DGfS Meeting, Konstanz
AG-2 February 24, 2016

ERGATIVITY UNDER THE LENS: EXPERIMENTAL AND THEORETICAL SYNTAX

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SETTING THE STAGE

TWO SIDES OF SUBJECT PREFERENCE

- Subjects are privileged in a number of syntactic processes and in co-reference across clauses
- Subject gaps in long-distance dependencies are interpreted more accurately and faster than other types of gaps

TWO SIDES OF SUBJECT PREFERENCE

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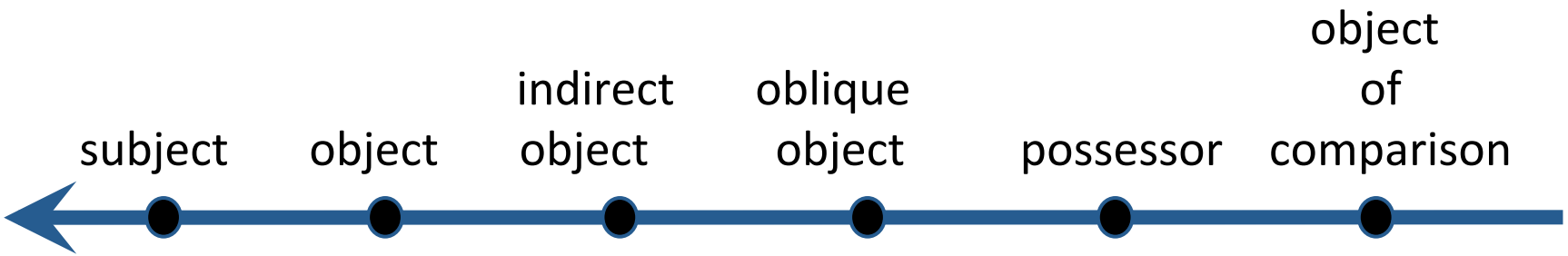
  - The subject status of the antecedent matters
- Subject gaps in long-distance dependencies are interpreted more accurately and faster than other types of gaps
  - The subject status of the gap matters

TWO SIDES OF SUBJECT PREFERENCE

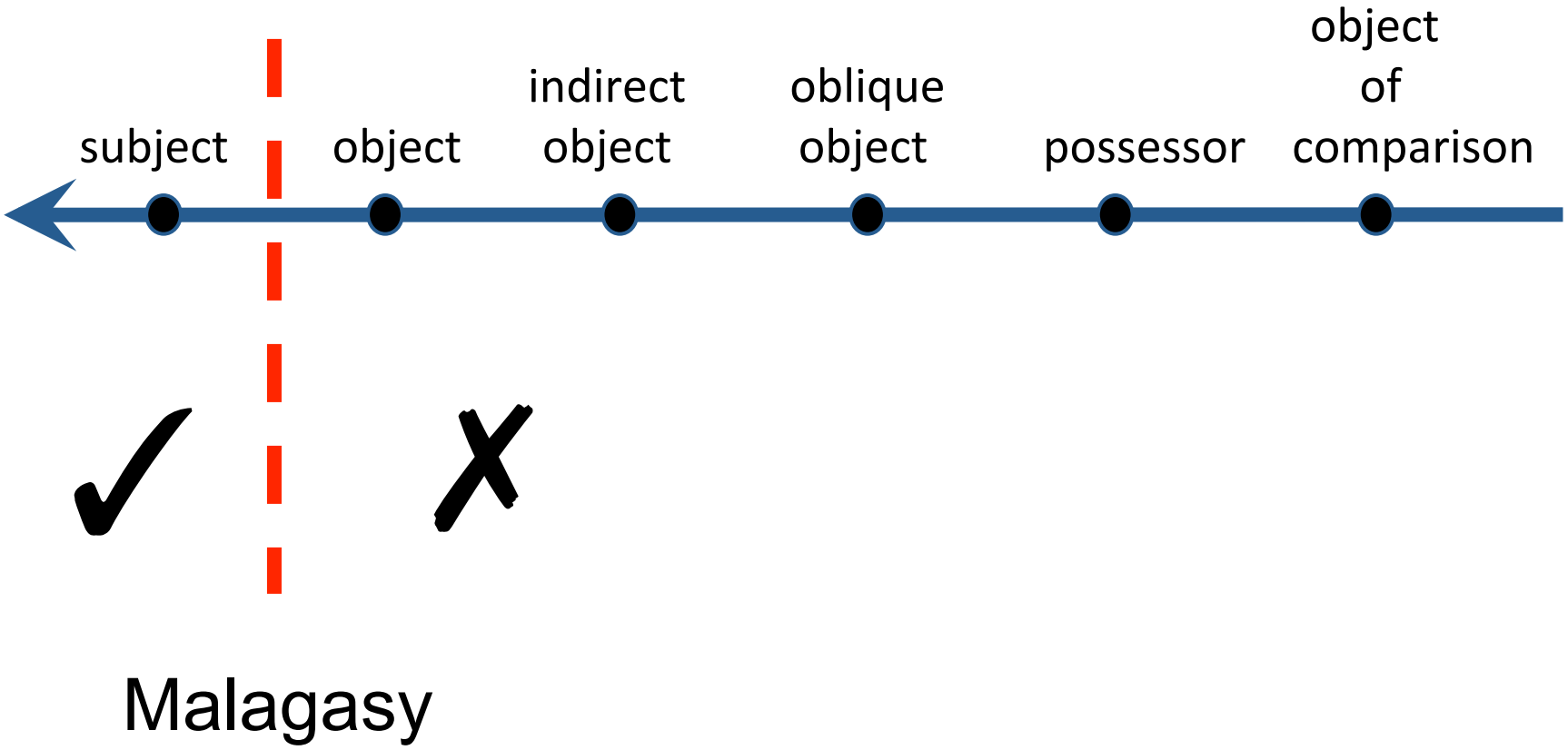
- Subjects are privileged in a number of syntactic processes and in co-reference across clauses
  - The subject status of the antecedent matters
- **Subject gaps in long-distance dependencies are interpreted more accurately and faster than other types of gaps**
  - **The subject status of the gap matters**

The Accessibility Hierarchy:
subject gaps are special

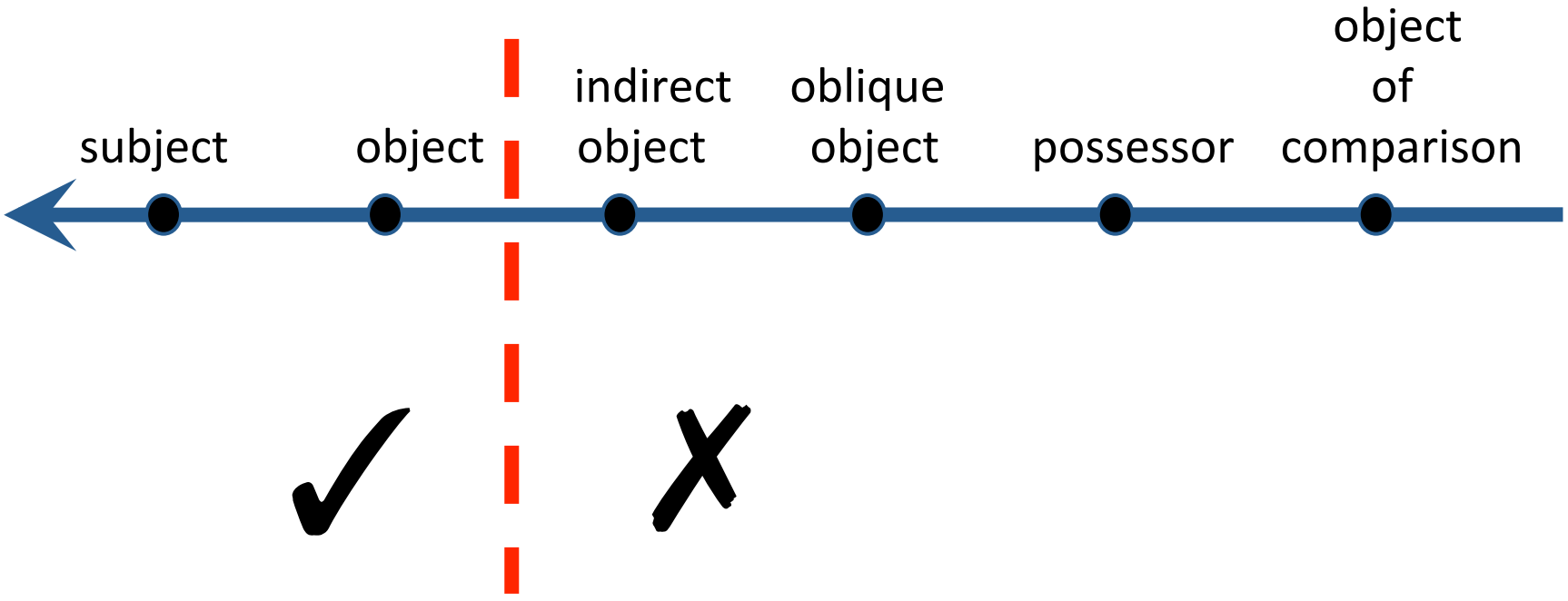


Keenan & Comrie (1977, 1979)

The Accessibility Hierarchy: Relativization

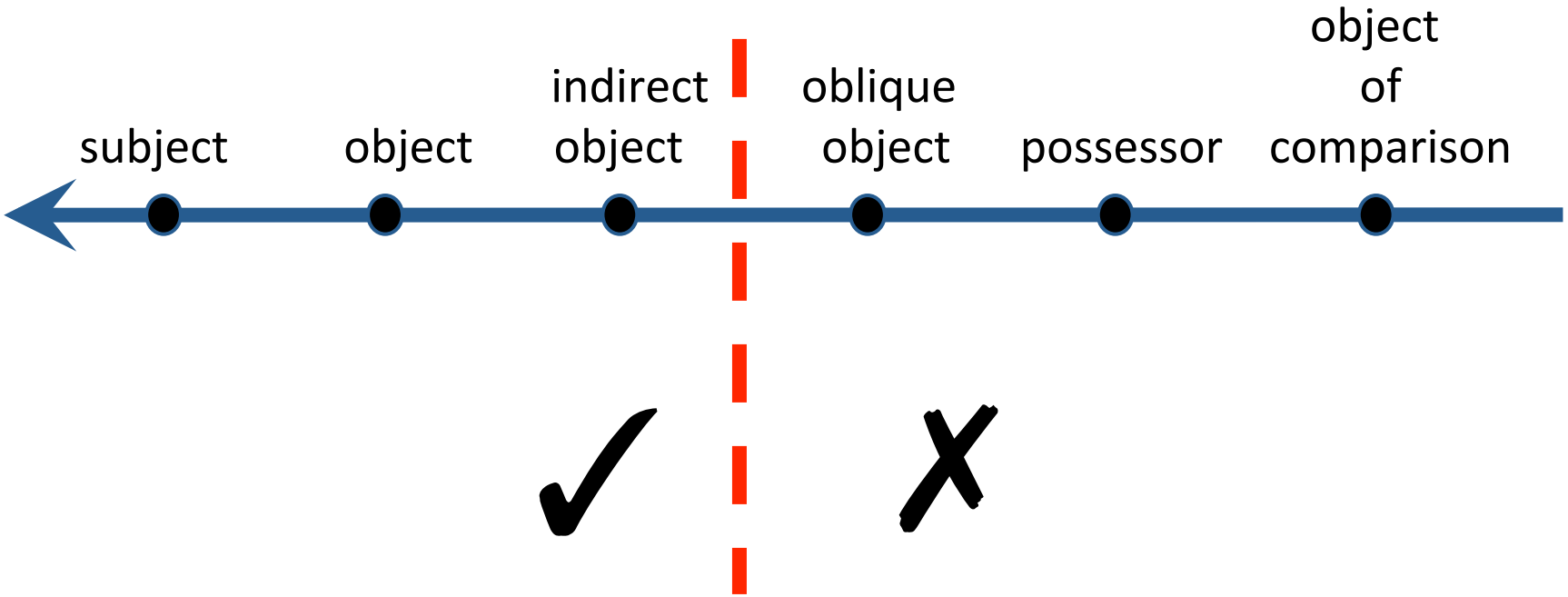


The Accessibility Hierarchy: Relativization



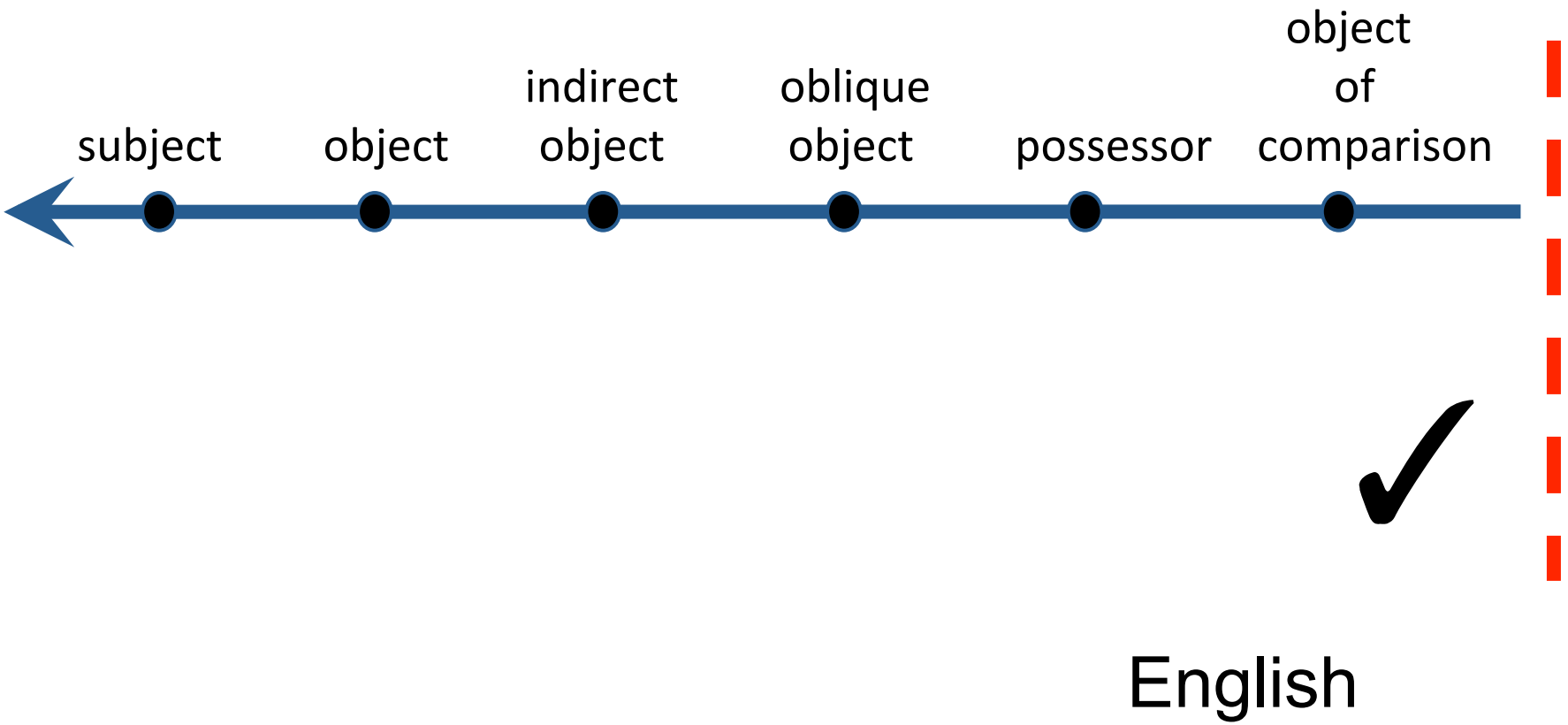
Kinyarwanda, Welsh

The Accessibility Hierarchy: Relativization



North Frisian

The Accessibility Hierarchy: Relativization



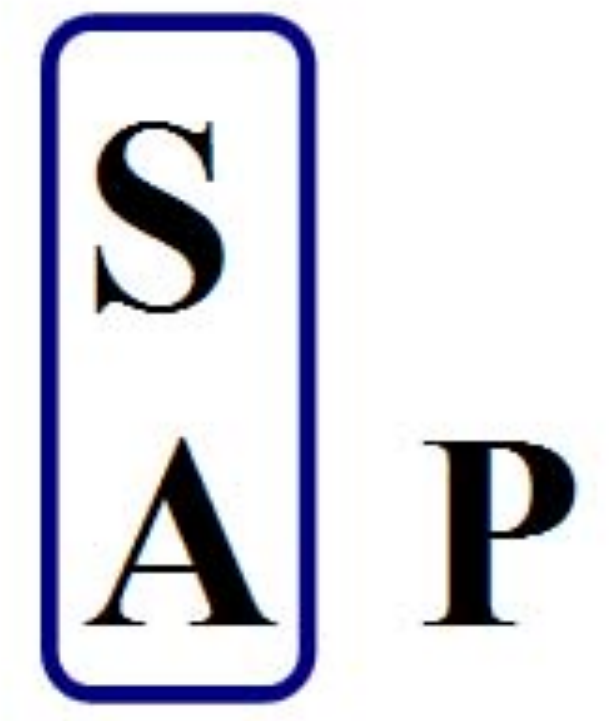
English

Does this preference depend on alignment?

