

# Deriving (uni)directionality

Paul Kiparsky



# Outline

- 1 Grammaticalization
- 2 Formal grammaticalization
- 3 Non-convergence
- 4 Anaphora
- 5 Aspect to tense



# What is grammaticalization?

- 1 DEF: a change “by which the parts of a constructional schema come to have stronger internal dependencies” (Haspelmath 2002).



# What is grammaticalization?

- 1 DEF: a change “by which the parts of a constructional schema come to have stronger internal dependencies” (Haspelmath 2002).
- 2 DEF: “The change whereby lexical items and constructions come in certain contexts to serve grammatical functions, and, once grammaticalized, continue to develop new grammatical functions”



# What is grammaticalization?

- 1 DEF: a change “by which the parts of a constructional schema come to have stronger internal dependencies” (Haspelmath 2002).
- 2 DEF: “The change whereby lexical items and constructions come in certain contexts to serve grammatical functions, and, once grammaticalized, continue to develop new grammatical functions”
  - Hopper & Traugott 2003: 18, cf. Kuryłowicz 1958, Traugott 1991, Heine, Claudi, and Hünemeyer 1991).



# What is grammaticalization?

- 1 DEF: a change “by which the parts of a constructional schema come to have stronger internal dependencies” (Haspelmath 2002).
- 2 DEF: “The change whereby lexical items and constructions come in certain contexts to serve grammatical functions, and, once grammaticalized, continue to develop new grammatical functions”
  - Hopper & Traugott 2003: 18, cf. Kuryłowicz 1958, Traugott 1991, Heine, Claudi, and Hünemeyer 1991).
- 3 DEF: a change which gives rise to a new grammatical category [a category previously unexpressed in the language]. (Meillet 1912)



# Jerzy Kuryłowicz

# Antoine Meillet



# Grammaticalization puzzles

- 1 What do “grammaticalization” processes have in common?





# Grammaticalization puzzles

- 1 What do “grammaticalization” processes have in common?
- 2 What causes grammaticalization, and why is it unidirectional?



# Grammaticalization puzzles

- 1 What do “grammaticalization” processes have in common?
- 2 What causes grammaticalization, and why is it unidirectional?
- 3 What explains the order in which grammaticalized items “continue to develop new grammatical functions”?



# Grammaticalization puzzles

- 1 What do “grammaticalization” processes have in common?
- 2 What causes grammaticalization, and why is it unidirectional?
- 3 What explains the order in which grammaticalized items “continue to develop new grammatical functions”?
- 4 If grammaticalization is unidirectional, why haven't all languages converged by now?



# Grammaticalization puzzles

- 1 What do “grammaticalization” processes have in common?
- 2 What causes grammaticalization, and why is it unidirectional?
- 3 What explains the order in which grammaticalized items “continue to develop new grammatical functions”?
- 4 If grammaticalization is unidirectional, why haven’t all languages converged by now?
- 5 What accounts for the exceptions to unidirectionality?



# The (apparent) heterogeneity of grammaticalization

- Formal grammaticalization:  
e.g. postpositions > clitics > case suffixes,  
leading to “stronger internal dependencies”, but not  
necessarily to any change in function or meaning.



# The (apparent) heterogeneity of grammaticalization

- Formal grammaticalization:  
e.g. postpositions > clitics > case suffixes,  
leading to “stronger internal dependencies”, but not necessarily to any change in function or meaning.
- Functional grammaticalization:  
e.g. deontic > epistemic modals, changes in binding properties of anaphors,  
leading to more/new grammatical functions, but not necessarily to stronger internal dependencies.



# The (apparent) heterogeneity of grammaticalization

- Formal grammaticalization:  
e.g. postpositions > clitics > case suffixes,  
leading to “stronger internal dependencies”, but not necessarily to any change in function or meaning.
- Functional grammaticalization:  
e.g. deontic > epistemic modals, changes in binding properties of anaphors,  
leading to more/new grammatical functions, but not necessarily to stronger internal dependencies.
- Grammaticalizations that do not seem to fit either definition: aspect > tense (e.g. perfect > past).



# The (apparent) heterogeneity of grammaticalization

- Formal grammaticalization:  
e.g. postpositions > clitics > case suffixes,  
leading to “stronger internal dependencies”, but not necessarily to any change in function or meaning.
- Functional grammaticalization:  
e.g. deontic > epistemic modals, changes in binding properties of anaphors,  
leading to more/new grammatical functions, but not necessarily to stronger internal dependencies.
- Grammaticalizations that do not seem to fit either definition: aspect > tense (e.g. perfect > past).

We'll look at a representative case of each type and propose a way to unify them theoretically.





# Outline

- 1 Grammaticalization
- 2 Formal grammaticalization**
- 3 Non-convergence
- 4 Anaphora
- 5 Aspect to tense



# Origin of a case ending

postpositions > case clitics > case suffixes

**1 \*käte pälv-k (Finno-Ugric)**

hand inside-Lative

‘to the inside of the hand’



# Origin of a case ending

postpositions > case clitics > case suffixes

**1 \*käte pälv-k (Finno-Ugric)**

hand inside-Lative

‘to the inside of the hand’

**2 kéz-be (Hungarian)**

hand-Illative

‘into the hand’



# Origin of a case ending

postpositions > case clitics > case suffixes

- 1 **\*käte pälv-k** (Finno-Ugric)  
hand inside-Lative  
'to the inside of the hand'
- 2 **kéz-be** (Hungarian)  
hand-Illative  
'into the hand'
- 3 *\*pälV-k > \*belV-j > \*-belé > \*-bele > \*-be*



# Formal grammaticalization

- Other things being equal, the learner prefers “stronger internal dependencies”.



# Formal grammaticalization

- Other things being equal, the learner prefers “stronger internal dependencies”.
- This preference drives formal grammaticalization.



# Minimalist morphology

Two components:

- 1 A generative component specifies the potential expressions of the language.



# Minimalist morphology

Two components:

- 1 A generative component specifies the potential expressions of the language.
  - Affixation operates freely, provided the feature content of the affix unifies with the feature content of the stem.





# Minimalist morphology

Two components:

- 1 A generative component specifies the potential expressions of the language.
  - Affixation operates freely, provided the feature content of the affix unifies with the feature content of the stem.
- 2 The competition between the potential expressions whose meaning is compatible with a given input meaning (the 'intended' meaning) is resolved by the interaction of (FAITHFULNESS) and (MARKEDNESS) (BLOCKING, Wunderlich 1996, Kiparsky 2004).



# Minimalist morphology

Two components:

- 1 A generative component specifies the potential expressions of the language.
  - Affixation operates freely, provided the feature content of the affix unifies with the feature content of the stem.
- 2 The competition between the potential expressions whose meaning is compatible with a given input meaning (the 'intended' meaning) is resolved by the interaction of (FAITHFULNESS) and (MARKEDNESS) (BLOCKING, Wunderlich 1996, Kiparsky 2004).
  - FAITHFULNESS: Express the meaning of the input.



# Minimalist morphology

Two components:

- 1 A generative component specifies the potential expressions of the language.
  - Affixation operates freely, provided the feature content of the affix unifies with the feature content of the stem.
- 2 The competition between the potential expressions whose meaning is compatible with a given input meaning (the 'intended' meaning) is resolved by the interaction of (FAITHFULNESS) and (MARKEDNESS) (BLOCKING, Wunderlich 1996, Kiparsky 2004).
  - FAITHFULNESS: Express the meaning of the input.
  - MARKEDNESS: Avoid complexity.



