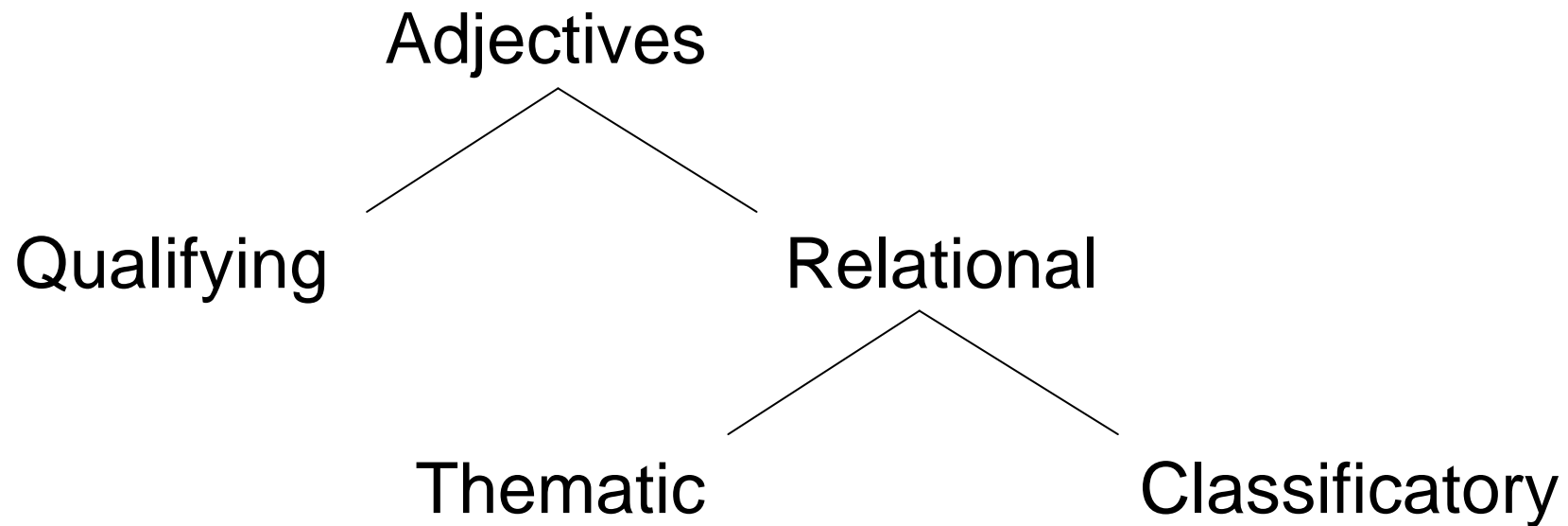
Typologies of adjectives (McNally to appear):

- morpho-syntactic typologies
- notionally-based typologies
- entailment-based typologies

Introduction

Notionally-based typology (Bosque & Picallo 1996)

(1)



Introduction

- qualifying adjectives

black, good, female

name properties of entities denoted by the N
express qualities of objects

- relational adjectives

technical, molecular

typically denominal
property of the modified N in a relation with the
entity denoted by the nominal root of an A