- Most data concerning subject preference are from nominative-accusative languages

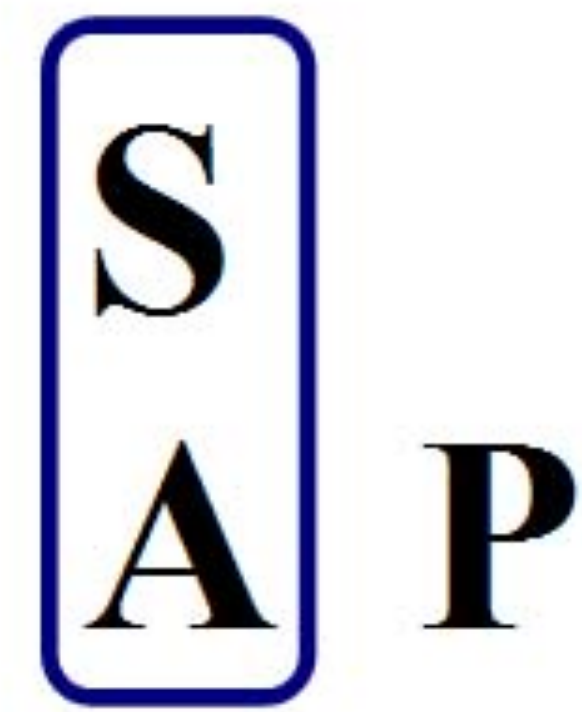
ALIGNMENT

Accusative alignment



ALIGNMENT

Accusative alignment



Ergative alignment

MNEMONICS

ABSOLUTIVE SUBJECT

ERGATIVE

ABSOLUTIVE OBJECT

THE ERGATIVE IS A SYNTACTIC SUBJECT

The ergative NP has typical properties of a syntactic subject (Anderson 1976; 1982, and much subsequent literature)

SIGNS OF SUBJECTS

	Nom S	Erg S	Obj
Tail of control chain	yes	yes	no
Target of raising	yes	yes	no
C-commanding binder (anaphors, depictives)	yes	yes	no
Preferred argument for deletion under coordination	yes	yes	no
Preferred target of A-bar movement	yes	yes	no
Preferred gap position under A-bar movement	yes	yes	no
Subject to *that*-trace effect	yes	yes	no
Target of anti-agreement under A-bar movement	yes	yes	no

Signs of subjects

	Nom S	Erg S	Object
Induces superiority violations	no	no	yes
Preferred argument in idiom formation (*the shit hit the fan* vs. *buy the farm)*	no	no	yes
Undergoes noun incorporation	no	no	yes
Preferred argument for floating/stranding quantifiers	no	no	yes

SO ERG IS SYNTACTIC SUBJECT…

- It should be high on the Accessibility Hierarchy which accounts for relative clause formation

- *the cat* [*that* ___ *chased the dog*]

  subject gap

- *the cat* [*that the dog chased* ___]

  object gap

HOWEVER…

- Unlike subjects in nominative-accusative languages, the ergative DP is *often* inaccessible to relativization, topicalization, and wh-question formation (A-bar movement)
- *Syntactic ergativity:* inaccessibility of the ergative NP to A-bar movement

SYNTACTIC ERGATIVITY

- *Syntactic ergativity:* inaccessibility of the ergative NP to A-bar movement
- Syntactic ergativity is found in a large number of ergative languages

EXAMPLE: TONGAN CONTROL

Na'e	feinga	'e	Sione	[ke	alu	~~'a S~~	ki	ai]
PAST	try	ERG	S	COMP	go	~~ABS~~	there	

'Sione tried to go there.'

Na'e	feinga	'e	Sione	[ke	'ave	~~'e S~~	'a	Mele	ki ai]
PAST	try	ERG	S	COMP	take	~~ERG~~	ABS	M	there

'Sione tried to take Mele there.'

*Na'e	feinga	'e	Sione	[ke	'ave	'e	Mele	~~'a S~~	ki ai]
PAST	try	ERG	S	COMP	take	ERG	M	~~ABS~~	there

('Sione tried to be taken there by Mele.')

EXAMPLE: TONGAN CONTROL

Na'e feinga 'e Sione [ke alu ~~'a S~~ ki ai]

PAST try ERG S COMP go ~~ABS~~ there

'Sione tried to go there.'

Na'e feinga 'e Sione [ke **Subjects!** ki ai]

PAST try ERG S COMP take ~~ERG~~ ABS M there

'Sione tried to take Mele there.'

*Na'e feinga 'e Sione [ke 'ave 'e Mele ~~'a S~~ ki ai]

PAST try ERG S COMP take ERG M ~~ABS~~ there

('Sione tried to be taken there by Mele.') ***object**

ERGATIVE LOOKS LIKE SUBJECT; HOWEVER…

Relativization of ABS Subject with a gap is OK:

e	fefine	[na'e	alu	GAP	ki Tonga]
DET	woman	PAST	go		to Tonga

'the woman who went to Tonga'

Relativization of ABS object with a gap is OK:

e	fefine	['oku	'ofa'i	'e	Sione	GAP]
DET	woman	PRES	love	ERG	S	

'the woman whom Sione loves'

Relativization of ERG subject with a gap is impossible:

e	fefine	['oku	*(ne)	'ofa'i	'a	Sione]
DET	woman	PRES	RP	love	ABS	S

'the woman who loves Sione'

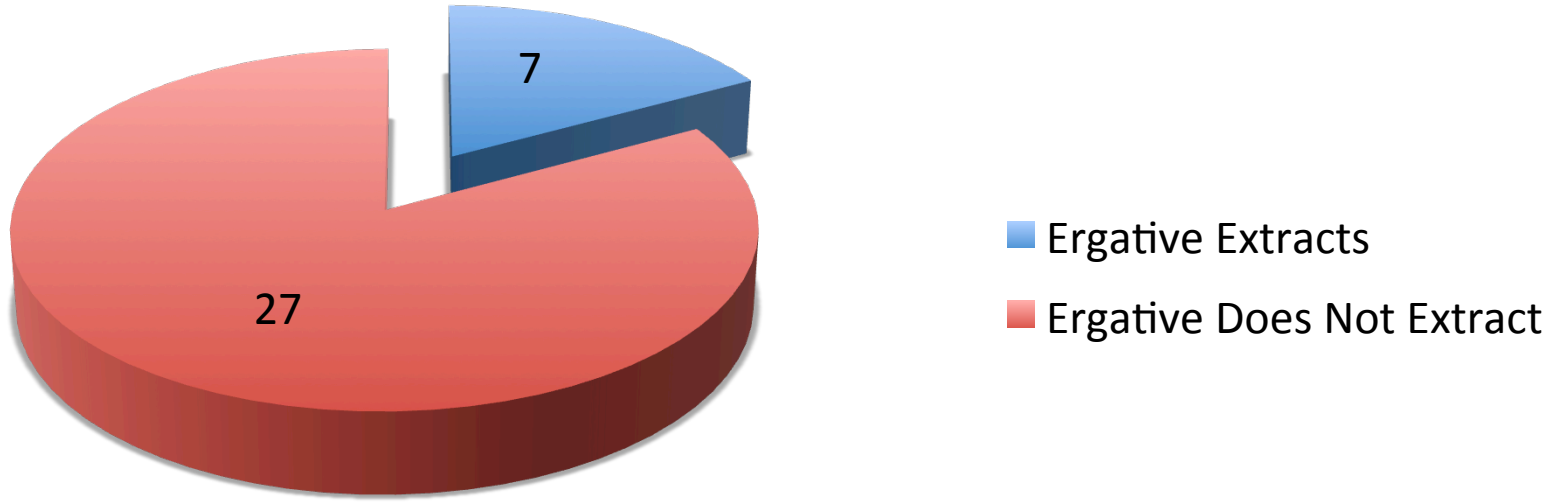
WORKAROUND WAYS

- Syntactic ergativity is constant
- The way languages work around syntactic ergativity for forming relative clauses or wh-questions varies
  - Antipassive
  - Anti-agreement
  - Nominalizations
  - Resumption

SYNTACTIC ERGATIVITY

- WALS: 32 ergative languages, of which 5 allow the relativization of the ergative NP; they belong to two language families:
  - Nakh-Dagestanian: Hunzib, Ingush, Lezgian
  - Pama-Nyungan: Ngiyambaa, Pitjantjatjara
- If we add Basque and Georgian, we get 7 languages (out of 34) that have the relativization of the ergative NP

ERGATIVE LANGUAGES WITH AND WITHOUT EXTRACTION OF THE ERGATIVE



A PARADOX

- Structural dominance: the ergative argument is structurally superior to the absolutive

- Syntactic ergativity: the ergative argument cannot undergo A-bar movement leaving a gap at the base position

WHY?

Syntactic explanations

- Comp-trace analysis
- Freezing analysis
- Phase-based analysis (Coon et al. 2014)

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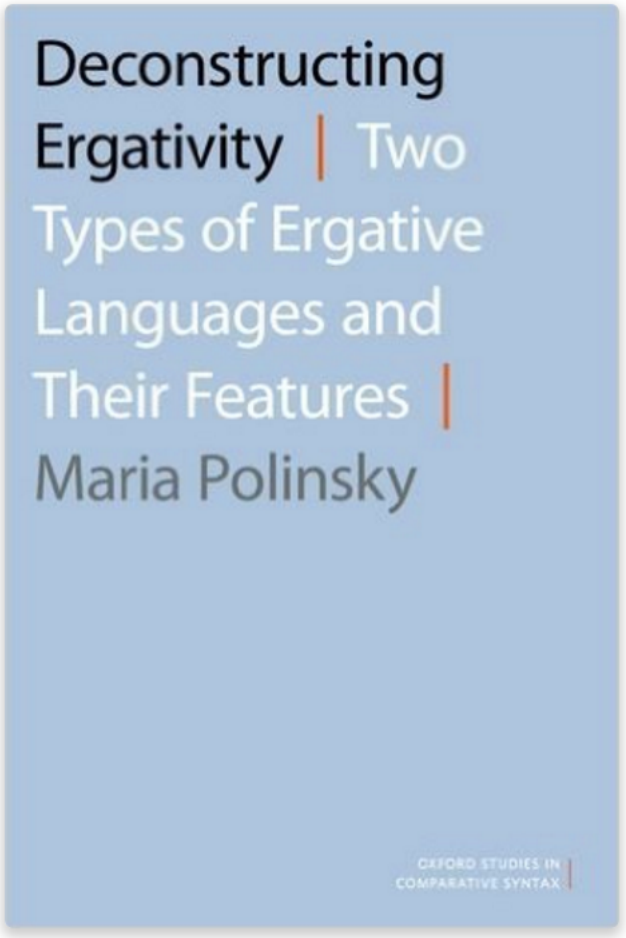


WHY?

- Syntactic explanations (Polinsky 2016)
  - Comp-trace analysis
  - Freezing analysis
  - Phase-based analysis (Coon et al. 2014)
- Today: Processing explanations

OUTLINE

- Subject preference vs. case effects
- Processing studies: Avar and Niuean
- Looking for clean subject preference
- Conclusions and outstanding questions

SUBJECT PREFERENCE AND CASE EFFECTS

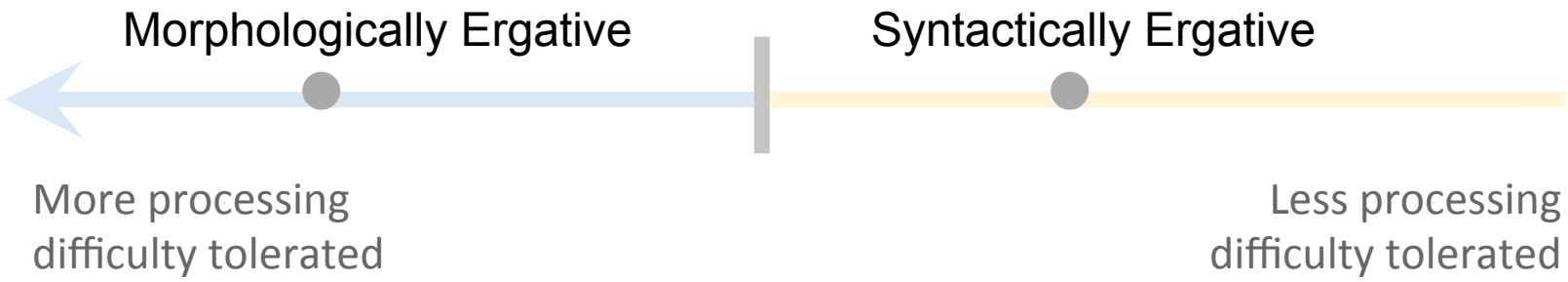
PROCESSING HYPOTHESIS

- Maybe ERG gaps are more difficult to process than ABS object gaps…
- If so, languages without syntactic ergativity would show difficulty in the processing of ergative gaps
- And syntactic ergativity could be considered an extension of the otherwise soft constraint (cf. Hawkins 2004, 2014)

PROCESSING HYPOTHESIS

The Processing Account:

Syntactic ergativity is the grammaticalization of a gradient processing constraint



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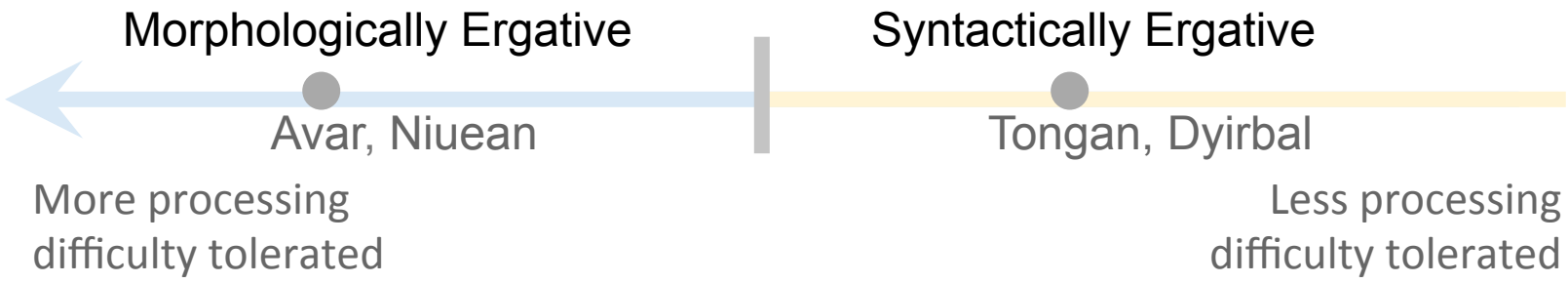


HOW TO DETERMINE WHAT IS EASY AND WHAT IS DIFFICULT

- Experimental work on the processing of extracted DPs
  - If a particular structure is more difficult it imposes a heavier processing load
  - The processing load can be measured by reaction time, time of response, or neuro-imaging

RELATIVE CLAUSES

- Strong preference **for** **subject relatives** over object relatives

- The reporter
  [***who*** (__) attacked the senator] **SR**
  admitted the error.

  IS PREFERRED OVER
- The reporter
  [***who*** the senator attacked __] **OR**
  admitted the error.

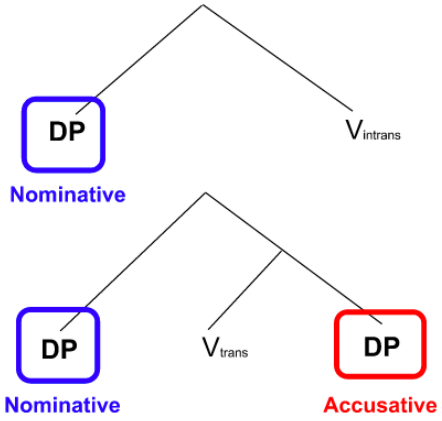
PROCESSING: SUBJECTS GAPS ARE EASIER THAN OBJECT GAPS

- English (King and Kutas 1995; Traxler et al. 2002, a.o.)
- German (Hemforth 1993; Mecklinger et al. 1995; Schlesewsky et al. 2000; Schwartz 2007, a.o.)
- Dutch (Frazier 1987, 1989)
- Japanese (Miyamoto & Nakamura 2003; Ishizuka et al. 2003)
- Korean (Kwon et al. 2006, 2010, 2012, 2013)
- Russian (Levy et al. 2007; Fedorova 2006; Polinsky 2008, 2011, Clemens et al. 2015)
- Turkish (Demiral & Schlesewsky 2008; Özge et al. 2009)

THE NOMINATIVE TRAP

- All these languages are nominative-accusative
- In such languages, Subject ~ **Nominative**, and Object ~ **Accusative**
- Is the extraction is sensitive to grammatical function or to case form?

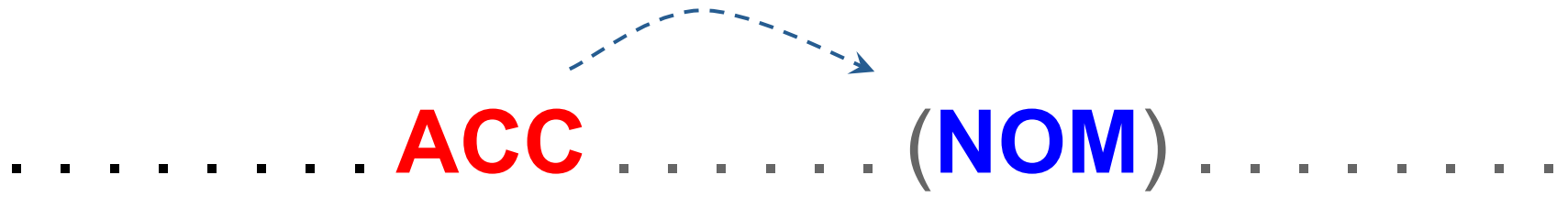
Dependent and Independent Cases



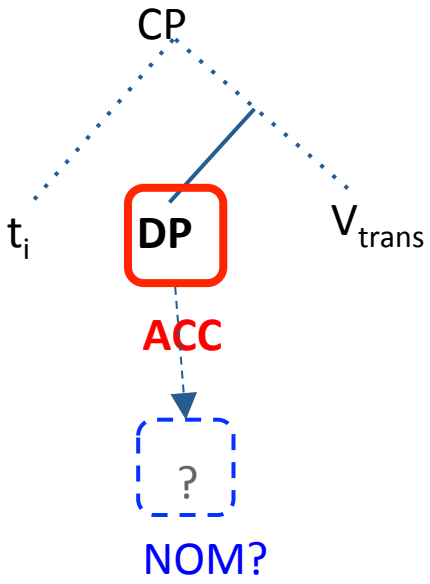
Accusative → Nominative

DEPENDENT INDEPENDENT

. . . . . **ACC** . . . . . ?