# A toy example: why *best* is best

- Assume that the input (or other constraints) specify that *-est* is a suffix which denotes the maximal degree of a property and that *most* is a word with the same meaning.

Input: <i>Max(good)</i>		FAITHFULNESS	MARKEDNESS
1.	good	*	
2.	☞ best		
3.	good-est		*
4.	most good		**



# Analogy from reduced input

If *best* is not a candidate, *goodest* wins:


Input: <i>Max(good)</i>		FAITHFULNESS	MARKEDNESS
1.	good	*	
2.	best		
3. ☞	good-est		*
4.	most good		**

- Logically, it would be equally possible for the complex (synthetic) form to block the simple (analytic) form. But this never seems to happen: the distributional generalizations are always most perspicuously stated on the simple form.



# Grammaticalization from reduced input

Suppose a learner detects no evidence for the category and morphological composition of *bele-i*. She will consider two structures of *kéz belei*: as a noun plus postposition, or as a noun plus a case affix.


Input: ' <i>into the hand</i> '		FAITHFULNESS	MARKEDNESS
1.	$[k\acute{e}z]_{\omega}[bele-i]_{\omega}$		*
2. 	$[k\acute{e}z-belei]_{\omega}$		

- MARKEDNESS, under any ranking, guarantees a preference for “stronger internal dependencies”, which drives grammaticalization.



# Grammaticalization respects language-specific constraints

Grammaticalization of *most* as a prefix in English is not likely to happen because English inflects only with suffixes.

Input: <i>Max(good)</i>		FAITH	RT-HEAD	MARKEDNESS
1. 	$[most]_{\omega}[good]_{\omega}$			*
2.	$[most-good]_{\omega}$		*	



# Unidirectionality

- Under this regime it is strictly impossible to get “upgrading” (e.g. of affixes to clitics or clitics to words).





# Unidirectionality

- Under this regime it is strictly impossible to get “upgrading” (e.g. of affixes to clitics or clitics to words).
- Thus we derive the *origin* of the innovations from the same principles that determine the direction of their *spread*.



# Unidirectionality

- Under this regime it is strictly impossible to get “upgrading” (e.g. of affixes to clitics or clitics to words).
- Thus we derive the *origin* of the innovations from the same principles that determine the direction of their *spread*.
- Moreover, these principles also organize synchronic morphological systems.



# Unidirectionality

- Under this regime it is strictly impossible to get “upgrading” (e.g. of affixes to clitics or clitics to words).
- Thus we derive the *origin* of the innovations from the same principles that determine the direction of their *spread*.
- Moreover, these principles also organize synchronic morphological systems.
- Contrast evolutionary theories, which are only about selection between existing variants.



# But . . . what about real cases of upgrading?!

- In the late 14th century, the genitive suffix -s became a clitic (*the man I met yesterday's wife*).



# But . . . what about real cases of upgrading?!

- In the late 14th century, the genitive suffix -s became a clitic (*the man I met yesterday's wife*).
- Around the same time, the prefix *to* became a nonfinite modal (*to quickly say, I want to, to dance and sing*).



# But . . . what about real cases of upgrading?!

- In the late 14th century, the genitive suffix -s became a clitic (*the man I met yesterday's wife*).
- Around the same time, the prefix *to* became a nonfinite modal (*to quickly say, I want to, to dance and sing*).

👉 Specific constraints trump general constraints.



# But . . . what about real cases of upgrading?!

- In the late 14th century, the genitive suffix *-s* became a clitic (*the man I met yesterday's wife*).
- Around the same time, the prefix *to* became a nonfinite modal (*to quickly say, I want to, to dance and sing*).

👉 Specific constraints trump general constraints.

- Apparent degrammaticalizations always turn out to eliminate language-specific complications (Plank 1995: response to “Systemstörung”). They are *analogical changes*.



# Upgrading as system-internal regularization

- The loss of case inflections left English with the genitive as sole case suffix. Such systems are highly marked (no instances in Arkadiev's 2006 survey of minimal case systems). So genitive case inflection was eliminated.






# Upgrading as system-internal regularization

- The loss of case inflections left English with the genitive as sole case suffix. Such systems are highly marked (no instances in Arkadiev's 2006 survey of minimal case systems). So genitive case inflection was eliminated.
- The modals lacked non-finite forms. This gap was filled by recategorizing *to* as a non-finite modal. This is part of a much larger morphosyntactic reorganization in Late Middle English.



# Upgrading as system-internal regularization


- The loss of case inflections left English with the genitive as sole case suffix. Such systems are highly marked (no instances in Arkadiev's 2006 survey of minimal case systems). So genitive case inflection was eliminated.
- The modals lacked non-finite forms. This gap was filled by recategorizing *to* as a non-finite modal. This is part of a much larger morphosyntactic reorganization in Late Middle English.

 The “counterexamples” to unidirectionality are optimizations. They follow from the same principles as unidirectionality itself.



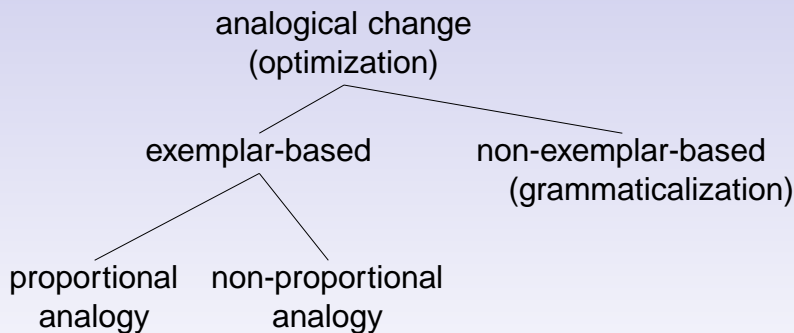
# Upgrading as system-internal regularization

- The loss of case inflections left English with the genitive as sole case suffix. Such systems are highly marked (no instances in Arkadiev's 2006 survey of minimal case systems). So genitive case inflection was eliminated.
- The modals lacked non-finite forms. This gap was filled by recategorizing *to* as a non-finite modal. This is part of a much larger morphosyntactic reorganization in Late Middle English.

 The “counterexamples” to unidirectionality are optimizations. They follow from the same principles as unidirectionality itself.



# Grammaticalization as optimization



# Outline

- 1 Grammaticalization
- 2 Formal grammaticalization
- 3 Non-convergence**
- 4 Anaphora
- 5 Aspect to tense



# Why grammaticalization causes no convergence

The original structure is eventually renewed from other resources. Language is a STABLE DYNAMIC SYSTEM: i.e., linguistic change is not linguistic evolution.

- Short cycles: e.g. Jespersen's negation cycle



# Why grammaticalization causes no convergence

The original structure is eventually renewed from other resources. Language is a STABLE DYNAMIC SYSTEM: i.e., linguistic change is not linguistic evolution.

- Short cycles: e.g. Jespersen's negation cycle
- Long cycles



# Why grammaticalization causes no convergence

The original structure is eventually renewed from other resources. Language is a STABLE DYNAMIC SYSTEM: i.e., linguistic change is not linguistic evolution.