Introduction

Two uses of relational adjectives

- thematic adjectives

saturate some thematic role licensed by the N

(2) Russian invasion

- classificatory adjectives

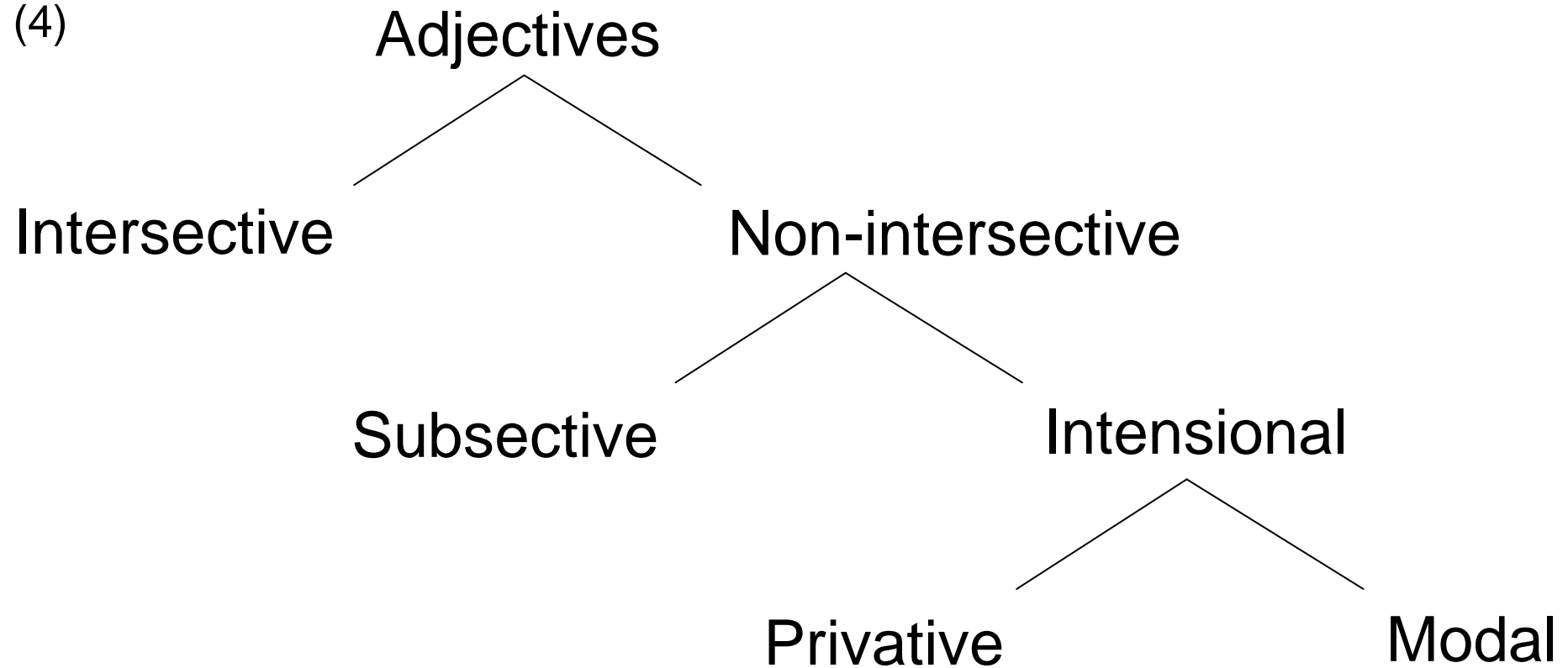
do not saturate any thematic role licensed by the N

(3) Russian roulette

Introduction

Entailment-based typology (Parsons 1970, Kamp 1975)

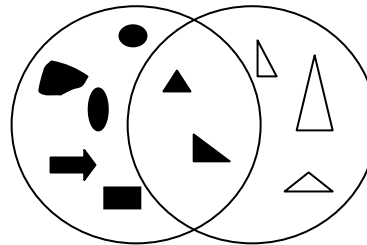
(4)



Introduction

- intersective adjectives

$$[[A\ N]] = [[A]] \cap [[N]]$$

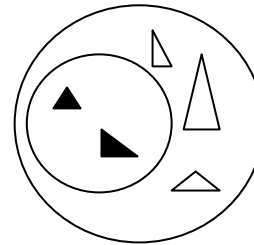


- (5)
- a. John is a lazy linguist.
 - b. \models John is a linguist.
 - c. \models John is lazy.

Introduction

- subsective adjectives

$$[[A\ N]] \subseteq [[N]]$$



- (6)
- a. John is a theoretical linguist.
 - b. \models John is a linguist.
 - c. $\not\models$ #John is theoretical.

Introduction

Solution: different semantics for adjectives (Siegel 1976)

- intersective semantics
predicates
denote properties of individuals
type $\langle e, t \rangle$
- subsective semantics
predicate modifiers
denote properties of properties
type $\langle \langle e, t \rangle, \langle e, t \rangle \rangle$

Introduction

Problem: ambiguous adjectives (Larson 1998)

- cross-linguistic homophony

(7) a. John is a formal linguist.

b. *intersective*: John is formal and John is a linguist.

c. *subsective*: John works within the scope of formal linguistics.