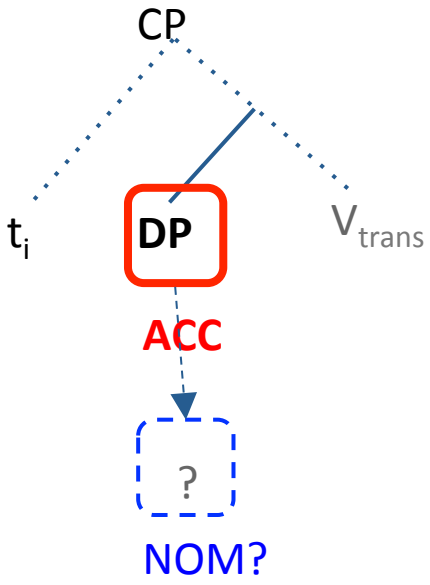

ACC
(NOM)

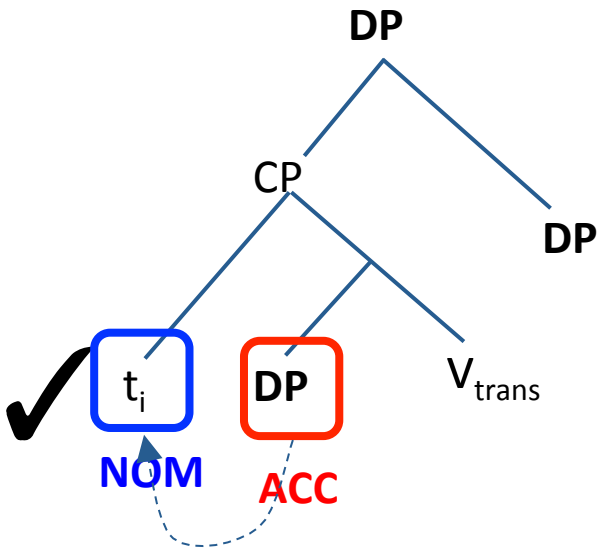
MORPHOLOGICAL CUEING



e.g., Japanese, Korean

MORPHOLOGICAL CUEING





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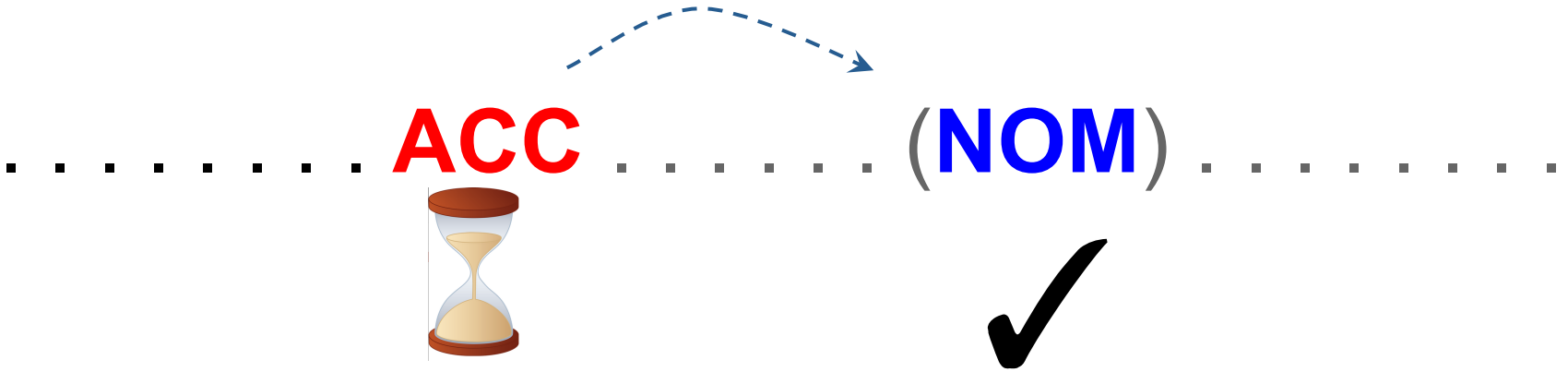
PREDICTION

. . . . . ACC . . . . . ?

PREDICTION

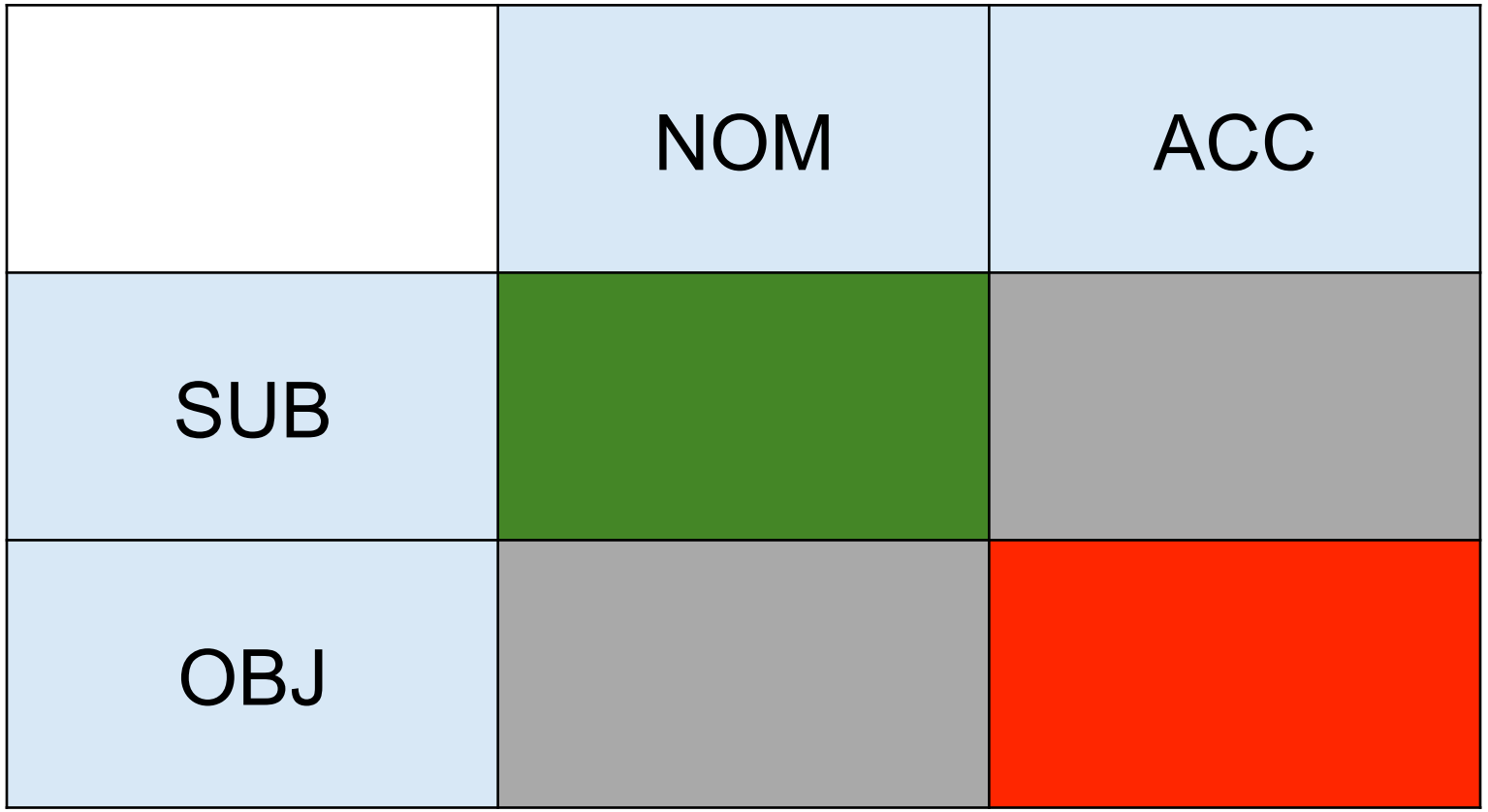


The nominative trap: Grammatical function and case in nominative-accusative languages work in sync

	NOM	ACC
SUB	✓	
OBJ		✓

Effects of Grammatical Function and Morphological Cueing on Relativization in Nominative-Accusative Languages

Subject Preference:



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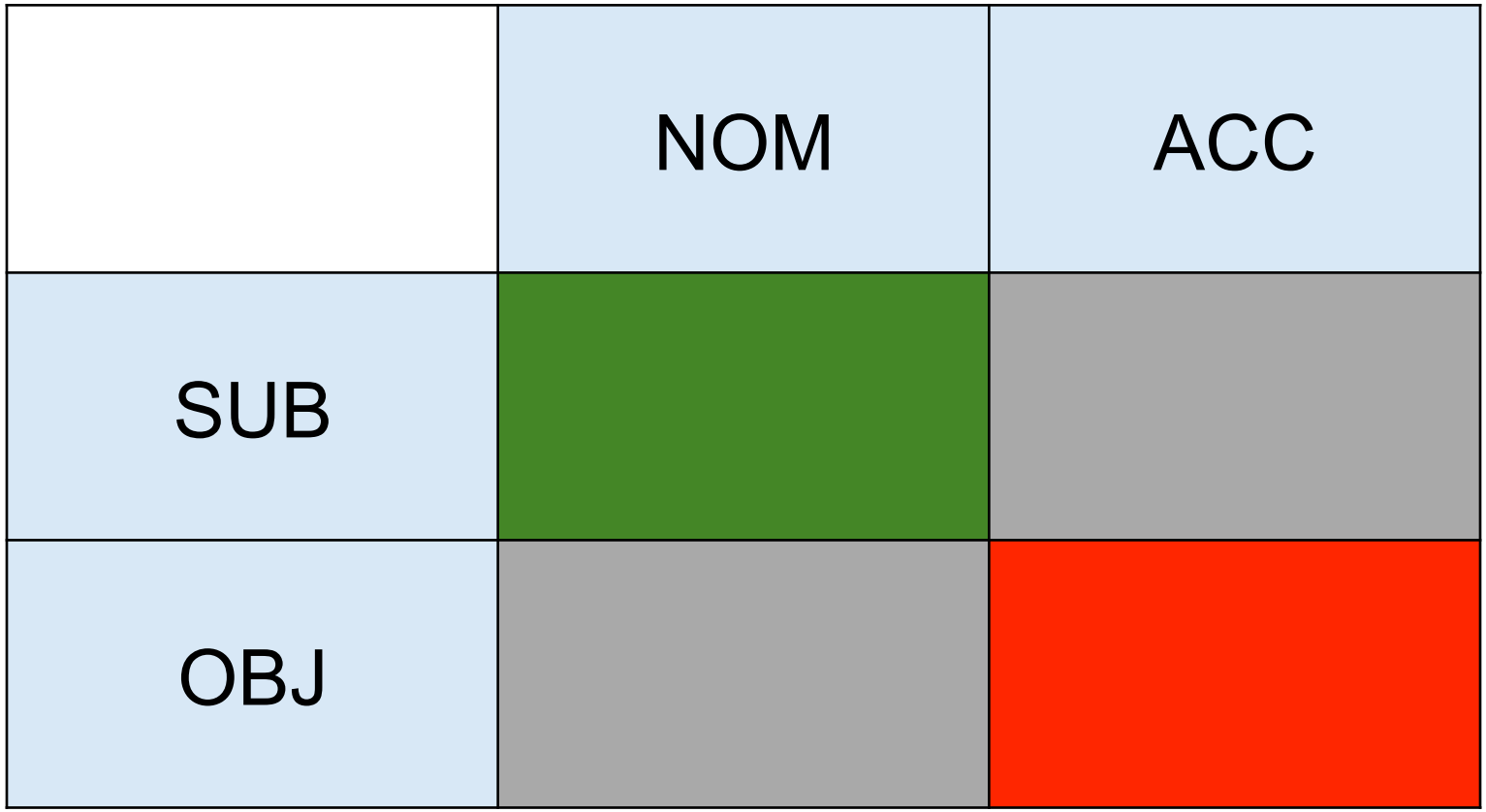
Morphological Cueing:



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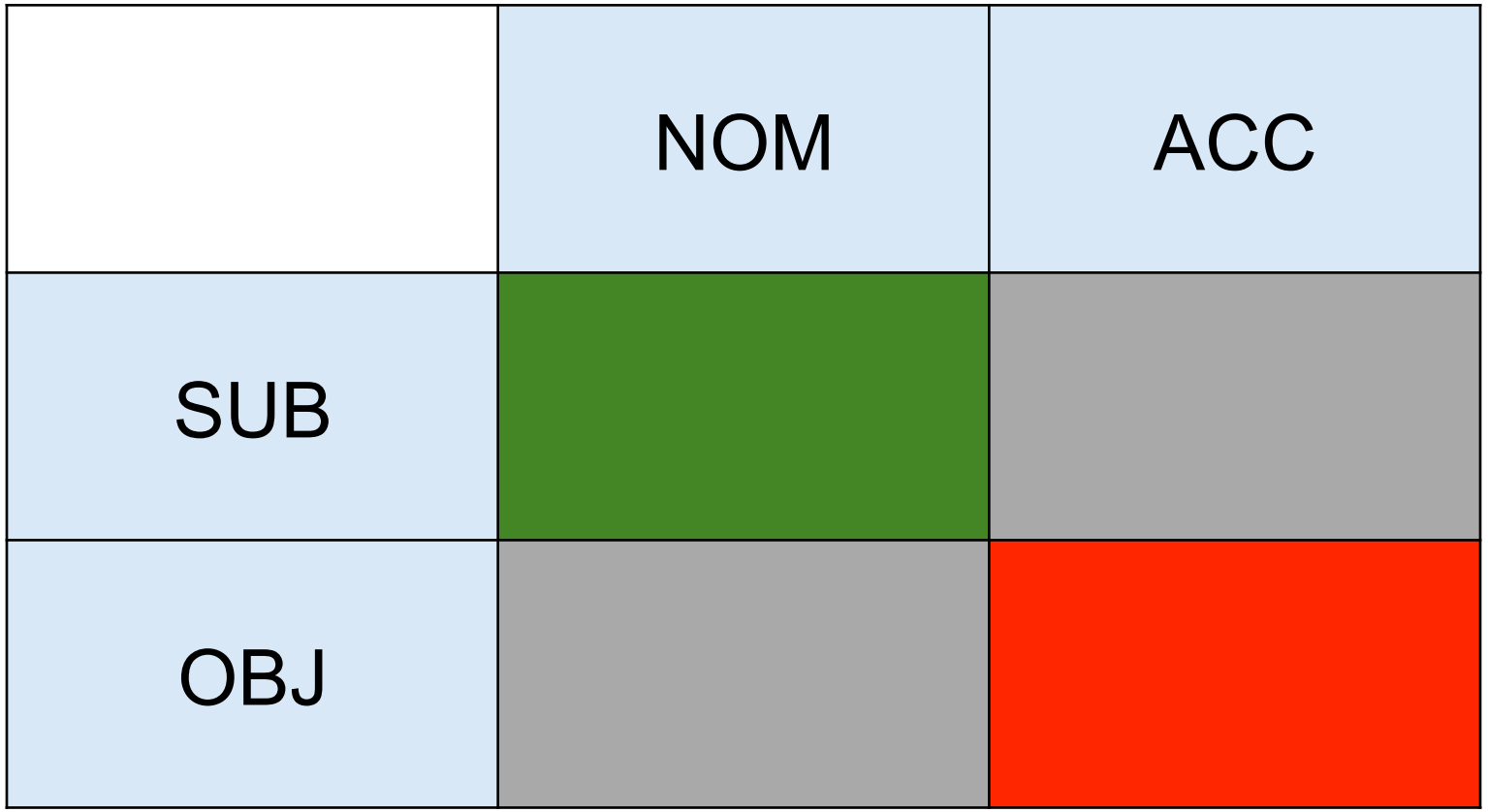
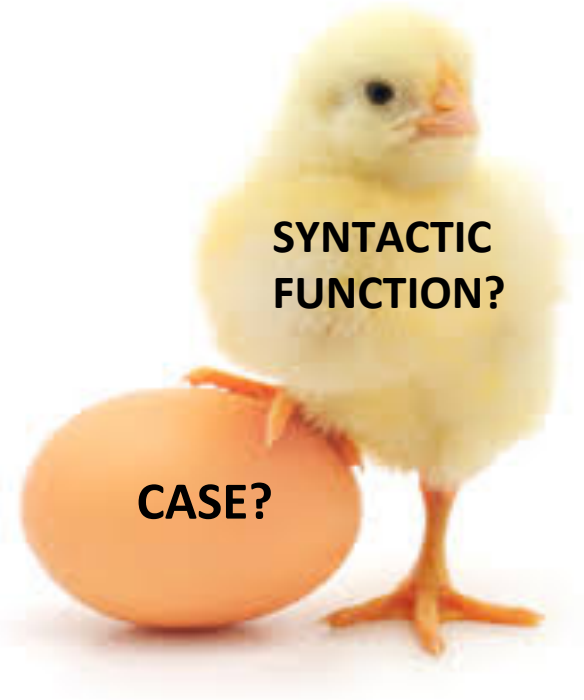
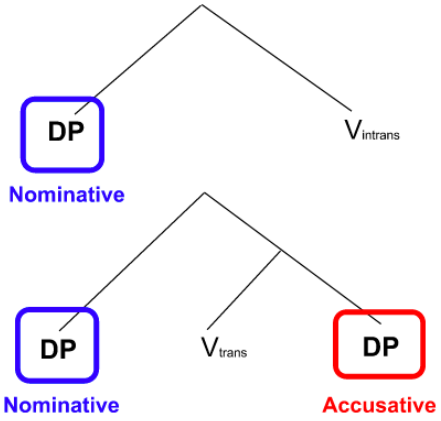
Subject Preference + Morphological Cueing:



THE NOMINATIVE TRAP

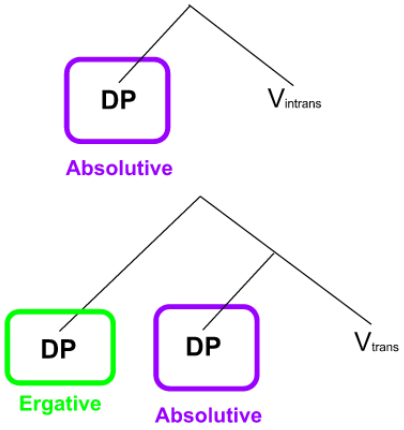


Dependent and Independent Cases



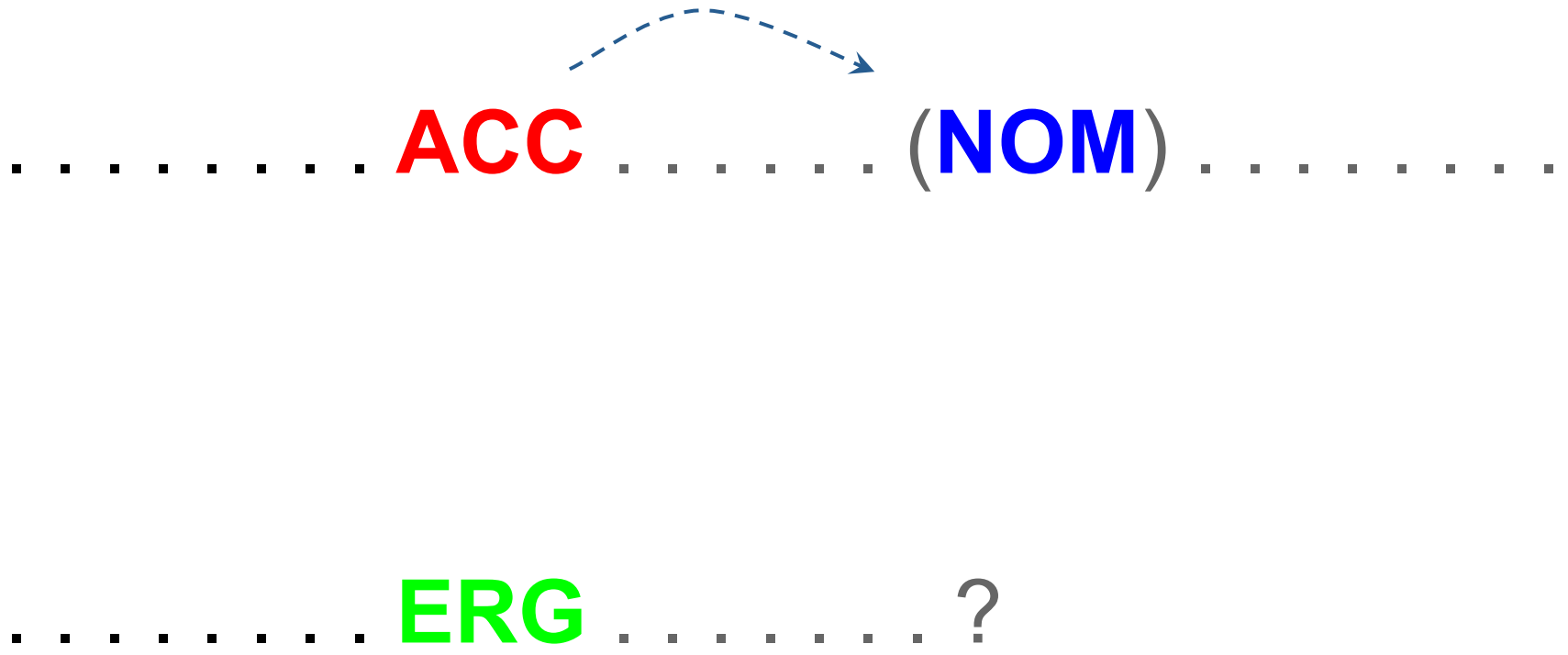
Accusative → Nominative

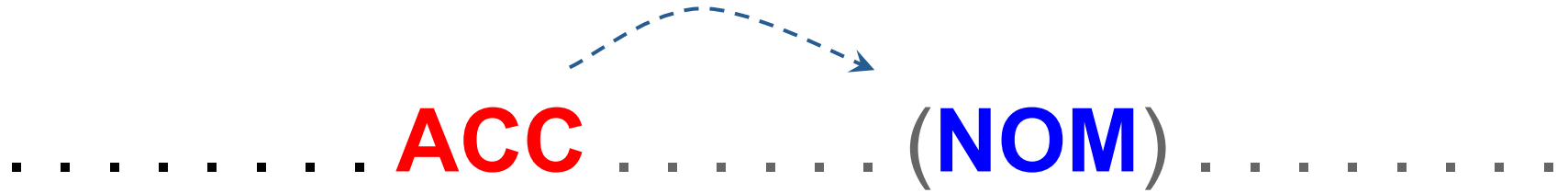
DEPENDENT INDEPENDENT

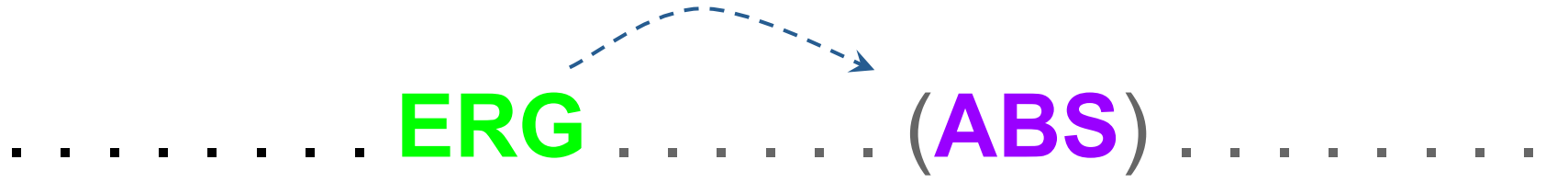


Ergative → Absolutive

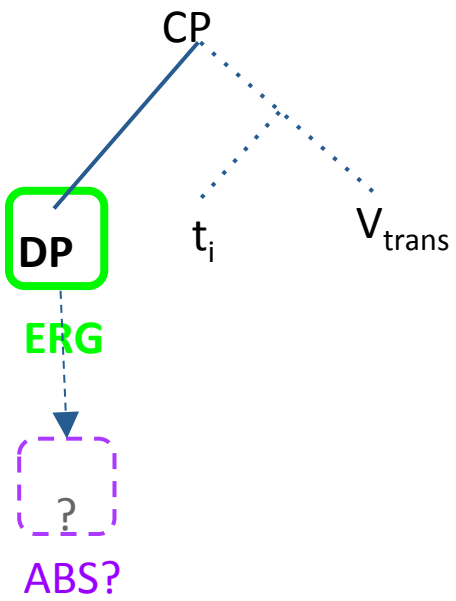
DEPENDENT INDEPENDENT


ACC
(NOM)
ERG
?


ACC
(NOM)


ERG
(ABS)

MORPHOLOGICAL CUEING



e.g., Basque, Avar, Niuean

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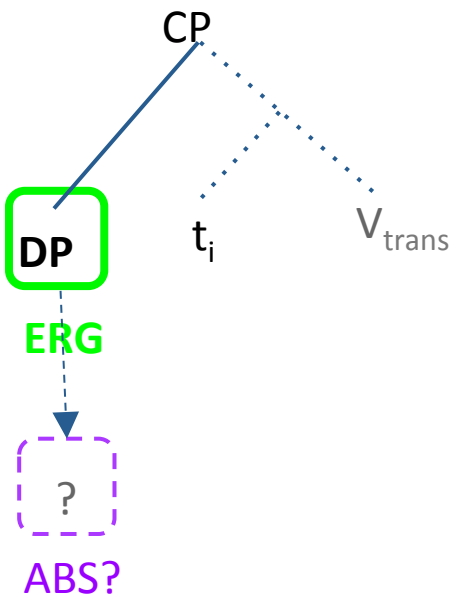
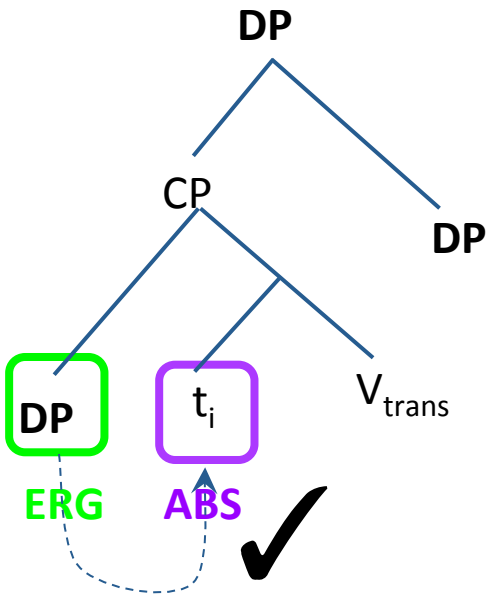




e.g., Basque, Avar, Niuean

PREDICTION

ACC . . . . . (NOM) . . . . . .

✓

. . . . . ERG . . . . . ?

PREDICTION

ACC (NOM)

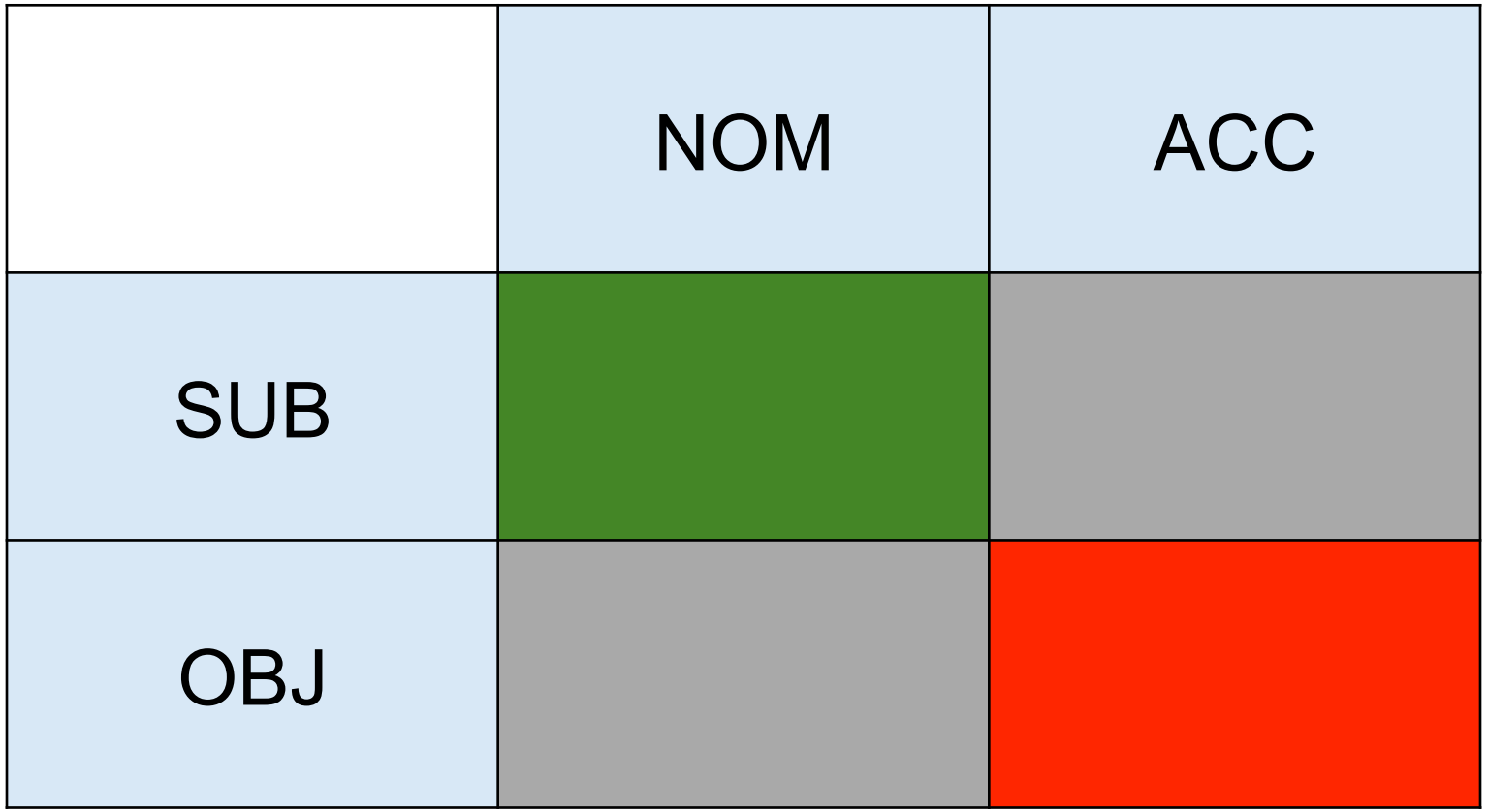
✓

ERG (ABS)

✓

Effects of Grammatical Function and Morphological Cueing on Relativization in Nominative-Accusative Languages

Subject Preference + Morphological Cueing:



Grammatical Function and Case in Ergative-Absolutive Languages

	ABS	ERG
SUB	✓	✓
OBJ	✓	

Effects of Grammatical Function and Morphological Cueing on Relativization in Ergative-Absolutive Languages

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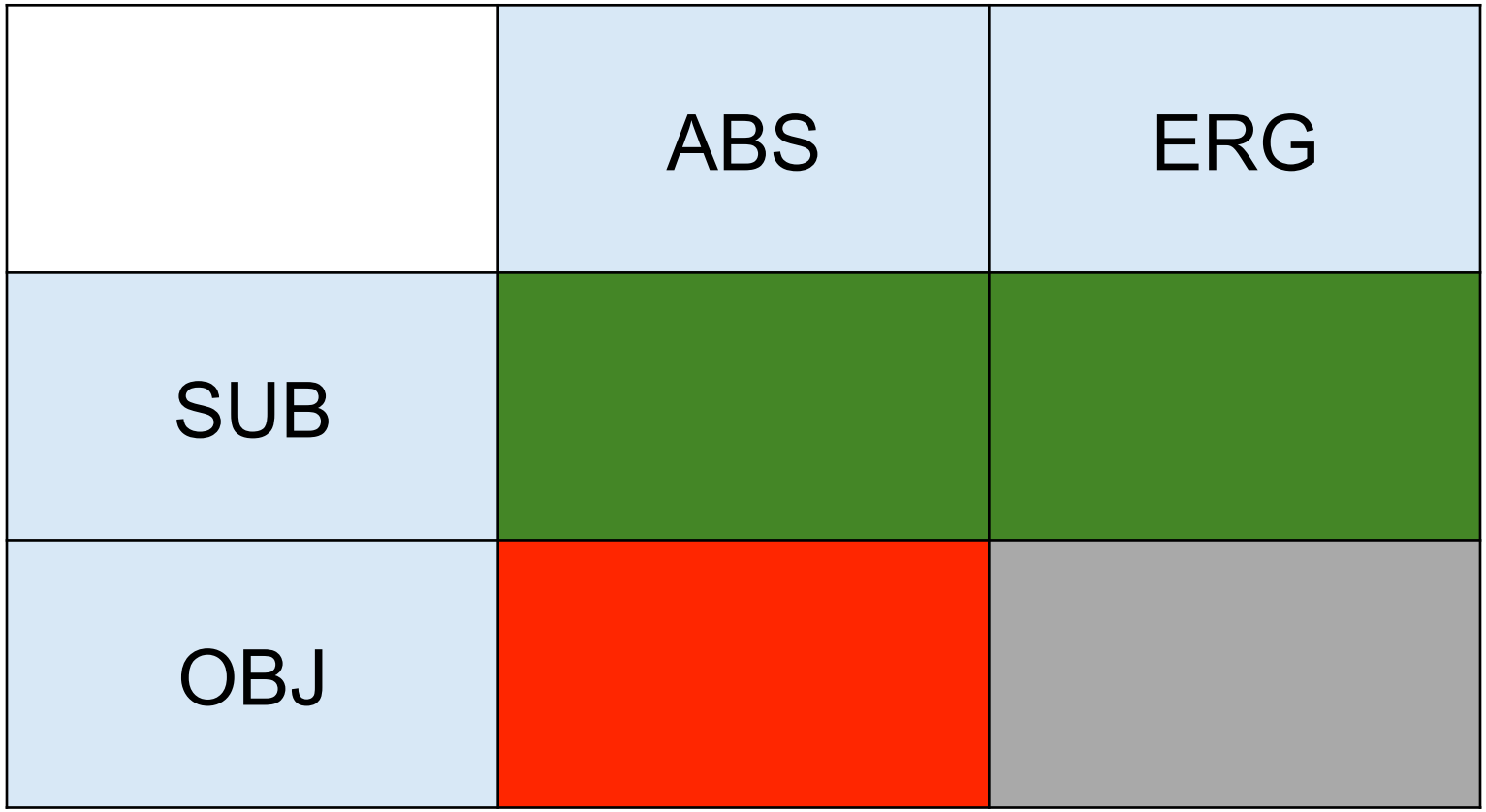

Effects of Grammatical Function and Morphological Cueing on Relativization in Ergative-Absolutive Languages

Morphological Cueing:

	ABS	ERG
SUB	?	
OBJ		

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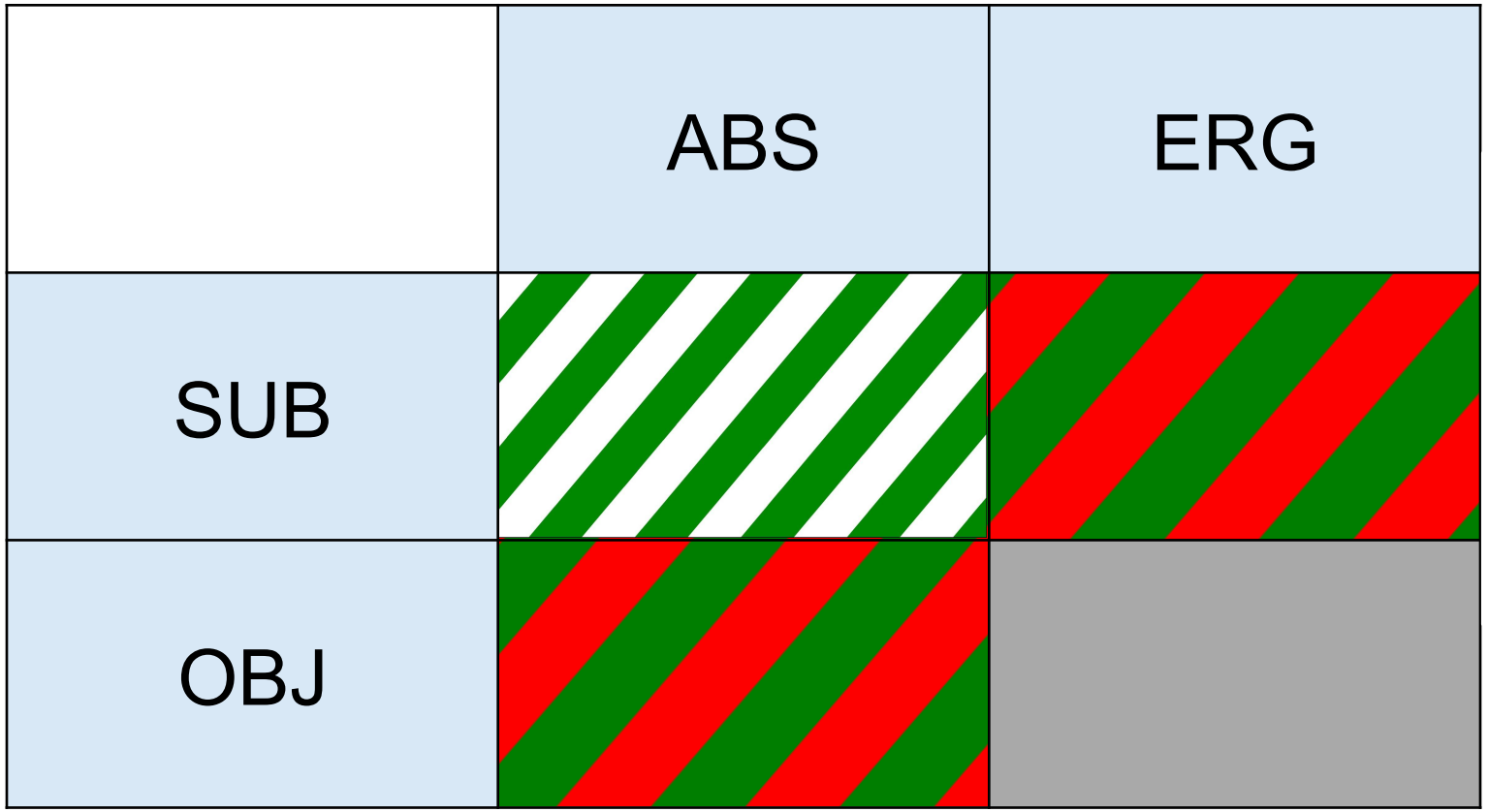


THE VALUE OF ERGATIVE LANGUAGES

Ergative languages allow us to dissociate the effect of grammatical function and surface case

Gain for theoretical linguists: testing the psychological reality of grammatical functions

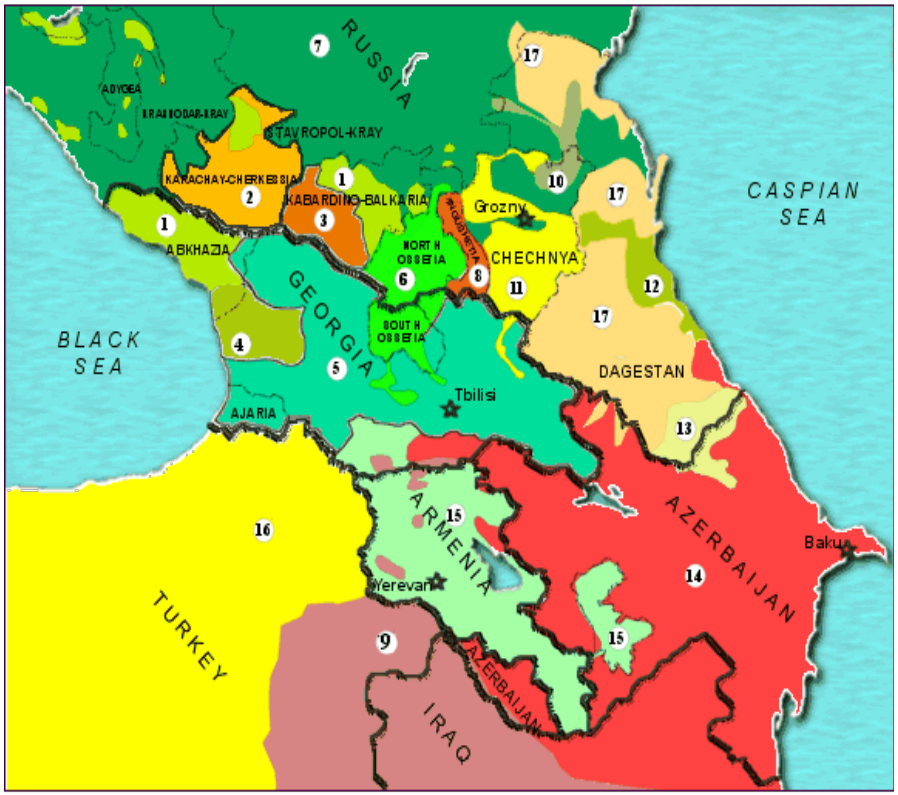
Gain for experimentalists: determining relative contribution of different processing factors

- Initial question: Do ergative languages which allow the extraction of the ergative NP show any difficulty in that extraction?
- Needed to answer that question:
  - An ergative language without syntactic ergativity
  - Sufficient number of speakers to conduct an experimental study

PROCESSING STUDY: AVAR

WHERE IS AVAR?