- Short cycles: e.g. Jespersen's negation cycle
- Long cycles
  - Latin future *\*amā=bhw-ō* > *amā-b-ō* 'I will love', renewed in Romance: *amāre habeo* > *aimerai*, and again in French: *je vais aimer*.





# Why grammaticalization causes no convergence

The original structure is eventually renewed from other resources. Language is a STABLE DYNAMIC SYSTEM: i.e., linguistic change is not linguistic evolution.

- Short cycles: e.g. Jespersen's negation cycle
- Long cycles
  - Latin future *\*amā=bhw-ō* > *amā-b-ō* 'I will love', renewed in Romance: *amāre habeo* > *aimerai*, and again in French: *je vais aimer*.
- Superlong cycles: e.g. agglutination > fusion > isolation > agglutination ...



# Otto Jespersen



# Otto Jespersen

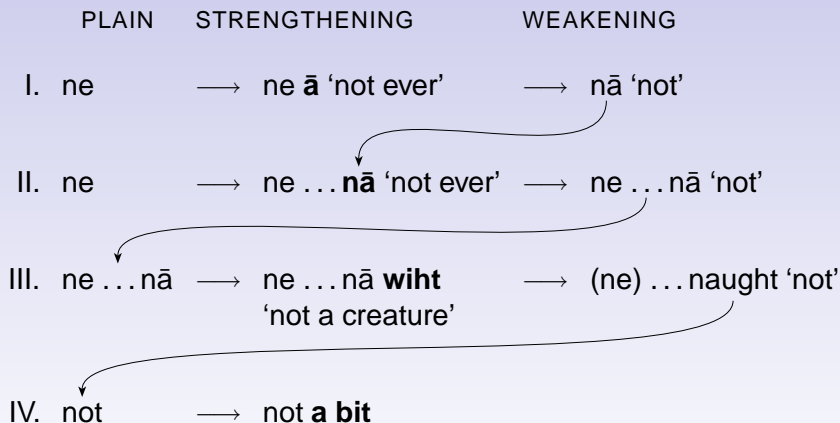
# Jespersen's cycle



*... “the original negative adverb is first weakened, then found insufficient and therefore strengthened, generally through some additional word, and this in its turn may be felt as the negative proper and may then in the course of time be subject to the same development as the original word.” (Jespersen 1917:4)*



# Jespersen's cycle in English



# Strengthening and weakening

- **Morphological/syntactic strengthening:** A plain negation is emphasized with a focused **indefinite**.



# Strengthening and weakening

- **Morphological/syntactic strengthening:** A plain negation is emphasized with a focused **indefinite**.
- **Semantic weakening (“bleaching”):** The emphatic negation becomes noncompositional, and turns into a plain negation.



# Strengthening and weakening

- **Morphological/syntactic strengthening:** A plain negation is emphasized with a focused **indefinite**.
- **Semantic weakening (“bleaching”):** The emphatic negation becomes noncompositional, and turns into a plain negation.
- Strengthening adds an expressive resource; weakening eliminates it.



# Strengthening and weakening

- **Morphological/syntactic strengthening:** A plain negation is emphasized with a focused **indefinite**.
- **Semantic weakening (“bleaching”):** The emphatic negation becomes noncompositional, and turns into a plain negation.
- Strengthening adds an expressive resource; weakening eliminates it.
- Strengthening is MORPHOSYNTACTIC change, weakening is SEMANTIC change.





# Strengthening and weakening

- **Morphological/syntactic strengthening:** A plain negation is emphasized with a focused **indefinite**.
- **Semantic weakening (“bleaching”):** The emphatic negation becomes noncompositional, and turns into a plain negation.
- Strengthening adds an expressive resource; weakening eliminates it.
- Strengthening is MORPHOSYNTACTIC change, weakening is SEMANTIC change.
- Semantic weakening can be followed by phonological reduction or loss of the original head.



# What drives the cycle?

## Functions of emphatic negation

- 1 Denial of a (possibly implicit) assertion.



# What drives the cycle?

## Functions of emphatic negation

- 1 Denial of a (possibly implicit) assertion.
- 2 Denial of a presumption or an expectation.



# What drives the cycle?

## Functions of emphatic negation

- 1 Denial of a (possibly implicit) assertion.
- 2 Denial of a presumption or an expectation.
- 3 Strengthening of a negative assertion.



# What drives the cycle?

## Functions of emphatic negation

- 1 Denial of a (possibly implicit) assertion.
- 2 Denial of a presumption or an expectation.
- 3 Strengthening of a negative assertion.
- 4 Aspectual disambiguation.



# What drives the cycle?

## Functions of emphatic negation

- 1 Denial of a (possibly implicit) assertion.
- 2 Denial of a presumption or an expectation.
- 3 Strengthening of a negative assertion.
- 4 Aspectual disambiguation.

*Assumption:* All languages distinguish emphatic negation from plain negation.

(Eckardt (2002, 2006), Condoravdi and Kiparsky 2004)



# Outline

- 1 Grammaticalization
- 2 Formal grammaticalization
- 3 Non-convergence
- 4 Anaphora**
- 5 Aspect to tense



# Pronominal parameters

- Pronouns differ systematically in how their reference may be determined from the context.





# Pronominal parameters

- Pronouns differ systematically in how their reference may be determined from the context.
- These differences can be characterized in terms of hierarchically nested sets of constraints.



# Pronominal parameters

- Pronouns differ systematically in how their reference may be determined from the context.
- These differences can be characterized in terms of hierarchically nested sets of constraints.
- The constraints are invariant; pronouns vary in how much of the constraint hierarchy they are subject to.



# Pronominal parameters

- Pronouns differ systematically in how their reference may be determined from the context.
- These differences can be characterized in terms of hierarchically nested sets of constraints.
- The constraints are invariant; pronouns vary in how much of the constraint hierarchy they are subject to.
- The binding domain of a pronoun is determined by a ranking of markedness and faithfulness constraints.



# Pronominal parameters

- Pronouns differ systematically in how their reference may be determined from the context.
- These differences can be characterized in terms of hierarchically nested sets of constraints.
- The constraints are invariant; pronouns vary in how much of the constraint hierarchy they are subject to.
- The binding domain of a pronoun is determined by a ranking of markedness and faithfulness constraints.
- UG hypothesis (generative grammar, OT): learner's search space = the typological space.

(Details: Kiparsky 2002, Gast 2006)



# Referential dependence

- REFERENTIALLY INDEPENDENT pronouns can (but need not) introduce something new into the discourse.



# Referential dependence

- REFERENTIALLY INDEPENDENT pronouns can (but need not) introduce something new into the discourse.
  - Deixis (pointing use): *It's him. It's her.*



# Referential dependence

- REFERENTIALLY INDEPENDENT pronouns can (but need not) introduce something new into the discourse.
  - Deixis (pointing use): *It's him. It's her.*
  - Restrictive relative clauses: *He who hesitates is lost.*



# Referential dependence

- REFERENTIALLY INDEPENDENT pronouns can (but need not) introduce something new into the discourse.
  - Deixis (pointing use): *It's him. It's her.*
  - Restrictive relative clauses: *He who hesitates is lost.*
- REFERENTIALLY DEPENDENT pronouns require a discourse antecedent.