Introduction

Attempts to unify the semantics of adjectives:

- Partee (2009, 2010)
privative As: subsective + coercion
- McNally & Boleda (2004) ← Larson (1998)
relational As: intersective + properties of kinds
- Arsenijević, Boleda, Gehrke & McNally (2014)
ethnic As: thematic uses = classificatory uses

Data

Polish allows two placements of adjectives:

- prenominal

(8) dobre oprogramowanie → qualifying adjective
good.NOM.SG.N software.NOM.N intersective semantics
'good software'

- postnominal

(9) oprogramowanie komputerowe → classificatory adjective
software.NOM.N computer.NOM.SG.N subsecutive semantics
'computer software'

Data

Common generalization →

→ Rutkowski & Progovac (2005), Rutkowski (2012),
Cetnarowska, Pysz & Trugman (2011), Cetnarowska (2013)

- prenominal adjectives ~ qualifying adjectives
- postnominal adjectives ~ classificatory adjectives

Data

Thematic uses of relational adjectives:

- (10) a. rosyjska inwazja → prenominal position
 Russian_{.NOM.F} invasion_{.NOM.F}
 ‘Russian invasion’
- b. inwazja rosyjska → postnominal position
 invasion_{.NOM.F} Russian_{.NOM.F}
 ‘Russian invasion’
- c. inwazja Rosjan
 invasion_{.NOM.F} Russians_{.GEN.V}
 ‘invasion by Russia’

Data

Thematic and classificatory uses of relational adjectives:

- (11) a. polityka europejska → thematic use
 policy._{NOM.F} European._{NOM.F} → classificatory use
 ‘European policy’
- b. europejska polityka → thematic use
 European._{NOM.F} policy._{NOM.F} → *classificatory use
 ‘European policy’

cf. Arsenijević, Boleda, Gehrke & McNally (2014)
ethnic As: thematic use = kind modification

Data

Qualifying As can occur in both positions:

- prenominal

(12) czarny dzięcioł
black_{.NOM.SG.M} woodpecker_{.NOM.M}
'black woodpecker'

- postnominal

(13) dzięcioł czarny
woodpecker_{.NOM.M} black_{.NOM.SG.M}
'black woodpecker'

Dryocopus martius



Celeus flavescens



Dryocopus hodgei



Data

Prenominal As: predicates, intersective semantics

- (14) a. Kajtek to czarny dzięcioł.
Kajtek this black_{.NOM.SG.M} woodpecker_{.NOM.M}
'Kajtek is a black woodpecker (= a woodpecker whose color is black)'
- b. \models Kajtek to dzięcioł
Kajtek this woodpecker_{.NOM.M}
'Kajtek is a woodpecker'
- c. \models Kajtek jest czarny
Kajtek is black_{.NOM.SG.M}
'Kajtek is black'

Data

Prenominal As: predicates, intersective semantics

- (15) #Kajtek to biały czarny dzięcioł.
Kajtek this white_{.NOM.SG.M} black_{.NOM.SG.M} woodpecker_{.NOM.M}

Data

Postnominal As: predicate modifiers, subsecutive semantics

- (16) a. Kajtek to dzięcioł czarny.
Kajtek this woodpecker_{.NOM.M} black_{.NOM.SG.M}
'Kajtek is a black woodpecker (= a representative of the species *Dryocopus martius*)'
- b. = Kajtek to dzięcioł
Kajtek this woodpecker_{.NOM.M}
'Kajtek is a woodpecker'
- c. ≠ Kajtek jest czarny
Kajtek is black_{.NOM.SG.M}
'Kajtek is black'

Data

Postnominal As: predicate modifiers, subsecutive semantics

- (17) Kajtek to biały dzięcioł czarny.
Kajtek this white_{.NOM.SG.M} woodpecker_{.NOM.M} black_{.NOM.SG.M}
'Kajtek is a white black woodpecker'

Data

Postnominal As: ambiguous

- (19) a. dzięcioł czarny → existential reading
 woodpecker_{.NOM.M} black_{.NOM.SG.M} → generic reading
 ‘black woodpecker’
- b. Dzięcioł czarny siedział na moim parapecie.
 woodpecker_{.NOM.M} black_{.NOM.SG.M} sat_{.3.M.SG} on my_{.LOC.M} parapet_{.LOC.M}
 ‘A black woodpecker was sitting on my parapet’
- c. Dzięcioł czarny wyginał w XXI wieku.
 woodpecker_{.NOM.M} black_{.NOM.SG.M} died-out_{.3.M.SG} in 21st century_{.LOC.M}
 ‘The black woodpecker became extinct in the 21st century’