Transcaucasia Ethnic Groups



1 - Abkhaz
2 - Karachay
3 - Balkar
4 - Mingrelian
5 - Georgian
6 - Ossetian
7 - Russian
8 - Ingush
9 - Northern Kurd
10 - Nogay
11 - Chechen
12 - Kumyk
13 - Lezgi
14 - Azerbaijani
15 - Armenian
16 - Turk
17 - Avar, Dargwa, Lak, & many others

Avar

Nakh-Daghestanian (N.E. Caucasian) **>** Avar-Andic-Tsezic **>** Avar-Andic

- ~700,000--800,000 speakers
- Modest written tradition
- N.W. & Central Dagestan, Azerbaijan, Turkey
- ~30,000 in Moscow
- Gradually giving way to Russian, with a growing number of recessive bilinguals

AVAR = JAPANESE + ERGATIVITY

- SOV
- Head-final
- Morphologically (not syntactically) ergative
- Allows relativization of all arguments, and relativization *with gaps* of absolutive subject, absolutive object, and ergative subject

AVAR RELATIVE CLAUSES

Ergative subject gap (transitive subject RC)

[GAP$_i$	ʕoloqana-y	yas	repetici-yal-de	y-acˇ:-un	y-acˇʼ-ara-y]
ERG	unmarried-II	girl.ABS	rehearsal-OBL-LOC	II-bring-GER	II-come-PRTCP-II
	W1	**W2**	**W3**	**W4**	**W5 [RC PREDICATE]**

artistka$_i$	bercina-y	y-igo
actress.ABS	beautiful-II	II-AUX
W6 [HEAD NOUN]	**W7 [SPILL OVER]**	**W8**

‘The actress that brought the young girl to the rehearsal is pretty.’

AVAR RELATIVE CLAUSES

Absolutive object gap (object RC)

[xalq'iya-y artistka-yał GAP_i repetici-yal-de y-acˇ:-un y-acˇ'-ara-y]

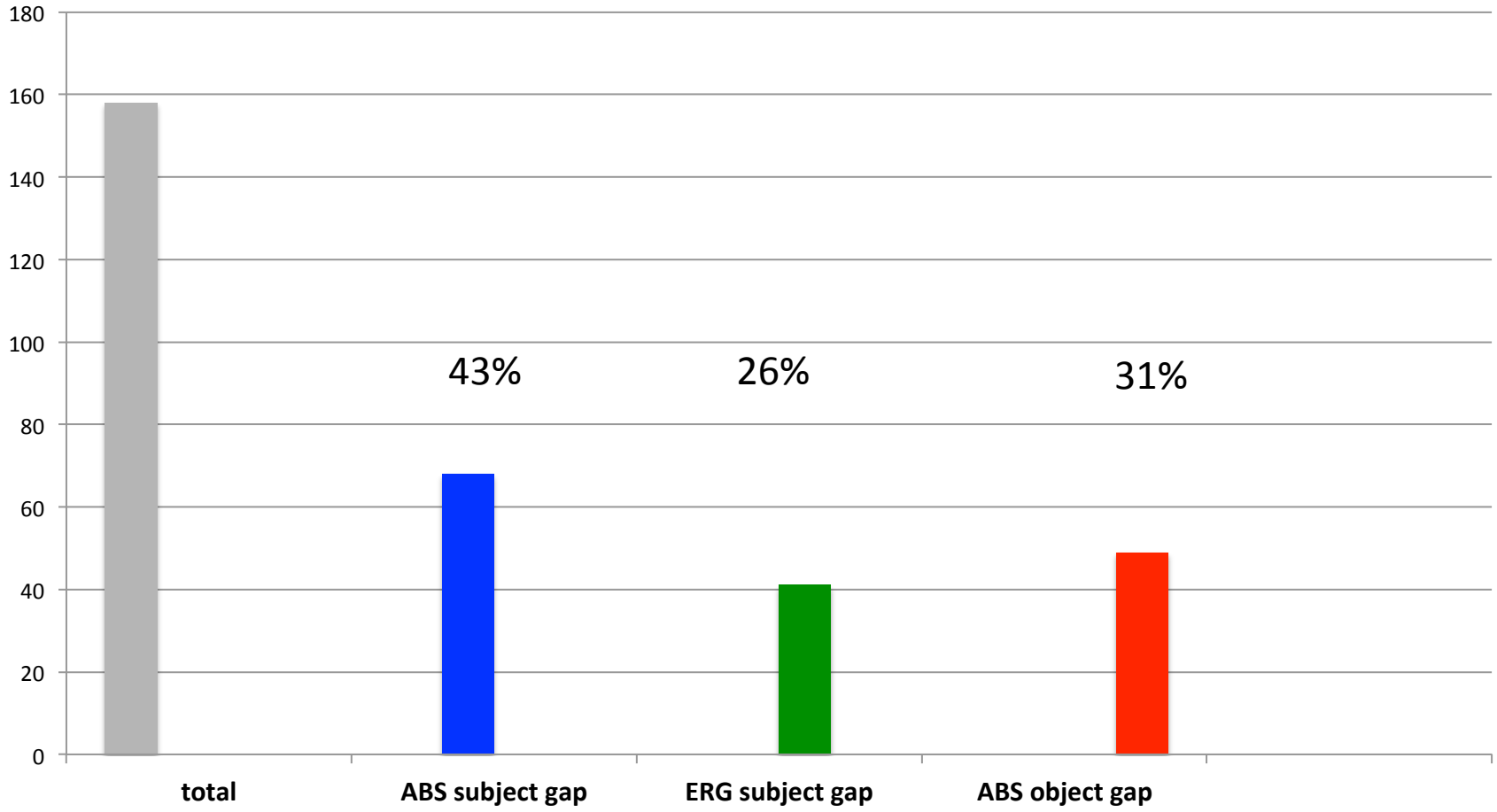
people's-II actress-ERG **ABS** rehearsal-OBL-LOC II-bring-GER II-come-PRTCP-II

yas_i bercina-y y-igo

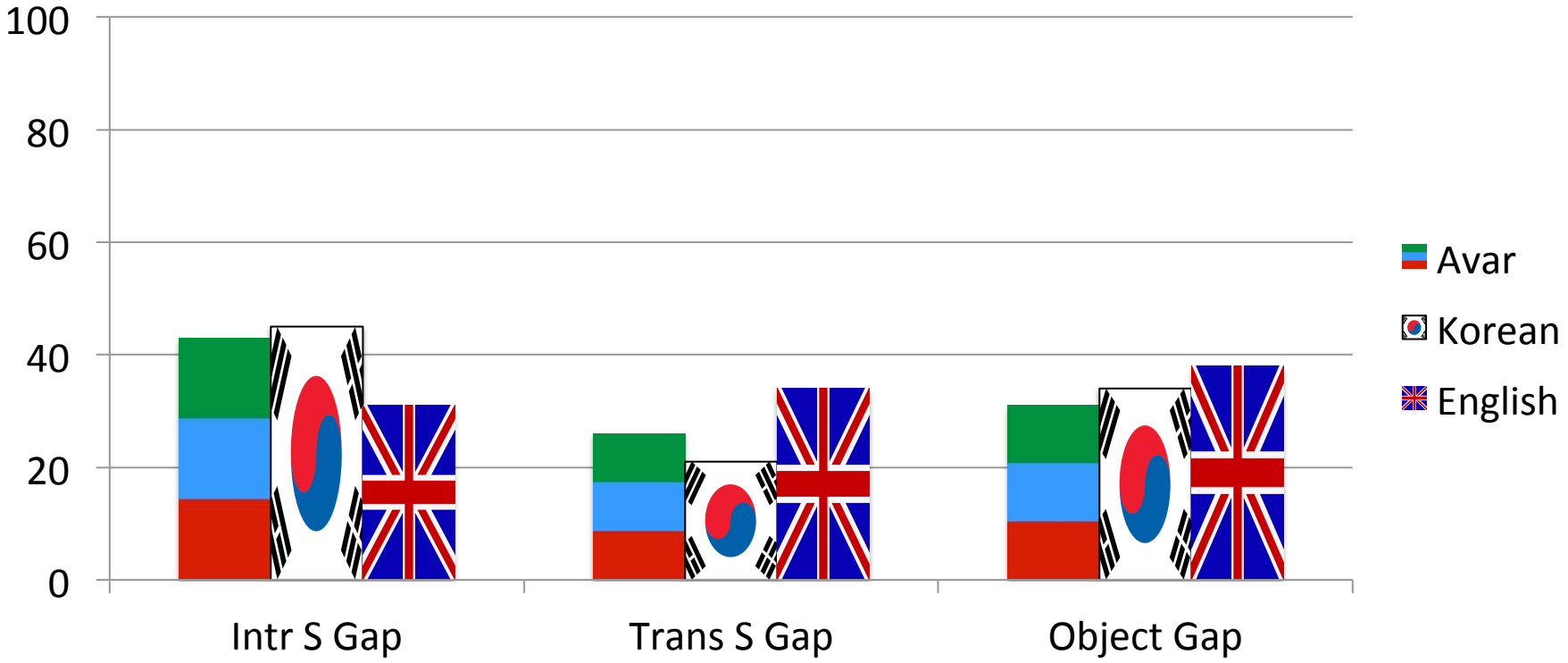
girl.ABS beautiful-II II-AUX

'The girl that the distinguished actress brought to the rehearsal is pretty.'

RC DISTRIBUTION



RC DISTRIBUTION: COMPARATIVE %



Avar: Polinsky et al. 2012; **Korean:** Sejong corpus stats;
English: Gordon & Hendrick 2005 (avg. over three corpora)

METHODS

- Used the standard dialect of Avar
- Self-paced reading methodology (SPR) and sentence-picture matching (SPM)
- Conducted in Moscow (SPR) and St-Petersburg (SPM)
- 46/52 participants, 21/27 female; average age 31/35
- Average accuracy rate on comprehension questions in SPR set at 80% (to allow for a population unfamiliar with test-taking)

SELF-PACED READING

The quick brown fox jumps over the lazy dog.

The _____ _____ _____ _____ _____ _____ _____ _____

_____ quick _____ _____ _____ _____ _____ _____ _____

brown

_____ _____ _____ fox _____ _____ _____ _____ _____

___ ____ ____ ___ jumps ___ ____ ____ ____


over

_____ _____ _____ _____ _____ _____ the _____ _____

lazy

_____ dog.

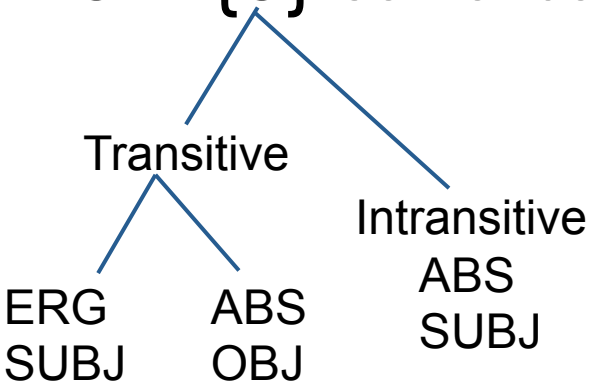
ANALYSIS

The quick brown fox jumps over the lazy dog.

W1 W2 W3 W4 W5 W6 W7 W8 W9

MATERIALS

- 18 x {3} sentences w/ gapped relative clauses



- 40 fillers

- Comprehension questions every ~4 sentences

MATERIALS

- All sentences matched in **number of words**
- All constituents matched in **number of syllables**
- Nouns matched in **animacy (50/50 animate/inanimate)**
- Even distribution of **unaccusatives** and **unergative**s in the intransitive condition
- Head noun in **absolutive** case half the time, **ergative** case half the time

Absolutive subject gap

Absolutive subject gap

(9) *Absolutive subject gap (intransitive subject RC)*

[___$_i$	xalq'iya-y	artistka-yal-da-ask'o-y	repetici-yal-de	č':u-n
	people's-II	actress-OBL-LOC-near-II	rehearsal-OBL-LOC	standing-GER

y-ik'-ara-y]	yas$_i$	best'ala-y	y-igo
PRTCP-II	girl.ABS	orphaned-II	II-AUX

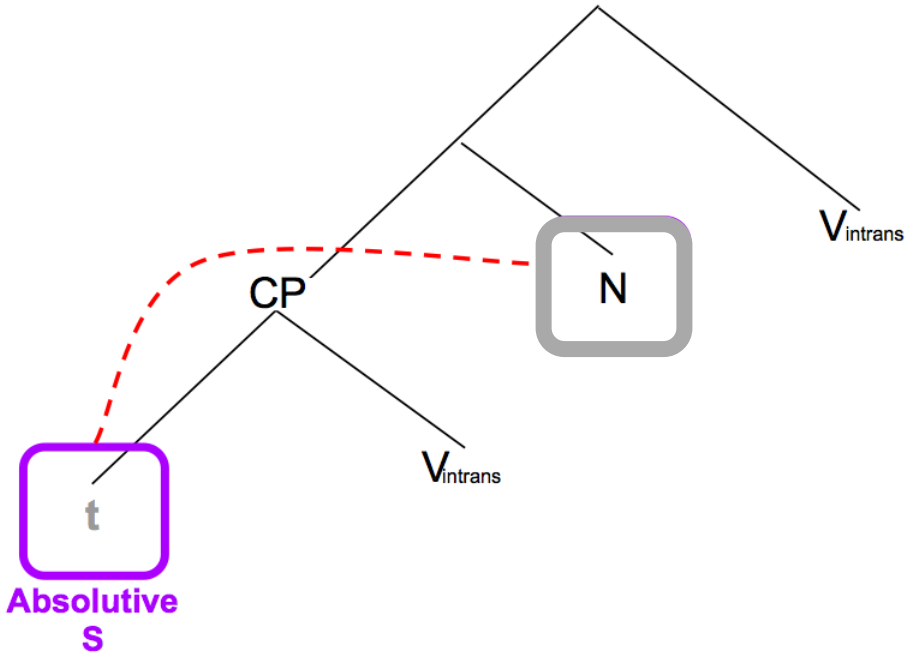
'The girl that stood next to the distinguished actress at the rehearsal is an orphan.'