# Referential dependence

- REFERENTIALLY INDEPENDENT pronouns can (but need not) introduce something new into the discourse.
  - Deixis (pointing use): *It's him. It's her.*
  - Restrictive relative clauses: *He who hesitates is lost.*
- REFERENTIALLY DEPENDENT pronouns require a discourse antecedent.
  - *\*It's it!*



# Referential dependence

- REFERENTIALLY INDEPENDENT pronouns can (but need not) introduce something new into the discourse.
  - Deixis (pointing use): *It's him. It's her.*
  - Restrictive relative clauses: *He who hesitates is lost.*
- REFERENTIALLY DEPENDENT pronouns require a discourse antecedent.
  - *\*It's it!*
  - *\*It which does not kill you makes you stronger.*



# How far can referentially dependent pronouns go for their antecedent?

- The discourse topic (non-reflexive referentially dependent pronouns, e.g. *it*, German *er*, *sie* (for inanimates), Greek *o idhios*, Turkish *kendisi*, Marathi *aapaṇ*)



# How far can referentially dependent pronouns go for their antecedent?

- The discourse topic (non-reflexive referentially dependent pronouns, e.g. *it*, German *er*, *sie* (for inanimates), Greek *o idhios*, Turkish *kendisi*, Marathi *aapaṇ*)
- Within the sentence (very long-distance reflexives, e.g. Icelandic *sig*)



# How far can referentially dependent pronouns go for their antecedent?

- The discourse topic (non-reflexive referentially dependent pronouns, e.g. *it*, German *er*, *sie* (for inanimates), Greek *o idhios*, Turkish *kendisi*, Marathi *aapaṇ*)
- Within the sentence (very long-distance reflexives, e.g. Icelandic *sig*)
- Within the finite domain (long-distance reflexives, e.g. Swedish *sig*, Russian *sebjā*)

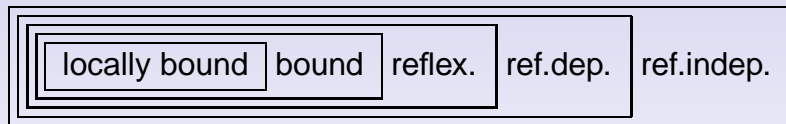


# How far can referentially dependent pronouns go for their antecedent?

- The discourse topic (non-reflexive referentially dependent pronouns, e.g. *it*, German *er*, *sie* (for inanimates), Greek *o idhios*, Turkish *kendisi*, Marathi *aapan*)
- Within the sentence (very long-distance reflexives, e.g. Icelandic *sig*)
- Within the finite domain (long-distance reflexives, e.g. Swedish *sig*, Russian *sebjä*)
- First accessible subject (local reflexives, e.g. *himself*, German *sich*)



# The antecedent domain hierarchy



# Obviation

Some pronouns can't be coreferential with a coargument (except for certain predicates like “shave”, “wash”).

Swedish *sig* in an obviative long-distance reflexive.

**Generalen<sub>i</sub> tvingade översten<sub>j</sub> att be löjtnanten<sub>k</sub> att**  
 general-the forced colonel-the to ask lieutenant-the to  
**hjälpa sig<sub>i,?j,\*k</sub>**  
 help self

‘The general forced the colonel to ask the lieutenant to help him.’

- For the local domain, obviation means subject-orientation.





# The antecedent domain hierarchy for obviative pronouns

German *sich* Sw. *sig* Icel. *sig* Gk. *o idhios* *him*



# Unidirectionality of change

- Referentially independent (demonstrative) pronouns become referentially dependent (“weak” pronouns, requiring an antecedent).



# Unidirectionality of change

- Referentially independent (demonstrative) pronouns become referentially dependent (“weak” pronouns, requiring an antecedent).
- The domain in which referentially dependent pronouns must find their antecedent becomes narrower over time.



# Unidirectionality of change

- Referentially independent (demonstrative) pronouns become referentially dependent (“weak” pronouns, requiring an antecedent).
- The domain in which referentially dependent pronouns must find their antecedent becomes narrower over time.
  - discourse > finite domain > non-finite domain > local domain



# Unidirectionality of change

- Referentially independent (demonstrative) pronouns become referentially dependent (“weak” pronouns, requiring an antecedent).
- The domain in which referentially dependent pronouns must find their antecedent becomes narrower over time.
  - discourse > finite domain > non-finite domain > local domain
- Non-obviative pronouns become obviative.



# Unidirectionality of change

- Referentially independent (demonstrative) pronouns become referentially dependent (“weak” pronouns, requiring an antecedent).
- The domain in which referentially dependent pronouns must find their antecedent becomes narrower over time.
  - discourse > finite domain > non-finite domain > local domain
- Non-obviative pronouns become obviative.
- Reflexives become subject-oriented.



# Unidirectionality of change

- Referentially independent (demonstrative) pronouns become referentially dependent (“weak” pronouns, requiring an antecedent).
- The domain in which referentially dependent pronouns must find their antecedent becomes narrower over time.
  - discourse > finite domain > non-finite domain > local domain
- Non-obviative pronouns become obviative.
- Reflexives become subject-oriented.



The binding properties of pronouns become MORE RESTRICTIVE in time.



# Unidirectionality of change

- Referentially independent (demonstrative) pronouns become referentially dependent (“weak” pronouns, requiring an antecedent).
- The domain in which referentially dependent pronouns must find their antecedent becomes narrower over time.
  - discourse > finite domain > non-finite domain > local domain
- Non-obviative pronouns become obviative.
- Reflexives become subject-oriented.



The binding properties of pronouns become MORE RESTRICTIVE in time.





# Finno-Ugric

## 1 Reflexive: *itse* & cognates



# Finno-Ugric

- 1 Reflexive: *itse* & cognates
- 2 Pronoun (> Reflexive): *hän* & cognates



# Finno-Ugric

- 1 Reflexive: *itse* & cognates
- 2 Pronoun (> Reflexive): *hän* & cognates
- 3 Demonstratives (> Pronouns): *se*, *tämä* & cognates



# Finno-Ugric

- 1 Reflexive: *itse* & cognates
- 2 Pronoun (> Reflexive): *hän* & cognates
- 3 Demonstratives (> Pronouns): *se*, *tämä* & cognates

Antecedent domain	local	non- finite	finite	disc.	None (ref. indep.)
----------------------	-------	----------------	--------	-------	-----------------------



# Finno-Ugric

- 1 Reflexive: *itse* & cognates
- 2 Pronoun (> Reflexive): *hän* & cognates
- 3 Demonstratives (> Pronouns): *se, tämä* & cognates

Antecedent domain	local	non-finite	finite	disc.	None (ref. indep.)
Votyak	Refl	Pron	Pron	Pron	Pron



# Finno-Ugric

- 1 Reflexive: *itse* & cognates
- 2 Pronoun (> Reflexive): *hän* & cognates
- 3 Demonstratives (> Pronouns): *se, tämä* & cognates

Antecedent domain	local	non-finite	finite	disc.	None (ref. indep.)
Votyak	Refl	Pron	Pron	Pron	Pron
Std. Finnish	Refl	Pron	Pron	Pron	Pron ~ Dem



# Finno-Ugric

- 1 Reflexive: *itse* & cognates
- 2 Pronoun (> Reflexive): *hän* & cognates
- 3 Demonstratives (> Pronouns): *se, tämä* & cognates

Antecedent domain	local	non-finite	finite	disc.	None (ref. indep.)
Votyak	Refl	Pron	Pron	Pron	Pron
Std. Finnish	Refl	Pron	Pron	Pron	Pron ~ Dem
SW Finnish	Refl	Pron	Pron	Pron	Dem