Framework

- syntactic analysis of Slavic classifying adjectives (Rutkowski & Progovac 2005, Rutkowski 2012)
- semantic analysis of Romance relational adjectives (McNally & Boleda 2004)
- intersective treatment of adjectives (Larson 1998)
- standard theories of genericity (Carlson 1977, Krifka et. al. 1995)

Framework

Preliminary assumptions:

- intersective semantics

both prenominal and postnominal As

possible exception: modal As (NP-split: Nowak 2000)

- nouns enter composition ready to denote kinds
- composition corresponds to the syntactic structure

Syntax of Polish Adjectives

Split NPs (Nowak 2000)

- non-modal As

intersective, subsecutive, privative

- (20) a. Rozmawiała z nowym burmistrzem. → non-modal
talked_{.3.SG.F} with new_{.INSTR.SG.M} mayor_{.INSTR.M}
'She talked with a new mayor'
- b. Z nowym rozmawiała burmistrzem.
with new_{.INSTR.SG.M} talked_{.3.SG.F} mayor_{.INSTR.M}
'A black woodpecker was sitting on my parapet'

Syntax of Polish Adjectives

Split NPs (Nowak 2000)

- modal As

‘non-committal’ → non-subjective, non-privative

- (21) a. Rozmawiała z potencjalnym burmistrzem. → modal
talked_{.3.SG.F} with potential_{.INSTR.SG.M} mayor_{.INSTR.M}
‘She talked with a possible mayor’
- b. *Z potencjalnym rozmawiała burmistrzem.
with potential_{.INSTR.SG.M} talked_{.3.SG.F} mayor_{.INSTR.M}

Syntax of Polish Adjectives

Rutkowski (2012) ← Rutkowski & Progovac (2005)

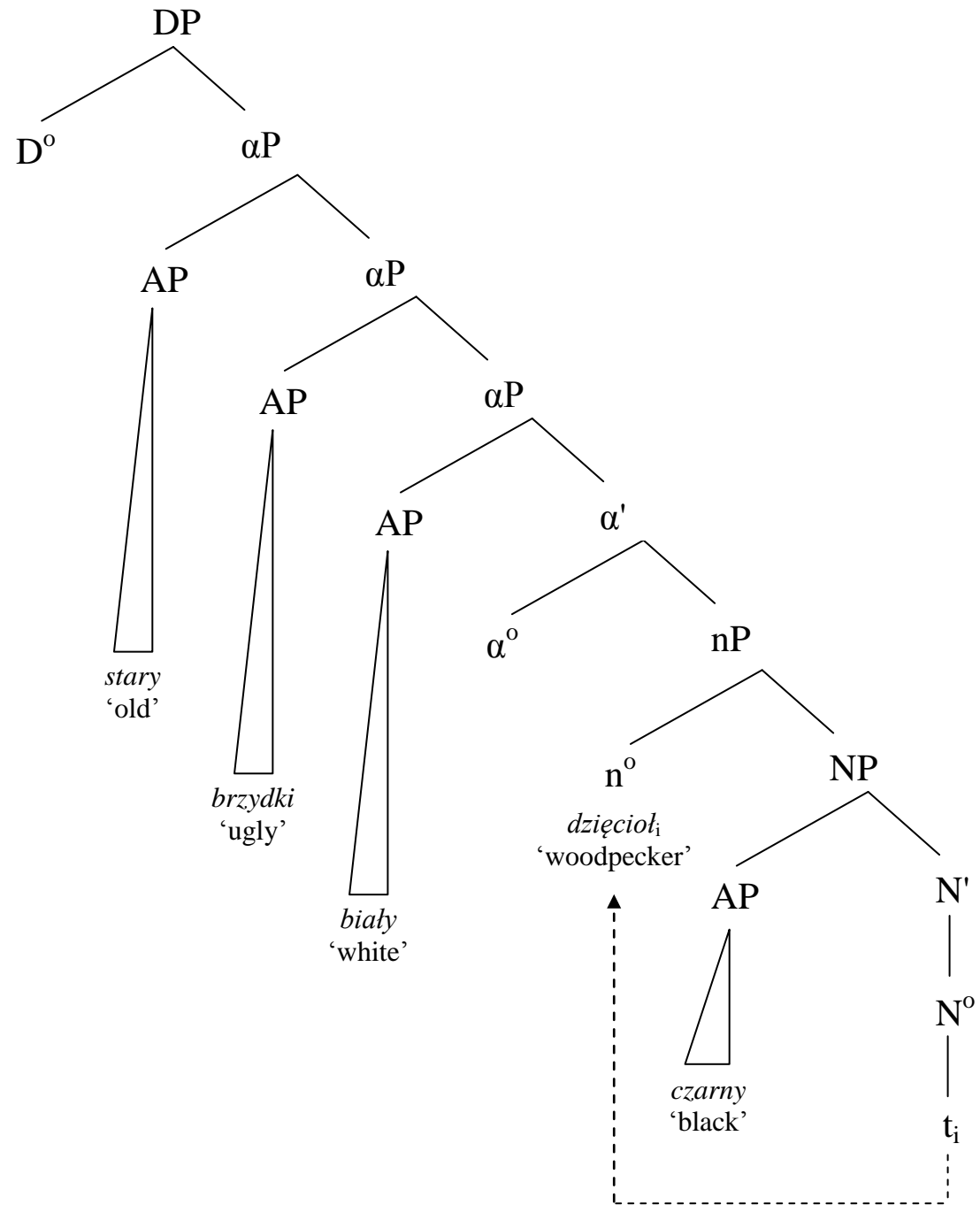
- prenominal adjectives ~ qualifying adjectives
merged between DP and NP
iterative projections
- postnominal adjectives ~ classifying adjectives
base generated in the SpecNP – n^0
unique projection
placement results from N-raising