Absolutive subject gap

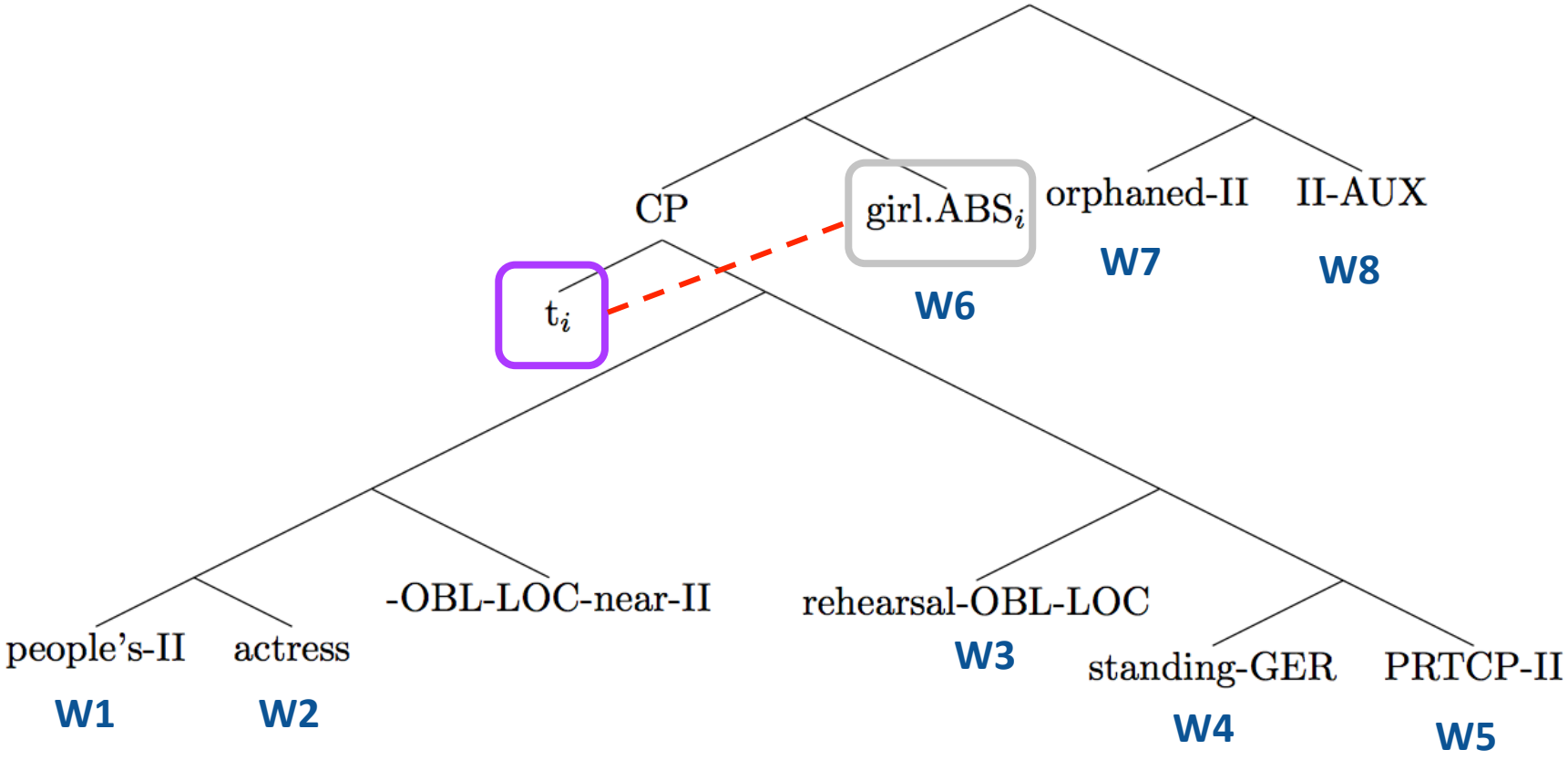
(9) *Absolutive subject gap (intransitive subject RC)*

[____$_i$	xalq'iya-y	artistka-yal-da-ask'o-y	repetici-yal-de	č':u-n
	people's-II	actress-OBL-LOC-near-II	rehearsal-OBL-LOC	standing-GER
y-ik'-ara-y]	yas$_i$	best'ala-y	y-igo	
PRTCP-II	girl.ABS	orphaned-II	II-AUX	

'The girl that stood next to the distinguished actress at the rehearsal is an orphan.'



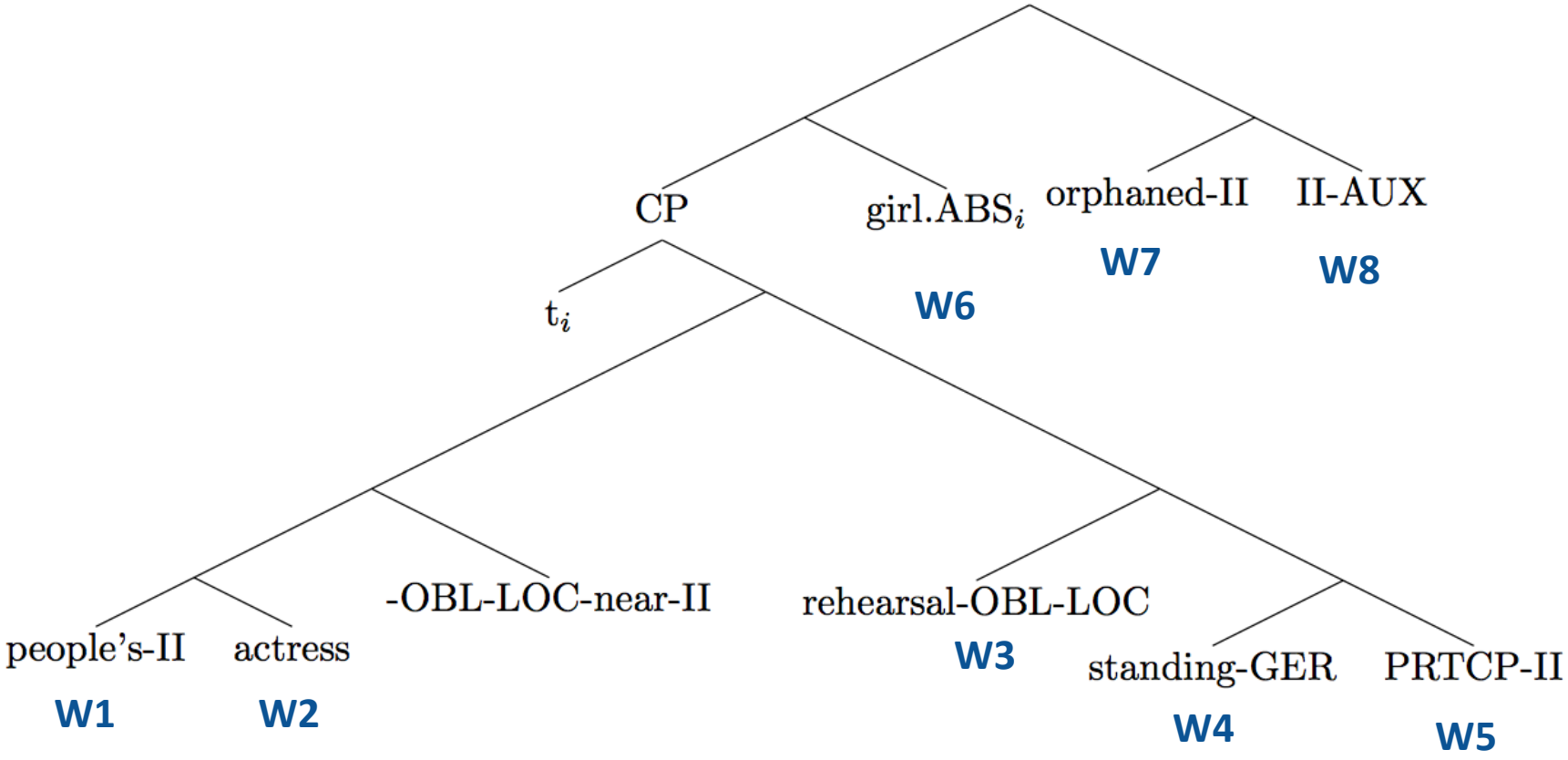
Absolutive subject gap

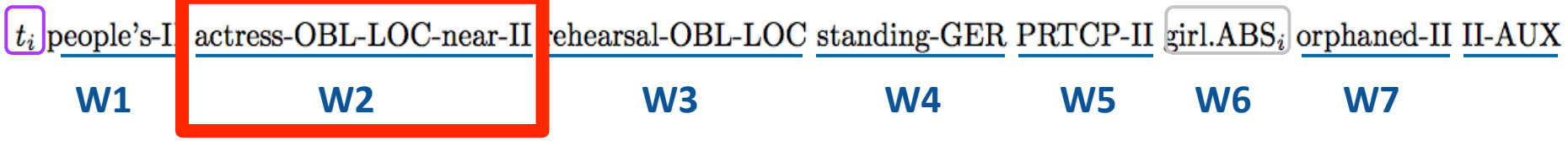


t$_i$ people's-II actress-OBL-LOC-near-II rehearsal-OBL-LOC standing-GER PRTCP-II girl.ABS$_i$ orphaned-II II-AUX

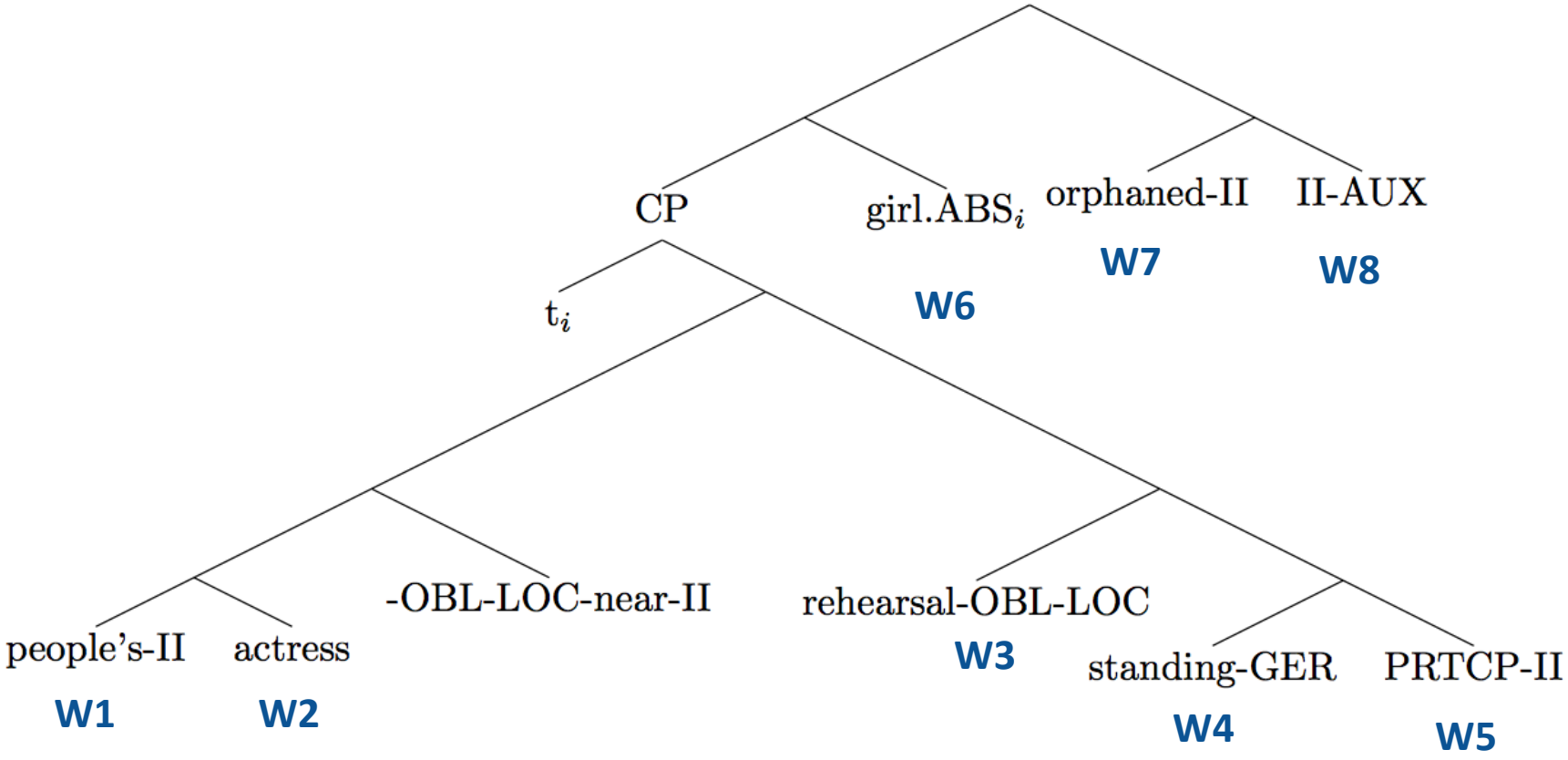
W1 W2 W3 W4 W5 W6 W7

Morphological cueing





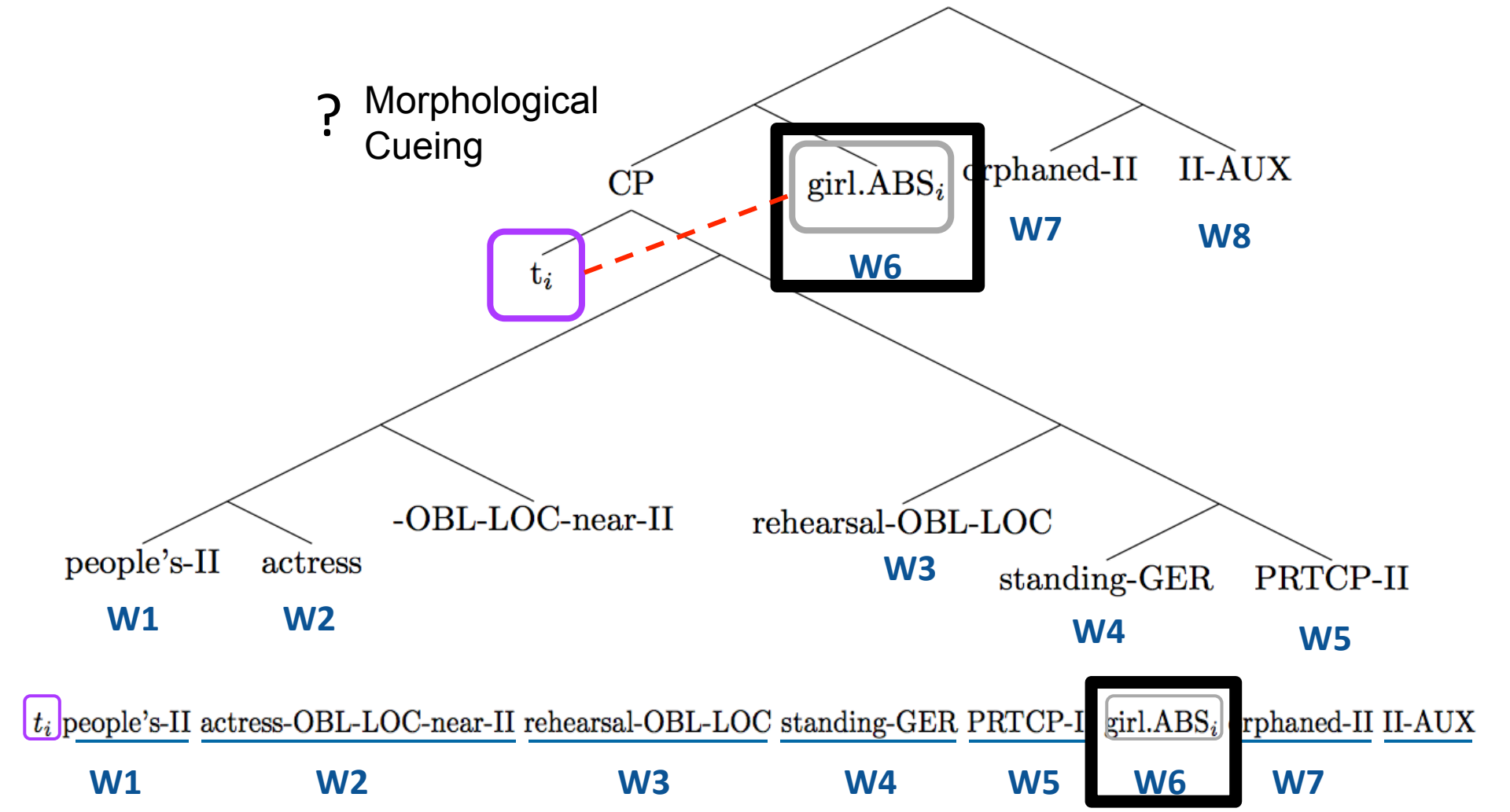
Morphological cueing



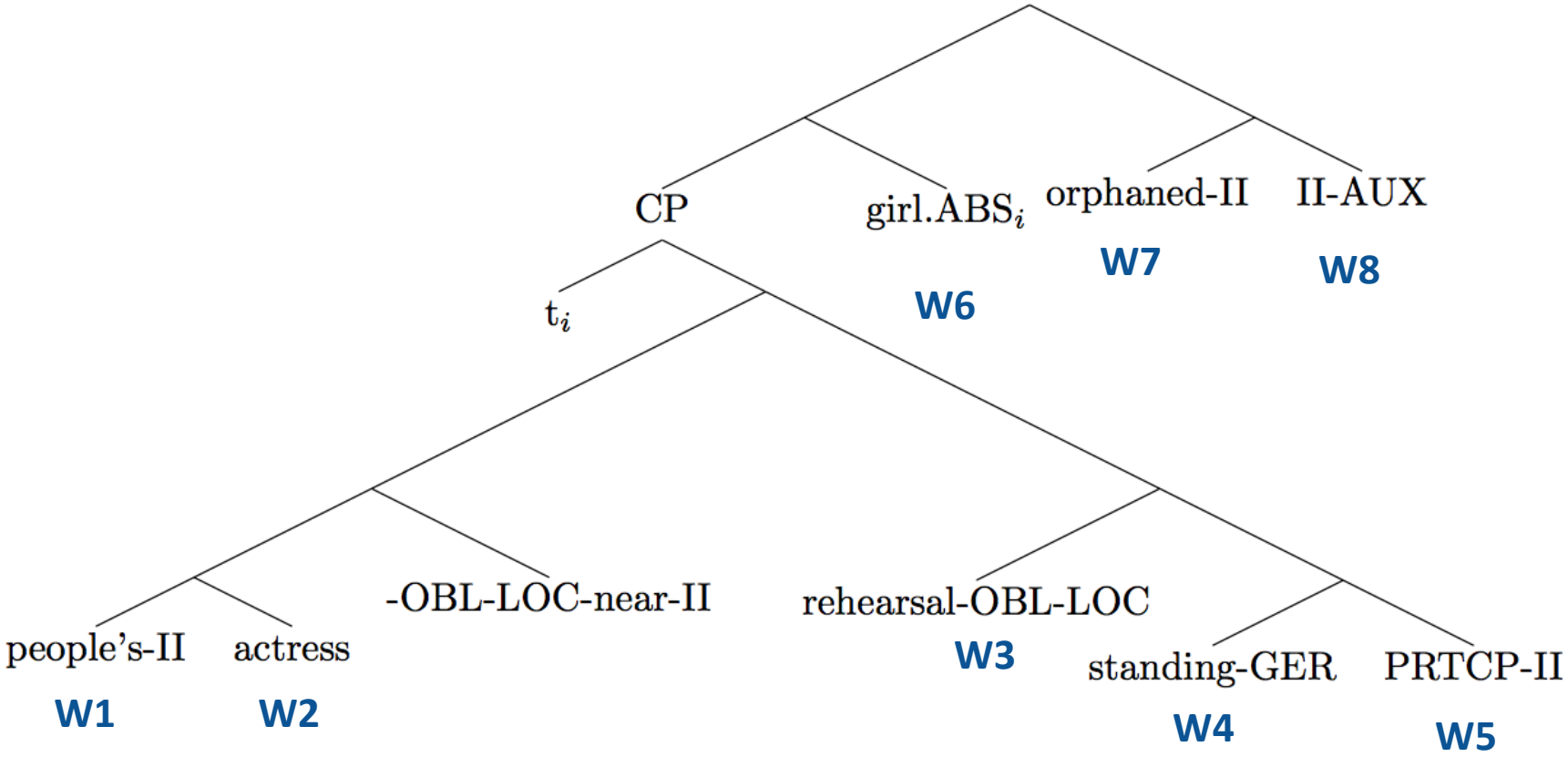
t$_i$ people's-II actress-OBL-LOC-near-II rehearsal-OBL-LOC standing-GER PRTCP-II girl.ABS$_i$ orphaned-II II-AUX