# Finno-Ugric

- 1 Reflexive: *itse* & cognates
- 2 Pronoun (> Reflexive): *hän* & cognates
- 3 Demonstratives (> Pronouns): *se*, *tämä* & cognates

Antecedent domain	local	non-finite	finite	disc.	None (ref. indep.)
Votyak	Refl	Pron	Pron	Pron	Pron
Std. Finnish	Refl	Pron	Pron	Pron	Pron ~ Dem
SW Finnish	Refl	Pron	Pron	Pron	Dem
Tornio Finnish	Refl	Pron	Pron	Dem	Dem





# Finno-Ugric

- 1 Reflexive: *itse* & cognates
- 2 Pronoun (> Reflexive): *hän* & cognates
- 3 Demonstratives (> Pronouns): *se, tämä* & cognates

Antecedent domain	local	non-finite	finite	disc.	None (ref. indep.)
Votyak	Refl	Pron	Pron	Pron	Pron
Std. Finnish	Refl	Pron	Pron	Pron	Pron ~ Dem
SW Finnish	Refl	Pron	Pron	Pron	Dem
Tornio Finnish	Refl	Pron	Pron	Dem	Dem
Estonian	Pron	Pron	Dem	Dem	Dem

(Viinikka-Kallinen & Trosterud 1999)



# Referentially independent > referentially independent

- Indo-European *k'e-* (demonstrative) > OE *he* (referentially dependent)



# Referentially independent > referentially independent

- Indo-European *k'e-* (demonstrative) > OE *he* (referentially dependent)
- Indo-European *\*ey-, -i* (demonstrative) > Latin *is, ea, id* (referentially dependent), also Avestan *a-*



# Referentially independent > referentially independent

- Indo-European *k'e-* (demonstrative) > OE *he* (referentially dependent)
- Indo-European *\*ey-, -i* (demonstrative) > Latin *is, ea, id* (referentially dependent), also Avestan *a-*
- Indo-European *\*swe-* (pronominal adjective meaning “own”) has been recruited as an reflexive in many branches. The predicted intermediate stage, a referentially dependent pronoun, is attested in Rigvedic (with logophoric function).



# Nonreflexive > reflexive

- Classical Greek *ho-* was a referentially dependent pronoun in Homeric, only a (long-distance) reflexive in later Greek.



# Nonreflexive > reflexive

- Classical Greek *ho-* was a referentially dependent pronoun in Homeric, only a (long-distance) reflexive in later Greek.
- Old Chinese *jǐ*, *zìjǐā* (apparently a referentially dependent pronoun) has developed into the modern Chinese reflexive *zìjǐ*.



# Long-distance reflexive > local reflexive

## ■ Middle High German to Modern German

... **bat** **er<sub>i</sub>** **sih<sub>i</sub>** **ketrencan** **daz** **uui<sub>j</sub>**

... asked he self let-drink the woman

‘... he asked the woman to give him something to drink’

... bat er<sub>i</sub> das Weib<sub>j</sub> ihn<sub>i</sub> zu “tränken” (Modern German)



# Long-distance reflexive > local reflexive

## ■ Middle High German to Modern German

... **bat** **er<sub>i</sub>** **sih<sub>i</sub>** **ketrencan** **daz** **uuip<sub>j</sub>**

... asked he self let-drink the woman

‘... he asked the woman to give him something to drink’

... bat er<sub>i</sub> das Weib<sub>j</sub> ihn<sub>i</sub> zu “tränken” (Modern German)

## ■ Latin to Romance

**Ariovistus<sub>i</sub>** **respondit** **omnes** **Galliae civitates** **ad**

Ariovistus answered all-A Gaul’s states-A to

**se<sub>i</sub>** **oppugnandum** **venisse**

self-A attack-Grnd come-Prf-Inf

‘Ariovistus answered that all the states of Gaul had come to attack him’





# Non-obviative > obviative

## ■ Swedish *sig*



# Non-obviative > obviative

- Swedish *sig*
- Marathi *aapaṇ* (from Sanskrit *ātman*, non-obviative)



# Non-obviative > obviative

- Swedish *sig*
- Marathi *aapaṇ* (from Sanskrit *ātman*, non-obviative)
- Rise of subject-orientation (Dogon, data from C. Culy)



# Explaining the unidirectionality

- The binding constraint system includes



# Explaining the unidirectionality

- The binding constraint system includes
  - Constraints on binding domains, which form a stringency hierarchy, and an OBVIATION constraint.



# Explaining the unidirectionality

- The binding constraint system includes
  - Constraints on binding domains, which form a stringency hierarchy, and an OBVIATION constraint.
  - A FAITHFULNESS constraint that dictates retention of arbitrary input binding relations.



# Explaining the unidirectionality

- The binding constraint system includes
  - Constraints on binding domains, which form a stringency hierarchy, and an OBVIATION constraint.
  - A FAITHFULNESS constraint that dictates retention of arbitrary input binding relations.
- Particular anaphors are characterized by a specific ranking of these constraints. FAITHFULNESS represents a cutoff-point such that constraints above it are strictly obeyed and constraints below it are violable.



# Swedish vs. Icelandic

Input	DISCOURSE	FINITE	FAITHFULNESS	NON-FINITE	LOCAL
$[ \dots A_i \dots [ \dots B_j \dots ]_{CP} ]_{CP}$					
$[ \dots A_i \dots [ \dots B_j \dots ]_{CP} ]_{CP}$		*		*	*
$[ \dots A_i \dots [ \dots B_j \dots ]_{CP} ]_{CP}$			*	*	*





# Explaining the unidirectionality

- In the learner's initial state, markedness constraints outrank faithfulness constraints (as in phonology).



# Explaining the unidirectionality

- In the learner's initial state, markedness constraints outrank faithfulness constraints (as in phonology).
- Consequently, learners expect a strict binding system (subject to all locality constraints and to obviation).



# Explaining the unidirectionality

- In the learner's initial state, markedness constraints outrank faithfulness constraints (as in phonology).
- Consequently, learners expect a strict binding system (subject to all locality constraints and to obviation).
- Positive data reveals which markedness constraints are violated in the language.




# Explaining the unidirectionality

- In the learner's initial state, markedness constraints outrank faithfulness constraints (as in phonology).
- Consequently, learners expect a strict binding system (subject to all locality constraints and to obviation).
- Positive data reveals which markedness constraints are violated in the language.
- Learners promote FAITHFULNESS to defeat these.



# Explaining the unidirectionality


- In the learner's initial state, markedness constraints outrank faithfulness constraints (as in phonology).
- Consequently, learners expect a strict binding system (subject to all locality constraints and to obviation).
- Positive data reveals which markedness constraints are violated in the language.
- Learners promote FAITHFULNESS to defeat these.

 This learning bias explains the unidirectionality of change in binding systems.



# Explaining the unidirectionality

- In the learner's initial state, markedness constraints outrank faithfulness constraints (as in phonology).
- Consequently, learners expect a strict binding system (subject to all locality constraints and to obviation).
- Positive data reveals which markedness constraints are violated in the language.
- Learners promote FAITHFULNESS to defeat these.

 This learning bias explains the unidirectionality of change in binding systems.

- Because the changes produce no overt change in the output, speaker-based accounts are problematic.