Syntax of Polish Adjectives

Empirical motivation

- (22) a. nowa fascynująca gramatyka
 new.NOM.SG.F fascinating.NOM.SG.F grammar.NOM.SG.F
 ‘new fascinating grammar’
- b. *gramatyka generatywna transformacyjna
 grammar.NOM.SG.F generative.NOM.SG.F transformational.NOM.SG.F
- c. gramatyka generatywno-transformacyjna
 grammar.NOM.SG.F generative-transformational.NOM.SG.F
 ‘transformational-generative grammar’

(23)



Syntax of Polish Adjectives

Criticism (Cetnarowska, Pysz & Trugman 2011)

- prenominal adjectives → classifying effect

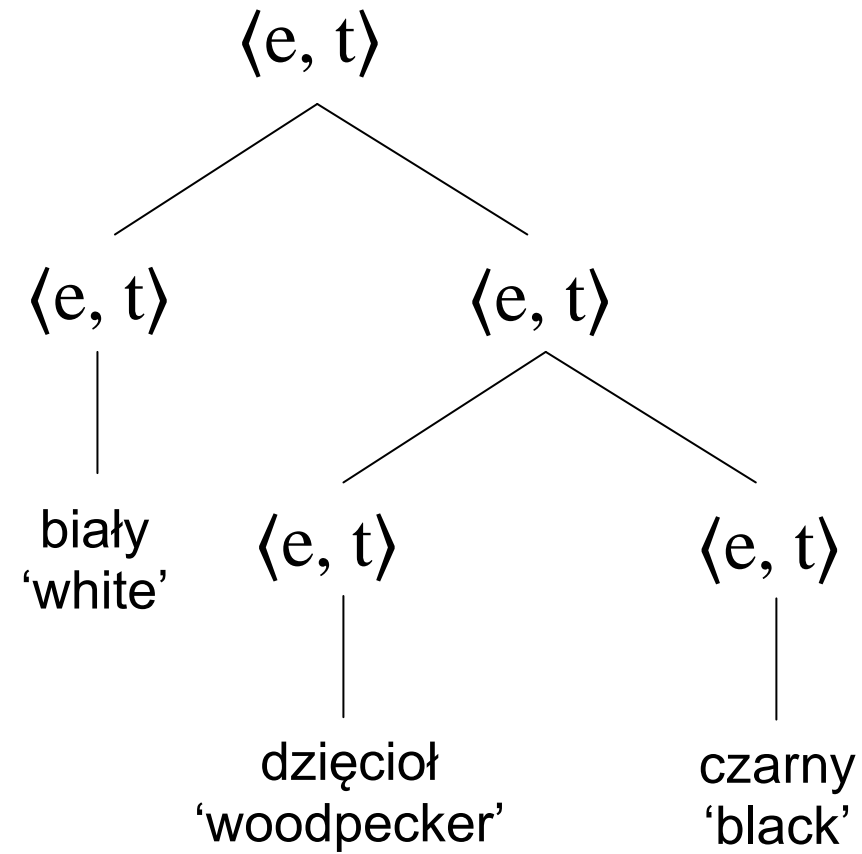
(24) a. boża krówka
 god._{NOM.SG.F} COW._{NOM. F}
 ‘ladybird’

b. *krówka boża
 COW._{NOM. F} god._{NOM.SG.F}

- no relationship between denotations, no modification

Semantic Composition

(25)