W1 W2 W3 W4 W5 W6 W7

Morphological cueing



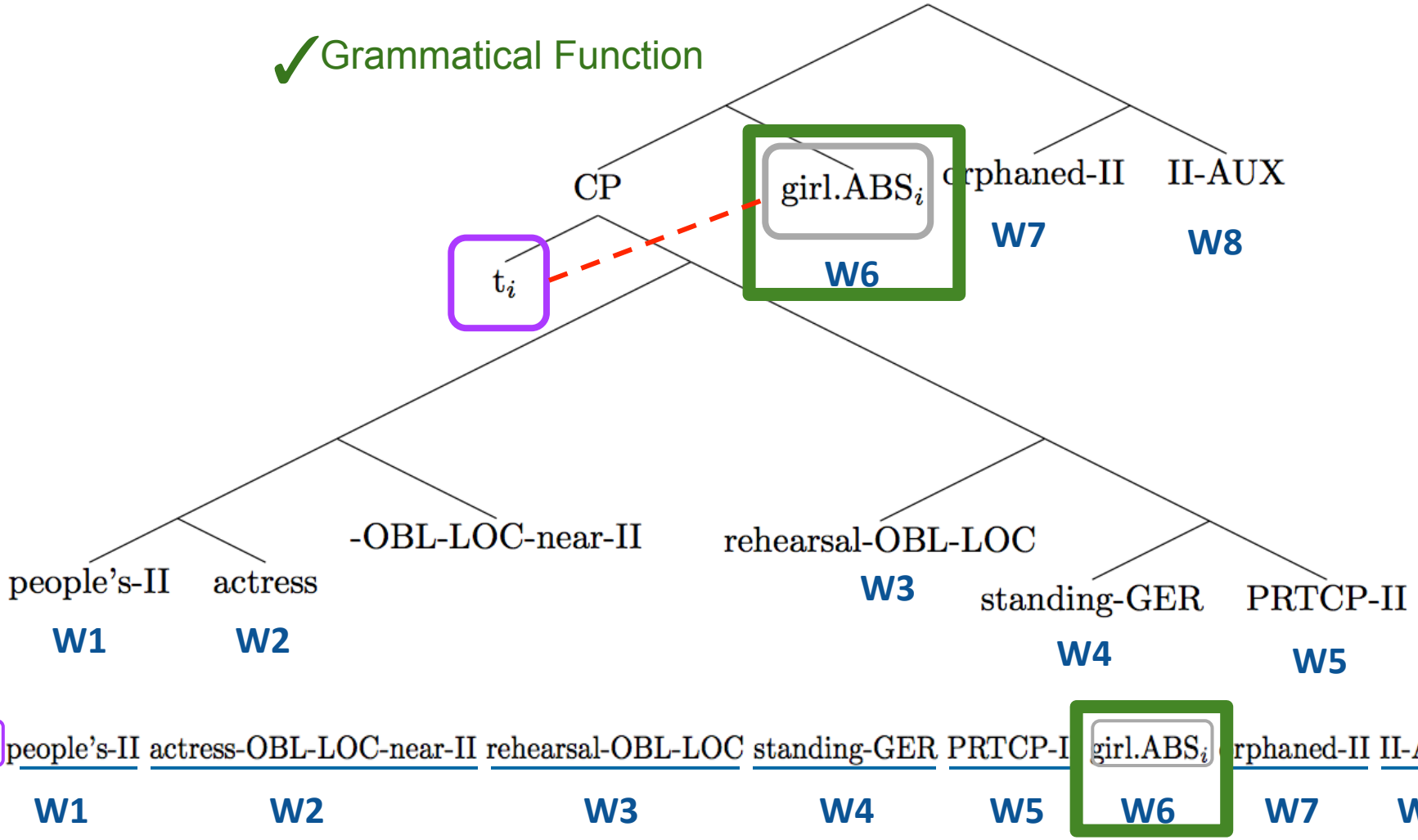
Grammatical function



t$_i$ people's-II actress-OBL-LOC-near-II rehearsal-OBL-LOC standing-GER PRTCP-II girl.ABS$_i$ orphaned-II II-AUX

W1 W2 W3 W4 W5 W6 W7

Grammatical function



Absolutive object gap

Absolutive object gap

(8) *Absolutive object gap (object RC)*

[xalq'iya-y	artistka-yał	___$_i$	repetici-yal-de	y-ač:-un	y-ač'-ara-y]
people's-II	actress-ERG		rehearsal-OBL-LOC	II-bring-GER	II-come-PRTCP-II
yas$_i$	bercina-y		y-igo		
girl.ABS	beautiful-II		II-AUX		

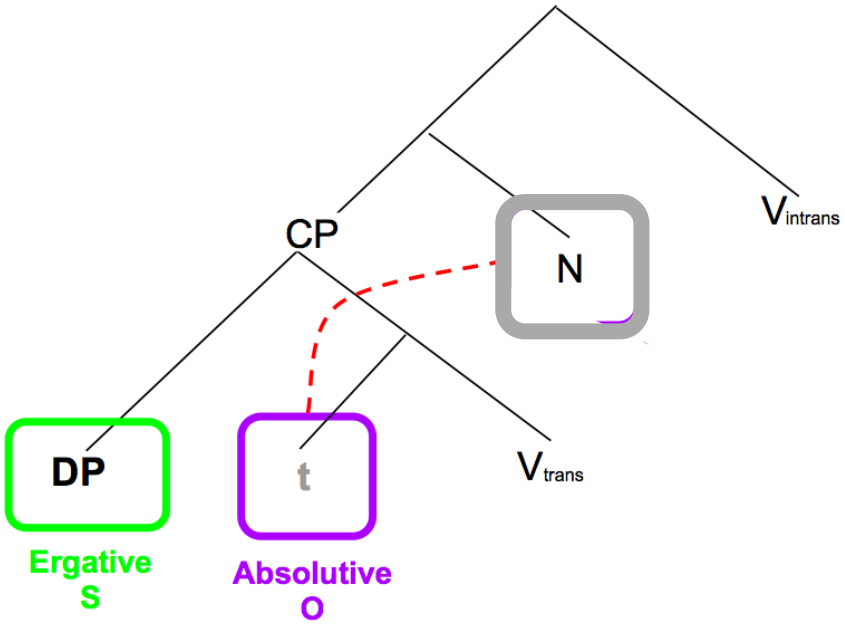
'The girl that the distinguished actress brought to the rehearsal is pretty.'

Absolutive object gap

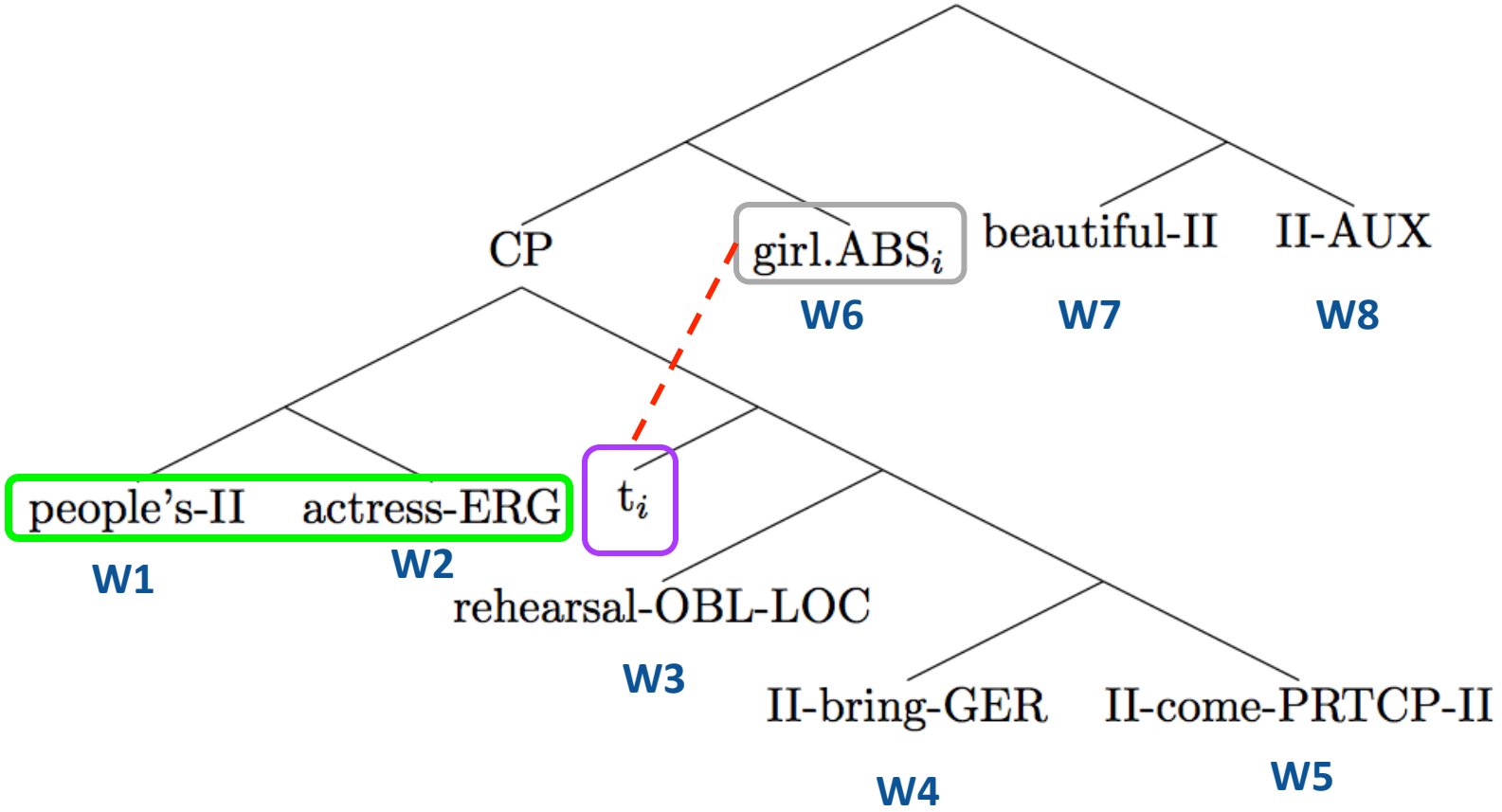
(8) *Absolutive object gap (object RC)*

[xalq'iya-y	artistka-yał	___$_i$	repetici-yal-de	y-ač:-un	y-ač'-ara-y]
people's-II	actress-ERG		rehearsal-OBL-LOC	II-bring-GER	II-come-PRTCP-II
yas$_i$	bercina-y		y-igo		
girl.ABS	beautiful-II		II-AUX		

'The girl that the distinguished actress brought to the rehearsal is pretty.'



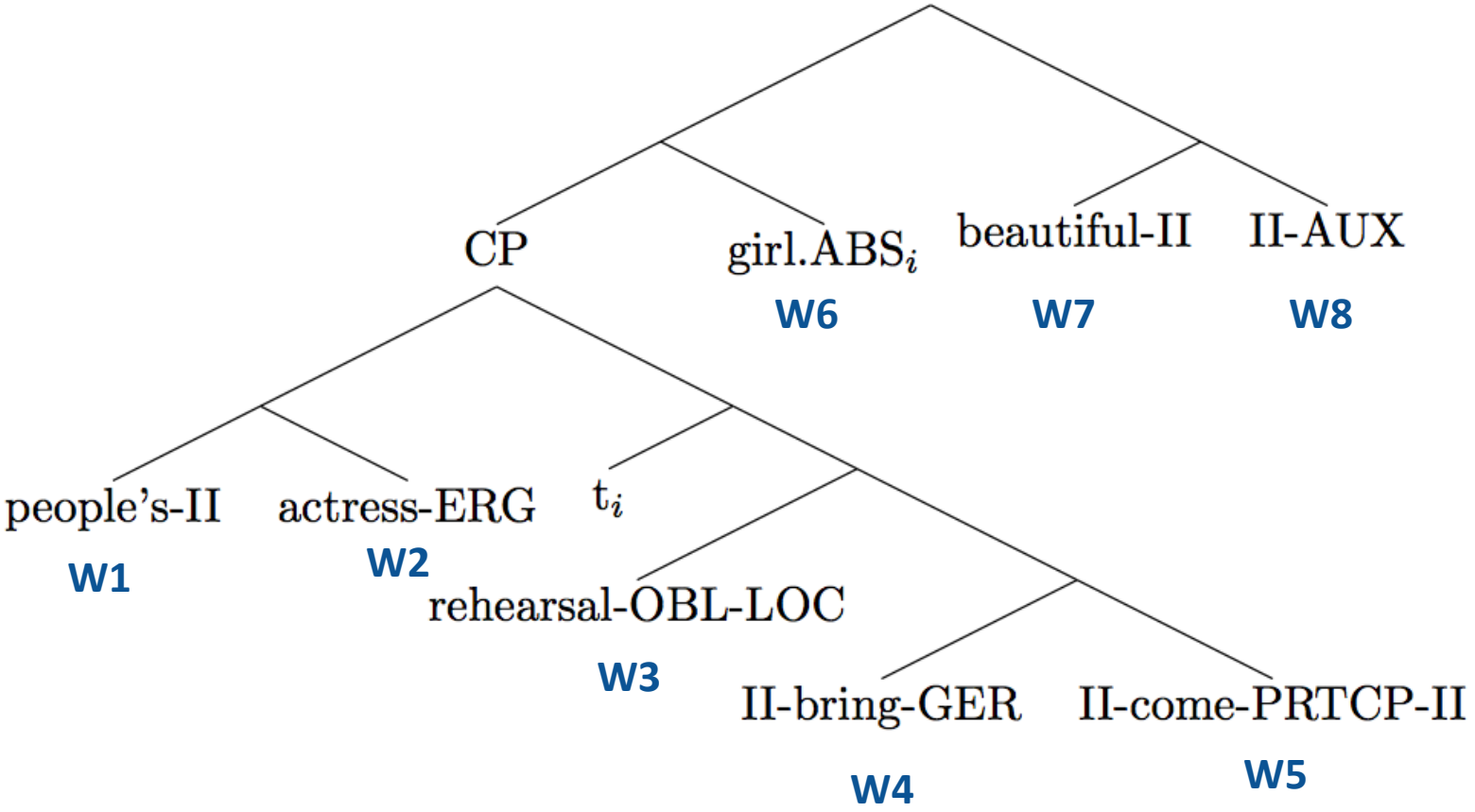
Absolutive object gap



people's-II actress-ERG t_i rehearsal-OBL-LOC II-bring-GER II-come-PRTCP-II girl.ABS$_i$ beautiful-II II-AUX

W1 W2 W3 W4 W5 W6 W7 W8

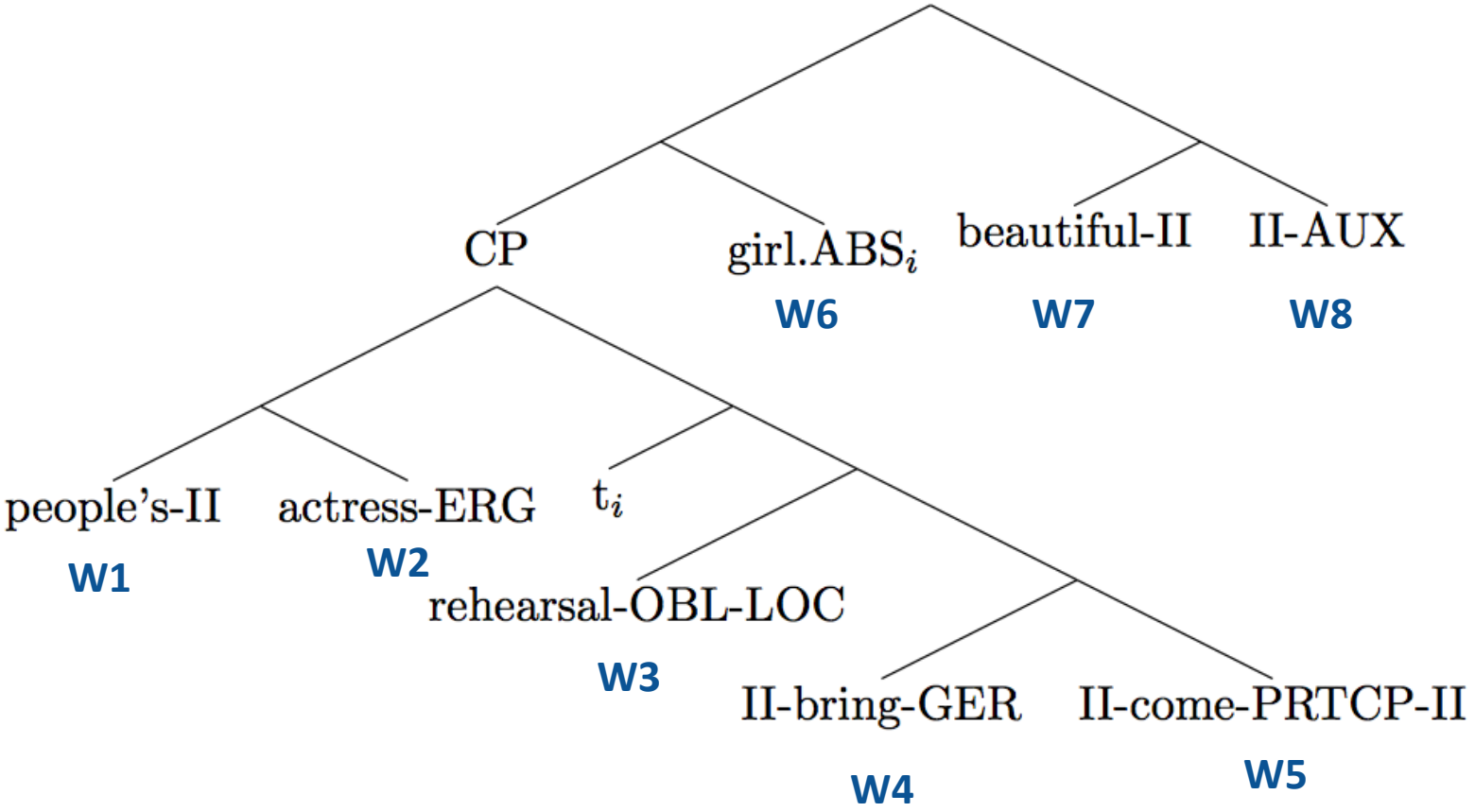
Morphological cueing



people's-II actress-ERG *t* rehearsal-OBL-LOC II-bring-GER II-come-PRTCP-II girl.ABS$_i$ beautiful-II II-AUX