# Expressiveness

The maximally unrestricted values of each parameter must be instantiated: every language must have at least a referentially independent pronoun, and a non-obviative pronoun. This ensures the possibility of marking coreference and non-coreference in any domain.



# Expressiveness forces upgrading

- Old English, the personal pronouns were referentially dependent. They are not used deictically and cannot head restrictive relative clauses. They were recruited for reflexive uses when the Germanic reflexive pronoun was lost.





# Expressiveness forces upgrading

- Old English, the personal pronouns were referentially dependent. They are not used deictically and cannot head restrictive relative clauses. They were recruited for reflexive uses when the Germanic reflexive pronoun was lost.
- When the Old English masc. and fem. demonstratives *sē*, *sēo* were lost, *he*, *she* became referentially independent again (upgrading).



# Expressiveness forces upgrading

- Old English, the personal pronouns were referentially dependent. They are not used deictically and cannot head restrictive relative clauses. They were recruited for reflexive uses when the Germanic reflexive pronoun was lost.
- When the Old English masc. and fem. demonstratives *sē*, *sēo* were lost, *he*, *she* became referentially independent again (upgrading).
- The reflexive function was taken over by the pronoun+*self*.



- 1 **ponne wolde heo ealra nyhst *hy* bapian & þwearn**  
then would she of all latest her bathe and wash  
'then she would last of all bathe and wash herself'  
[having first washed the others] (*Bede* 4 19.318.20)



1 **ponne wolde heo ealra nyhst hy bapian & pwean**  
then would she of all latest her bathe and wash  
'then she would last of all bathe and wash herself'  
[having first washed the others] (*Bede* 4 19.318.20)

2 **ac mid inneweardre heortan monic mid hine**  
and with inmost heart often with him  
**sprecende smeade**  
speaking reflected-3Sg  
'in his innermost heart he often argued with himself'  
(*Bede* 2 8.124.22)



- 1 **ponne wolde heo ealra nyhst *hy* bapian & þwearn**  
then would she of all latest her bathe and wash  
'then she would last of all bathe and wash herself'  
[having first washed the others] (*Bede* 4 19.318.20)
- 2 **ac mid innewardre heortan monic mid *hine***  
and with inmost heart often with him  
**sprecende smeade**  
speaking reflected-3Sg  
'in his innermost heart he often argued with himself'  
(*Bede* 2 8.124.22)
- 3 **þætte nænig biscopa *hine* oðrum forbære**  
that no bishop him others-DAT advance-SUBJ3P  
'that no bishop shall put himself above others' (*Bede*  
4 5.278.27)



# Two consequences

- Because the neuter demonstrative *þæt* was retained, *it* remains referentially dependent.



# Two consequences

- Because the neuter demonstrative *pæ̃t* was retained, *it* remains referentially dependent.
- Because *him*, *her* became obviative, *him+self*, *her+self* became non-compositional, and the complex reflexives were reanalyzed as morphological units.



# Outline

- 1 Grammaticalization
- 2 Formal grammaticalization
- 3 Non-convergence
- 4 Anaphora
- 5 Aspect to tense**





# Unidirectional grammaticalization paths

■ RESULTATIVE > PERFECT > PERFECTIVE/PAST



# Unidirectional grammaticalization paths

- RESULTATIVE > PERFECT > PERFECTIVE/PAST
  - Kru, Chinese, Ewe, French, Italian, German (Dahl 1985, 2000; Bybee et al 1994)



# Unidirectional grammaticalization paths

- RESULTATIVE > PERFECT > PERFECTIVE/PAST
  - Kru, Chinese, Ewe, French, Italian, German (Dahl 1985, 2000; Bybee et al 1994)
- (LOCATIVE) > FOCALIZED PROGRESSIVE > PROGRESSIVE > IMPERFECTIVE/PRESENT



# Unidirectional grammaticalization paths

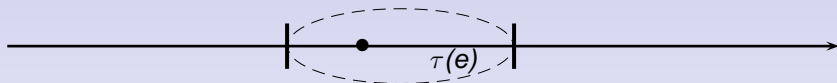
- RESULTATIVE > PERFECT > PERFECTIVE/PAST
  - Kru, Chinese, Ewe, French, Italian, German (Dahl 1985, 2000; Bybee et al 1994)
- (LOCATIVE) > FOCALIZED PROGRESSIVE > PROGRESSIVE > IMPERFECTIVE/PRESENT
  - Yoruba, Scots Gaelic, Turkish, Maa, Margi, Kui (Comrie 1976; Bybee et al. 1994)

On focalized progressives, see Bertinetto 2000.



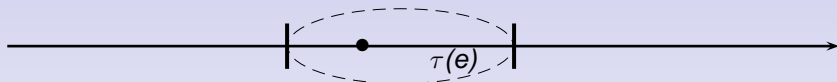
# Focalized progressive

- The focalized progressive yields the set of points in the run-time of the event.



# Focalized progressive

- The focalized progressive yields the set of points in the run-time of the event.

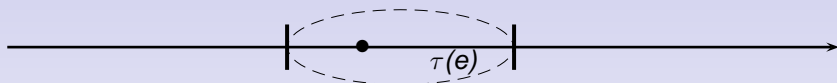


- **OI-i-n luke-ma-ssa kirja-a (\*2 tunti-a)**  
be-1Sg read-Ptc-Iness book-Part (2-Acc hour-Part)  
'I was reading the/a book (for 2 hours)' (Finnish)



# Focalized progressive

- The focalized progressive yields the set of points in the run-time of the event.

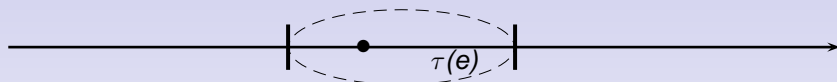


- **OI-i-n luke-ma-ssa kirja-a (\*2 tunti-a)**  
be-1Sg read-Ptc-Iness book-Part (2-Acc hour-Part)  
'I was reading the/a book (for 2 hours)' (Finnish)
- A focalized progressive denotes a point of time, therefore does not allow phrases denoting extent of time.



# Focalized progressive

- The focalized progressive yields the set of points in the run-time of the event.



- **OI-i-n luke-ma-ssa kirja-a (\*2 tunti-a)**  
 be-1Sg read-Ptc-Iness book-Part (2-Acc hour-Part)  
 'I was reading the/a book (for 2 hours)' (Finnish)
- A focalized progressive denotes a point of time, therefore does not allow phrases denoting extent of time.
- The Focalized Progressive in Finnish is formed with the Inessive (internal locative) case of the Second Infinitive *-ma* (roughly 'in -ing').





# Incompatibility with stative predicates

■ **\*Pyykki o-n loju-ma-ssa lattia-lla**

laundry be-3Sg lie-Ptc-Iness floor-Adess

'The laundry is lying on the floor'

(Finnish)

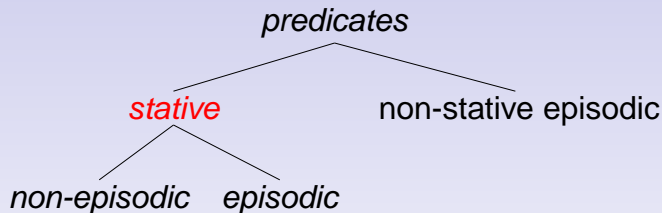


# Incompatibility with stative predicates

- **\*Pyykki o-n loju-ma-ssa lattia-lla**  
laundry be-3Sg lie-Ptc-Iness floor-Adess  
'The laundry is lying on the floor' (Finnish)
- Stative predicates (whether episodic or non-episodic) do not denote points of time, therefore do not allow focalized progressives.