Predicate Modification

Morzycki (to appear) ← Heim & Kratzer (1998):

(26) a. PREDICATE MODIFICATION (GENERALIZED TO EVENTS)

If a branching node α has as its daughters β and γ , and $\llbracket\beta\rrbracket$ and $\llbracket\gamma\rrbracket$ are either both of type $\langle e, t \rangle$ or both of type $\langle v, t \rangle$, then $\llbracket\alpha\rrbracket = \lambda X . \llbracket\beta\rrbracket(X) \wedge \llbracket\gamma\rrbracket(X)$, where X is an individual or an event (whichever would be defined).

b. $\llbracket\text{black woodpecker}\rrbracket = \lambda x . \llbracket\text{black}\rrbracket(x) \wedge \llbracket\text{woodpecker}\rrbracket(x)$

(27) $\llbracket\text{biały dzięcioł czarny}\rrbracket = \lambda x . \mathbf{black}(x) \wedge \mathbf{woodpecker}(x) \wedge \mathbf{white}(x)$

Properties of Objects and Kinds

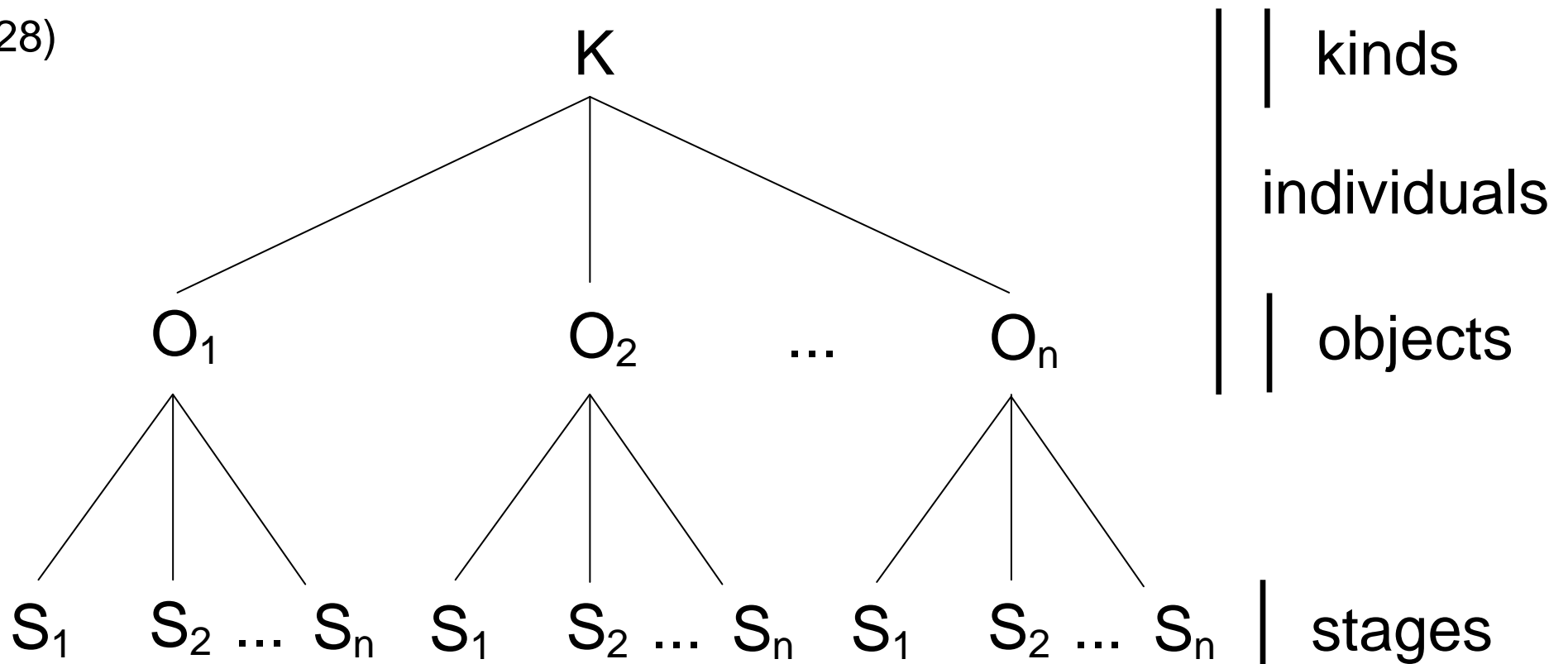
McNally & Boleda (2004):

- prenominal adjectives
 - predicates
 - denote properties of objects
 - require object-level arguments
- postnominal adjectives
 - predicates
 - denote properties of kinds (Carlson 1977)
 - require kind-level arguments

Properties of Objects and Kinds

Internal structure of individuals (Carlson 1977):

(28)



Proposal

Essential idea:

- modified nouns: kind \rightarrow object, object \nrightarrow kind
- adjectives: closer to the noun \rightarrow more generic
- Polish postnominal As \rightarrow predicates of kinds
similar to *extinct*, *widespread*

Proposal

Semantics for Polish Ns, As, NA and NA complexes:

- (29) a. $[[\mathbf{N}]] = \lambda x_k \lambda y_o [R(y_o, x_k) \wedge \mathbf{N}(x_k)]$
- b. $[[\mathbf{AP}]] = \lambda x [\mathbf{A}(x)]$
- c. $[[\mathbf{N AP}]] = \lambda x_k \lambda y_o [R(y_o, x_k) \wedge \mathbf{N}(x_k) \wedge \mathbf{A}(x_k)]$
- d. $[[\mathbf{AP N}]] = \lambda x_k \lambda y_o [R(y_o, x_k) \wedge \mathbf{N}(x_k) \wedge \mathbf{A}(y_o)]$
- e. $[[\mathbf{AP}_1 \mathbf{N AP}_2]] = \lambda x_k \lambda y_o [R(y_o, x_k) \wedge \mathbf{N}(x_k) \wedge \mathbf{A}_2(x_k) \wedge \mathbf{A}_1(y_o)]$

x_k, y_o – kind-level and object-level individual variables (Krifka et al. 1995)

R – realization relation (Carlson 1977)

- (30) a. $\llbracket \text{dzięcioł} \rrbracket = \lambda x_k \lambda y_o [R(y_o, x_k) \wedge \text{woodpecker}(x_k)](k_j) =$
 $= \lambda y_o [R(y_o, k_j) \wedge \text{woodpecker}(k_j)]$
- b. $\llbracket \text{czarny dzięcioł} \rrbracket = \lambda x_k \lambda y_o [R(y_o, x_k) \wedge \text{woodpecker}(x_k) \wedge \text{black}(y_o)](k_j) =$
 $= \lambda y_o [R(y_o, k_j) \wedge \text{woodpecker}(k_j) \wedge \text{black}(y_o)]$
- c. $\llbracket \text{dzięcioł czarny} \rrbracket = \lambda x_k \lambda y_o [R(y_o, x_k) \wedge \text{woodpecker}(x_k) \wedge \text{black}(x_k)](k_j) =$
 $= \lambda y_o [R(y_o, k_j) \wedge \text{woodpecker}(k_j) \wedge \text{black}(k_j)]$
- d. $\llbracket \text{biały dzięcioł czarny} \rrbracket = \lambda x_k \lambda y_o [R(y_o, x_k) \wedge \text{woodpecker}(x_k) \wedge \text{black}(x_k) \wedge$
 $\wedge \text{white}(y_o)](k_j) = \lambda y_o [R(y_o, k_j) \wedge \text{woodpecker}(k_j) \wedge \text{black}(k_j) \wedge \text{white}(y_o)]$

k_j – contextually-determined kind (McNally & Boleda 2004)

Semantic Anomaly Explained

Contrast between object and kind-level predicates:

- (31) a. #Kajtek to biały czarny dzięcioł.
Kajtek this white_{.NOM.SG.M} black_{.NOM.SG.M} woodpecker_{.NOM.M}
- b. Kajtek to biały dzięcioł czarny.
Kajtek this white_{.NOM.SG.M} woodpecker_{.NOM.M} black_{.NOM.SG.M}
'Kajtek is a white black woodpecker'
- c. Kajtek to biały okaz dzięcioła
Kajtek this white_{.NOM.SG.M} representative_{.NOM.M} woodpecker_{.GEN.M}
czarnego.
black_{.GEN.SG.M}
'Kajtek is a white representative of the black woodpecker'

Semantic Anomaly Explained

- the result: \emptyset in every possible model

#biały czarny dzięcioł ~ #*married bachelor*.