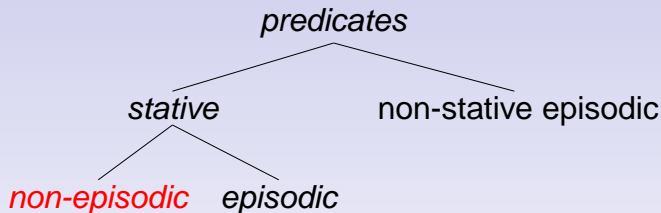
# Stativity and episodicity



- Stative predicates (whether episodic or non-episodic) do not denote points of time.



# Stativity and episodicity

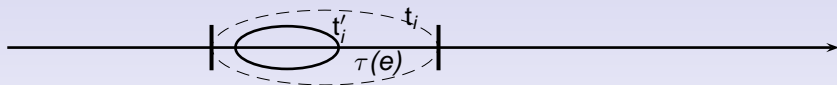


- Stative predicates (whether episodic or non-episodic) do not denote points of time.
- Non-episodic stative predicates are not located in time.



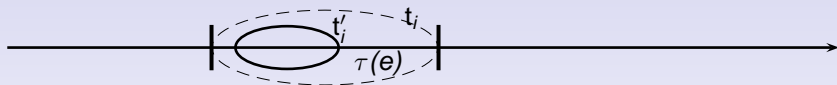
# Durative progressive

- The durative progressive yields the set of intervals in the run-time of the event.



# Durative progressive

- The durative progressive yields the set of intervals in the run-time of the event.

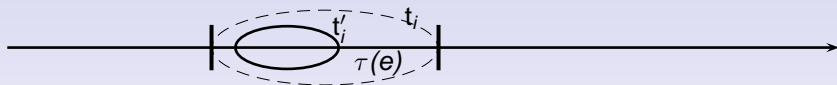


- I was reading the/a book for 2 hours.



# Durative progressive

- The durative progressive yields the set of intervals in the run-time of the event.

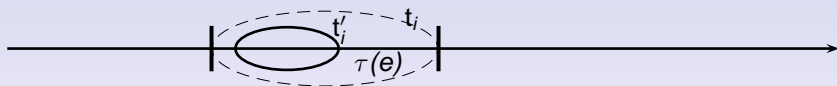


- I was reading the/a book for 2 hours.
- \*The earth is being round.



# Durative progressive

- The durative progressive yields the set of intervals in the run-time of the event.



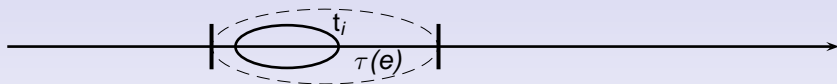
- I was reading the/a book for 2 hours.
- \*The earth is being round.
- Non-episodic stative predicates are not located in time, therefore do not allow durative progressives.





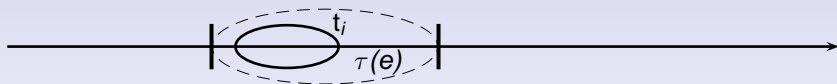
# Imperfective: Deo's analysis

- The imperfective yields the closure of the set of intervals in the run-time of the event under the superinterval relation.



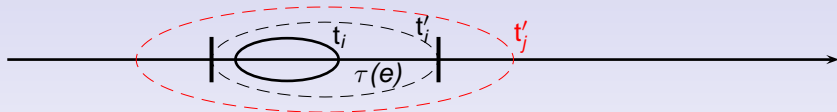
# Imperfective: Deo's analysis

- The imperfective yields the closure of the set of intervals in the run-time of the event under the superinterval relation.



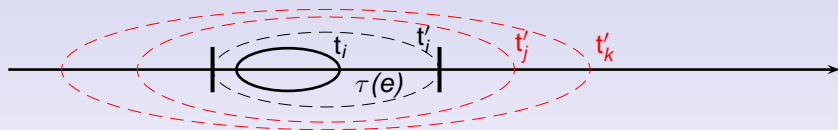
# Imperfective: Deo's analysis

- The imperfective yields the closure of the set of intervals in the run-time of the event under the superinterval relation.



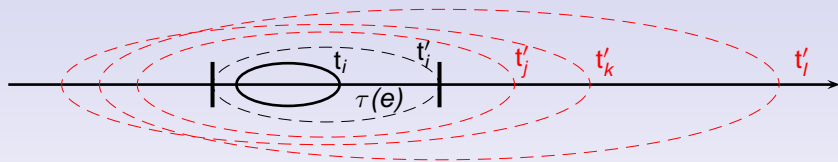
# Imperfective: Deo's analysis

- The imperfective yields the closure of the set of intervals in the run-time of the event under the superinterval relation.



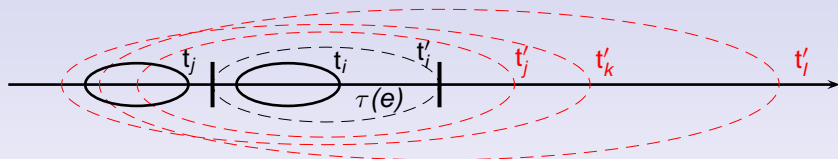
# Imperfective: Deo's analysis

- The imperfective yields the closure of the set of intervals in the run-time of the event under the superinterval relation.



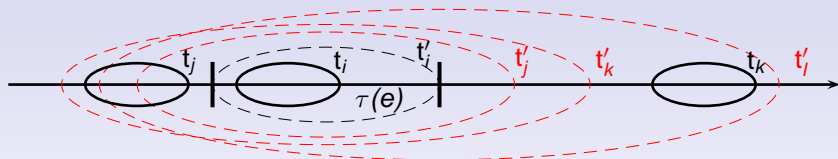
# Imperfective: Deo's analysis

- The imperfective yields the closure of the set of intervals in the run-time of the event under the superinterval relation.



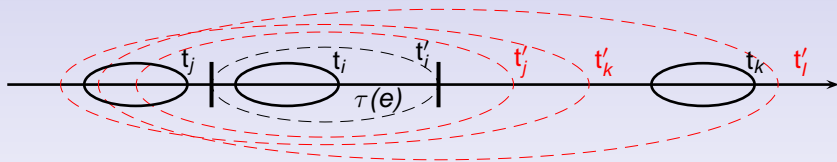
# Imperfective: Deo's analysis


- The imperfective yields the closure of the set of intervals in the run-time of the event under the superinterval relation.



# Imperfective: Deo's analysis

- The imperfective yields the closure of the set of intervals in the run-time of the event under the superinterval relation.

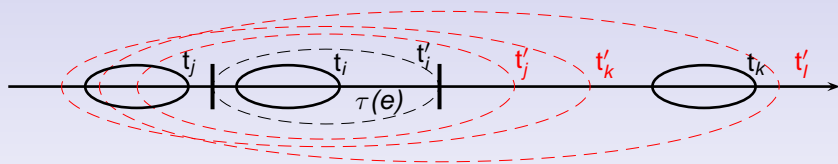



 The denotation of the imperfective is a superset of the denotation of the progressive. Thus the imperfective arises by a further step in the aspect-to-tense trajectory.