- tautological truth-conditions (vacuous truth)

$P(\emptyset) \rightarrow \text{True}$.

- Grice's Maxim of Quantity (Landman 2011)

(32) *Quantity: Avoid triviality.*

A contingent statement is better than a trivial one.

Some More Data

As modifying kinds in predicative positions

- (33) a. #Jacek jest techniczny.
Jacek is technical._{NOM.SG.M}
- b. Ta konferencja jest międzynarodowa, ale można
this._{NOM.F} conference._{NOM.F} is international._{NOM.SG.F} but can._{IMPERS}
mówić po polsku.
speak._{INF} Polish._{ADV}
'This conference is international, but you can speak Polish'

Some More Data

As modifying kinds in predicative positions

- (34) a. Kajtek jest czarny, a Krzyś zielony.
Kajtek is black_{.NOM.SG.M} and Krzyś green_{.NOM.SG.M}
'Kajtek is black and Krzyś is green'
- b. Jeden gatunek dzięcioła jest czarny,
one_{.NOM.SG.M} species_{.NOM.M} woodpecker_{.GEN.M} is black_{.NOM.SG.M}
a drugi zielony.
and second_{.GEN.SG.M} green_{.GEN.SG.M}
'One species of the woodpecker is black and one is green'

Some More Data

Postnominal As are not good with proper names

- (35) a. czarny Kajtek
 black_{.NOM.SG.M} Kajtek
 ‘black Kajtek’
- b. #Kajtek czarny
 Kajtek black_{.NOM.SG.M}

Conclusion

Both Polish prenominal and postnominal adjectives

- are predicates: prenominal As take object-level arguments, postnominal As take kind-level arguments
- denote properties of objects (prenominal As) or kinds and thus establish subkinds (postnominal As)
- have intersective semantics

Conclusion

Consequences and further investigation:

- modified nouns: kind \rightarrow object, object \nrightarrow kind
- more shades of genericity

- (36) a. zgubiony złoty pierścień
lost_{NOM.SG} golden_{NOM.SG} ring_{NOM.SG}
'lost golden ring'
- b. #złoty zgubiony pierścień
golden_{NOM.SG} lost_{NOM.SG} ring_{NOM.SG}

Conclusion

Consequences and further investigation:

- vague intuitions (37a) \neq (37b)

(37) a. nowe piękne buty
 new_{NOM.SG.NV} beautiful_{NOM.SG.NV} shoes_{NOM.NV}
 ‘new beautiful shoes’

 b. piękne nowe buty
 beautiful_{NOM.SG.NV} new_{NOM.SG.NV} shoes_{NOM.NV}
 ‘beautiful new shoes’

Extension

- privative adjectives

fake, false, counterfeit

'negative' meaning postulate

$$[[A\ N]] \cap [[N]] = \emptyset$$

- (38) a. John is a false prophet.
b. \models John is not a prophet.

Extension

No privative As hypothesis (Partee 2010)

- privative adjectives = subsective + coercion

- (39) a. I don't care whether that fur is fake fur or real fur.
b. I don't care whether that fur is fake or real.

Extension

Privative adjectives are intersective

- privative adjectives = coercion + kind modification
- privative A N \rightarrow N-like + establishing subkinds
fake fur \rightarrow subkind of fur-like kind of stuff
- privative As \rightarrow compatible with generic contexts

Extension

(40) a. Są dwa rodzaje futer: prawdziwe i
are two_{.NV.NOM} kinds_{.NOM.PL.NV} furs_{.GEN.PL.NV} real_{.NOM.PL.NV} and
sztuczne.

fake_{.NOM.PL.NV}

‘There are two kinds of fur: real fur and fake fur’

b. Z miasta wygnano proroków wszelkiego
from town_{.GEN.N} banish_{.IMPERS} prophets_{.ACC.PL.V} any_{.GEN.SG.M}
rodzaju: zarówno prawdziwych, jak i fałszywych.

kind_{.GEN.SG.M} both real_{.ACC.PL.V} and false_{.ACC.PL.V}

‘Prophets of all kinds were banished from the town: both the true ones and the false ones’

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Köszönöm!