# Imperfective: Deo's analysis

- The imperfective yields the closure of the set of intervals in the run-time of the event under the superinterval relation.



 The denotation of the imperfective is a superset of the denotation of the progressive. Thus the imperfective arises by a further step in the aspect-to-tense trajectory.

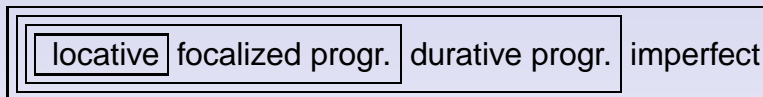
# Direction of change

- Aspect/Tense morphemes lose their idiosyncratic properties.



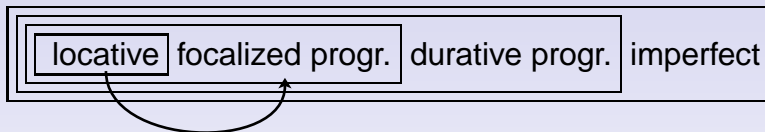
# Direction of change

- Aspect/Tense morphemes lose their idiosyncratic properties.



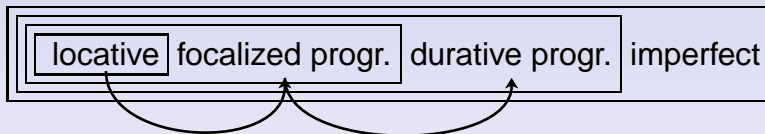
# Direction of change

- Aspect/Tense morphemes lose their idiosyncratic properties.



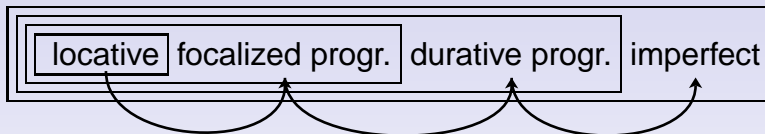
# Direction of change

- Aspect/Tense morphemes lose their idiosyncratic properties.



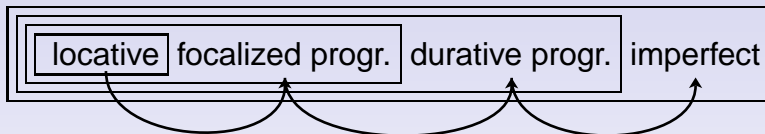
# Direction of change

- Aspect/Tense morphemes lose their idiosyncratic properties.



# Direction of change

- Aspect/Tense morphemes lose their idiosyncratic properties.

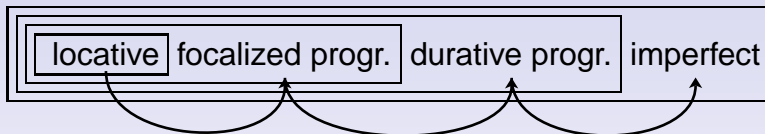


- Anaphors lose their idiosyncratic properties.

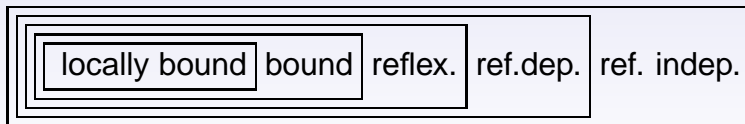


# Direction of change

- Aspect/Tense morphemes lose their idiosyncratic properties.



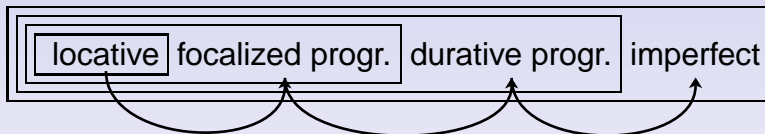
- Anaphors lose their idiosyncratic properties.



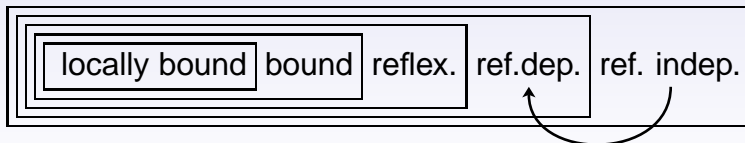


# Direction of change

- Aspect/Tense morphemes lose their idiosyncratic properties.

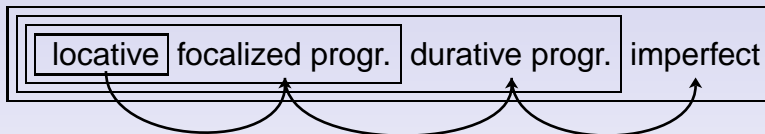


- Anaphors lose their idiosyncratic properties.

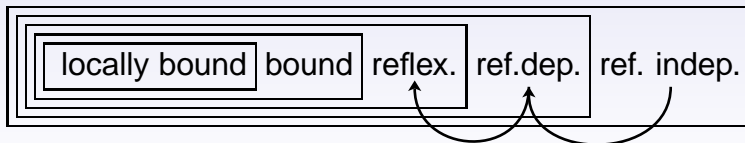


# Direction of change

- Aspect/Tense morphemes lose their idiosyncratic properties.

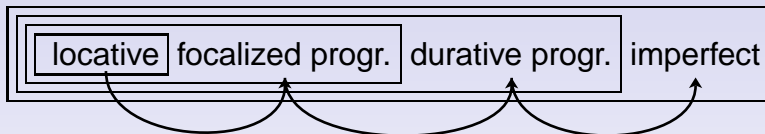


- Anaphors lose their idiosyncratic properties.

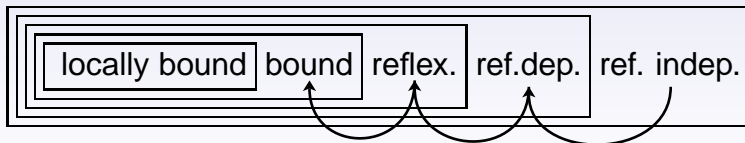


# Direction of change

- Aspect/Tense morphemes lose their idiosyncratic properties.

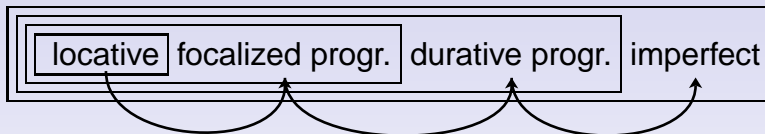


- Anaphors lose their idiosyncratic properties.

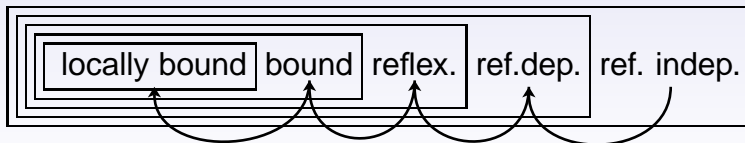


# Direction of change

- Aspect/Tense morphemes lose their idiosyncratic properties.



- Anaphors lose their idiosyncratic properties.



# Conclusion

- Grammaticalization eliminates structurally arbitrary (albeit historically motivated) grammatical restrictions.



# Conclusion

- Grammaticalization eliminates structurally arbitrary (albeit historically motivated) grammatical restrictions.
- It is non-exemplar-based analogical change.