W1 W2 W3 W4 W5 W6 W7 W8

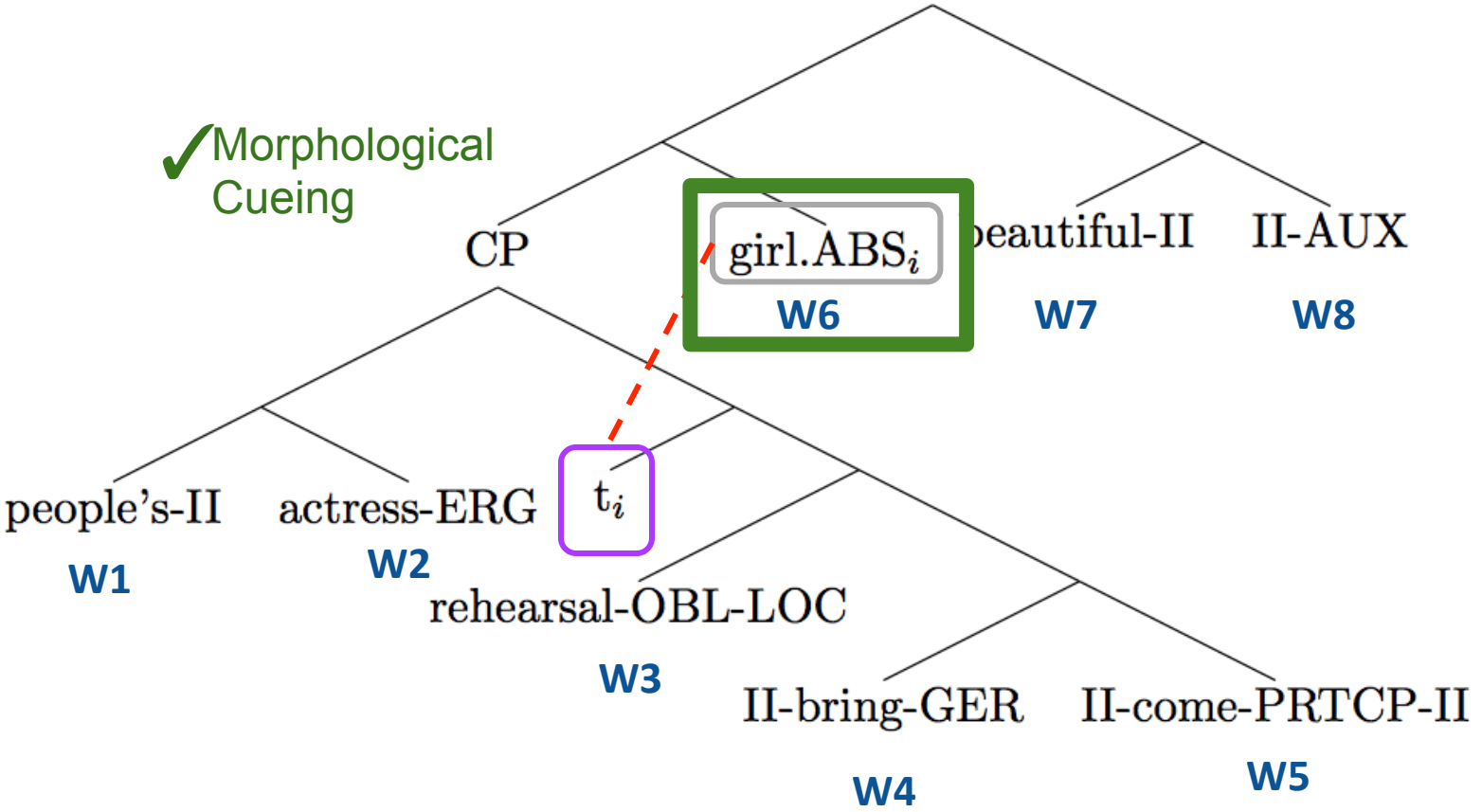
Morphological cueing

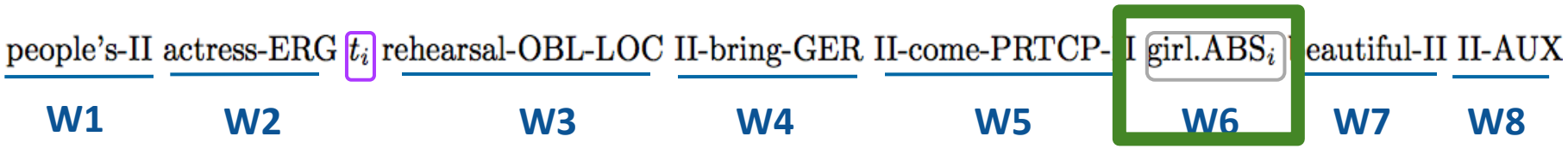


people's-II actress-ERG t_i rehearsal-OBL-LOC II-bring-GER II-come-PRTCP-II girl.ABS$_i$ beautiful-II II-AUX

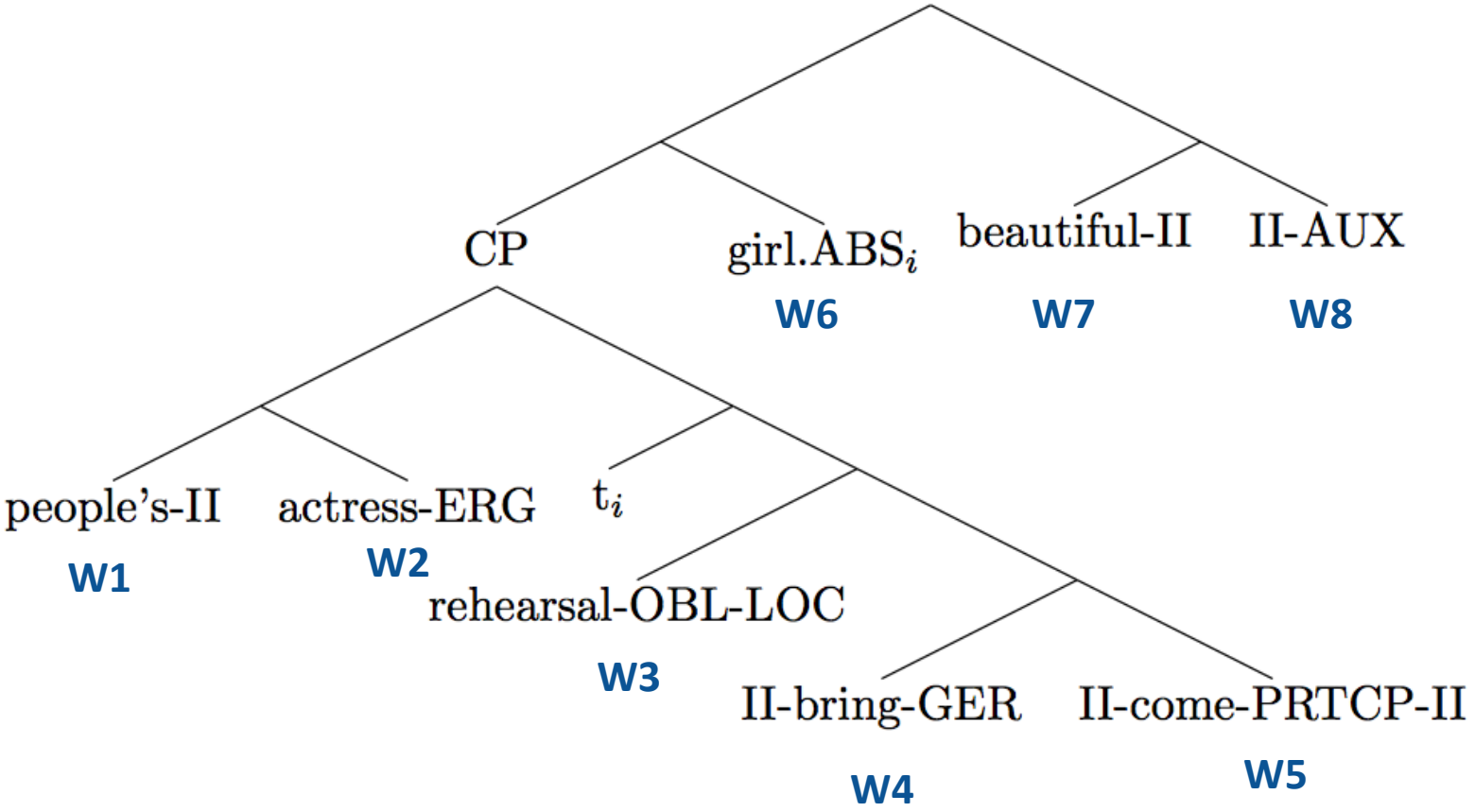
W1 W2 W3 W4 W5 W6 W7 W8

Morphological cueing





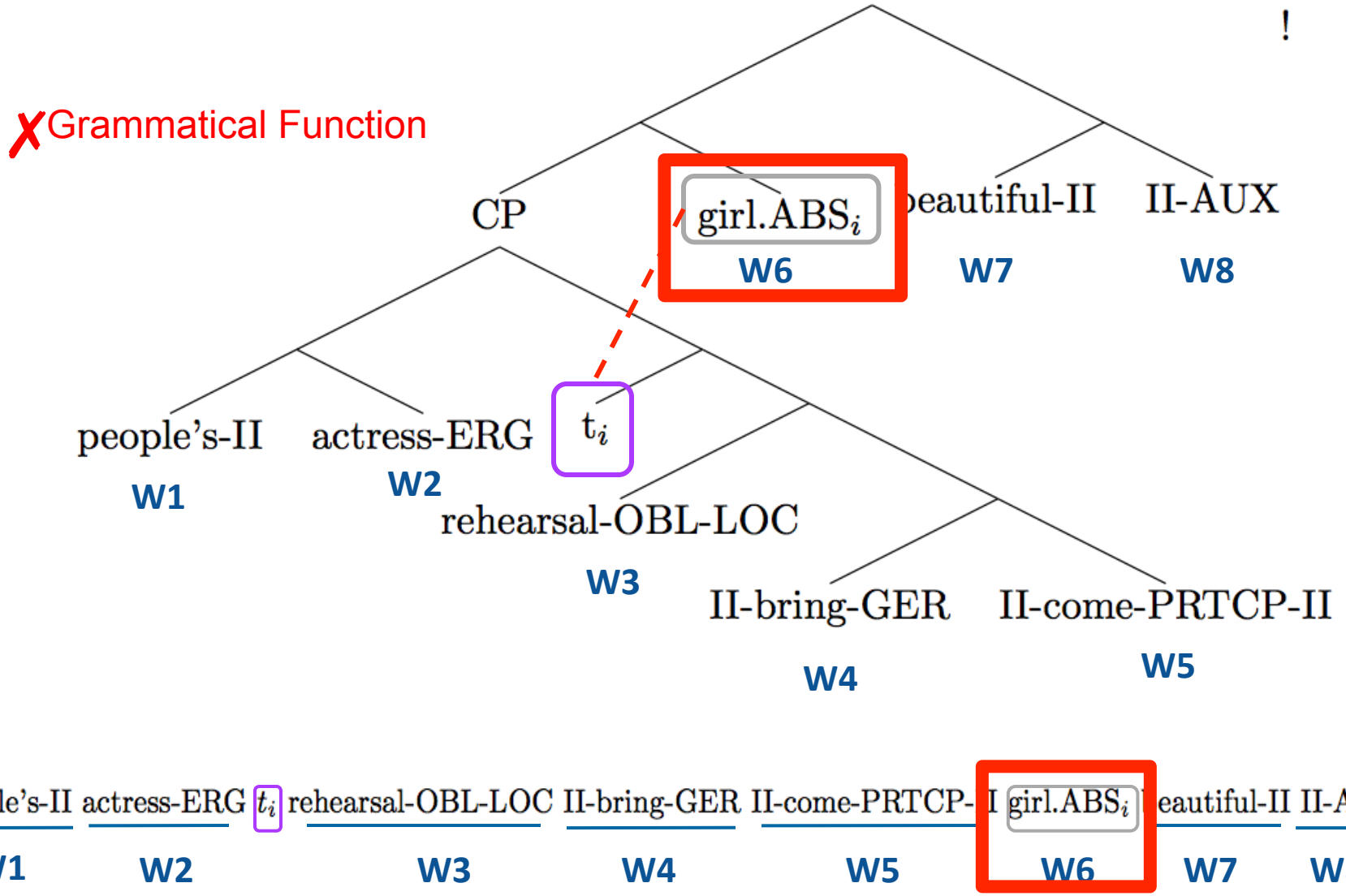
Grammatical function



people's-II actress-ERG t_i rehearsal-OBL-LOC II-bring-GER II-come-PRTCP-II girl.ABS$_i$ beautiful-II II-AUX

W1 W2 W3 W4 W5 W6 W7 W8

Grammatical function



Ergative subject gap

Ergative subject gap

(7) *Ergative subject gap (transitive subject RC)*

[___$_i$	ʕoloqana-y	yas	repetici-yal-de	y-ač:-un	y-ač'-ara-y]
	unmarried-II	girl.ABS	rehearsal-OBL-LOC	II-bring-GER	II-come-PRTCP-II
	W1	**W2**	**W3**	**W4**	**W5 [RC PREDICATE]**

artistka$_i$	bercina-y	y-igo
actress.ABS	beautiful-II	II-AUX
W6 [HEAD NOUN]	**W7 [SPILL OVER]**	**W8**

'The actress that brought the young girl to the rehearsal is pretty.'

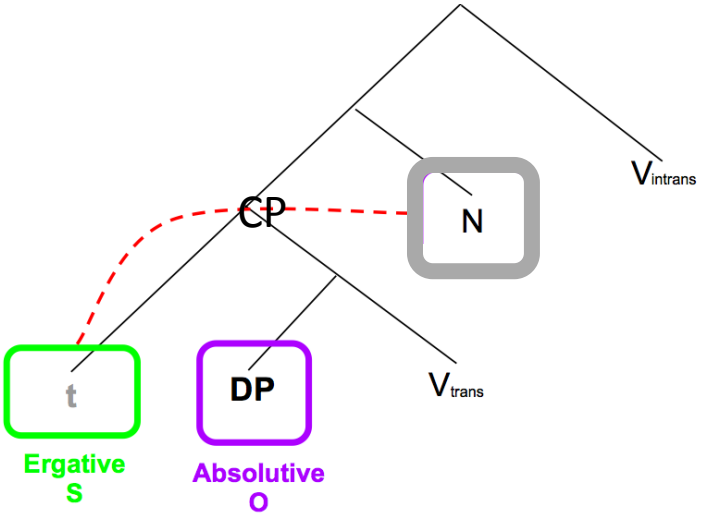
Ergative subject gap

(7) *Ergative subject gap (transitive subject RC)*

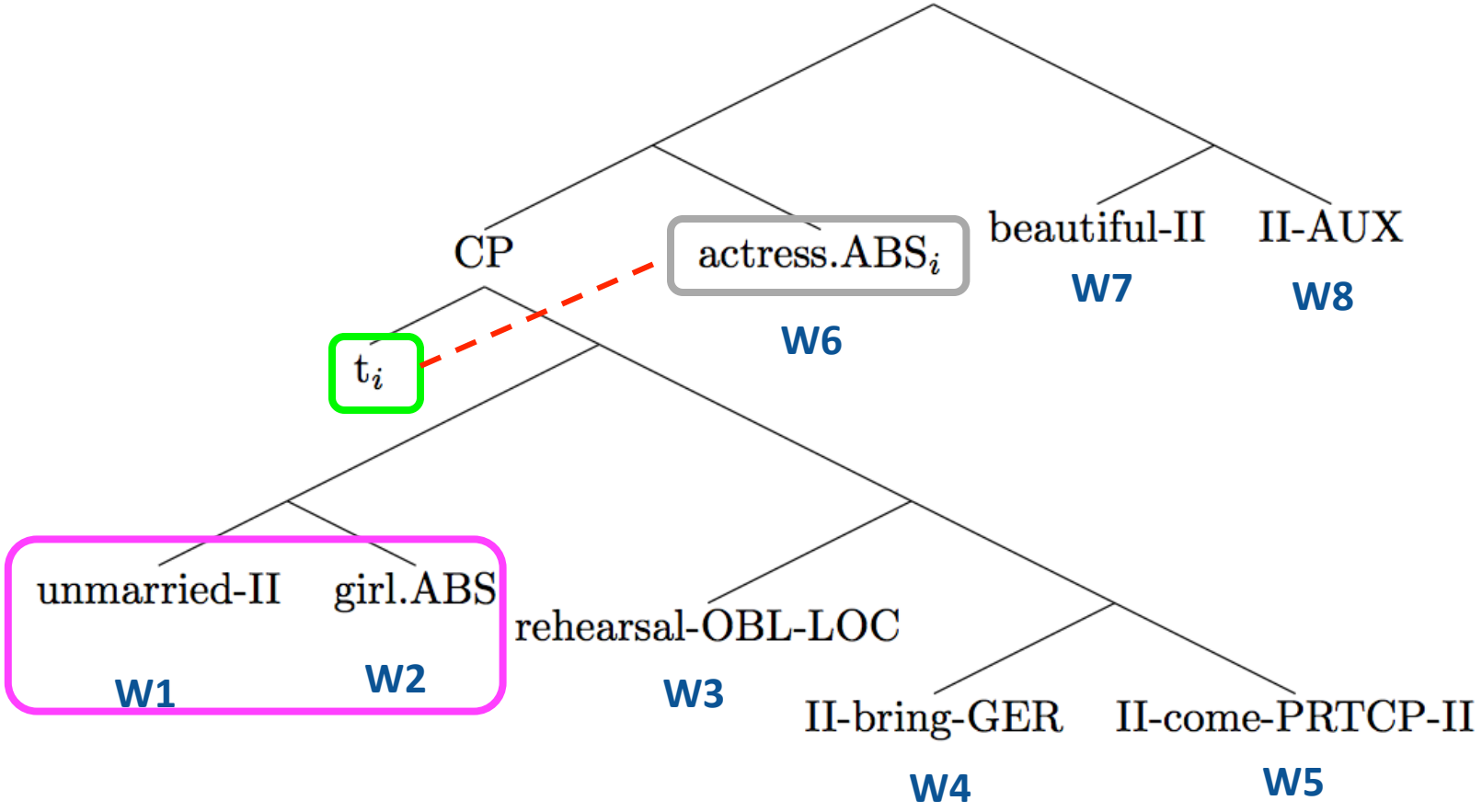
[___$_i$	ʕoloqana-y	yas	repetici-yal-de	y-ač:-un	y-ač'-ara-y]
	unmarried-II	girl.ABS	rehearsal-OBL-LOC	II-bring-GER	II-come-PRTCP-II
	W1	**W2**	**W3**	**W4**	**W5 [RC PREDICATE]**

artistka$_i$	bercina-y	y-igo
actress.ABS	beautiful-II	II-AUX
W6 [HEAD NOUN]	**W7 [SPILL OVER]**	**W8**

'The actress that brought the young girl to the rehearsal is pretty.'



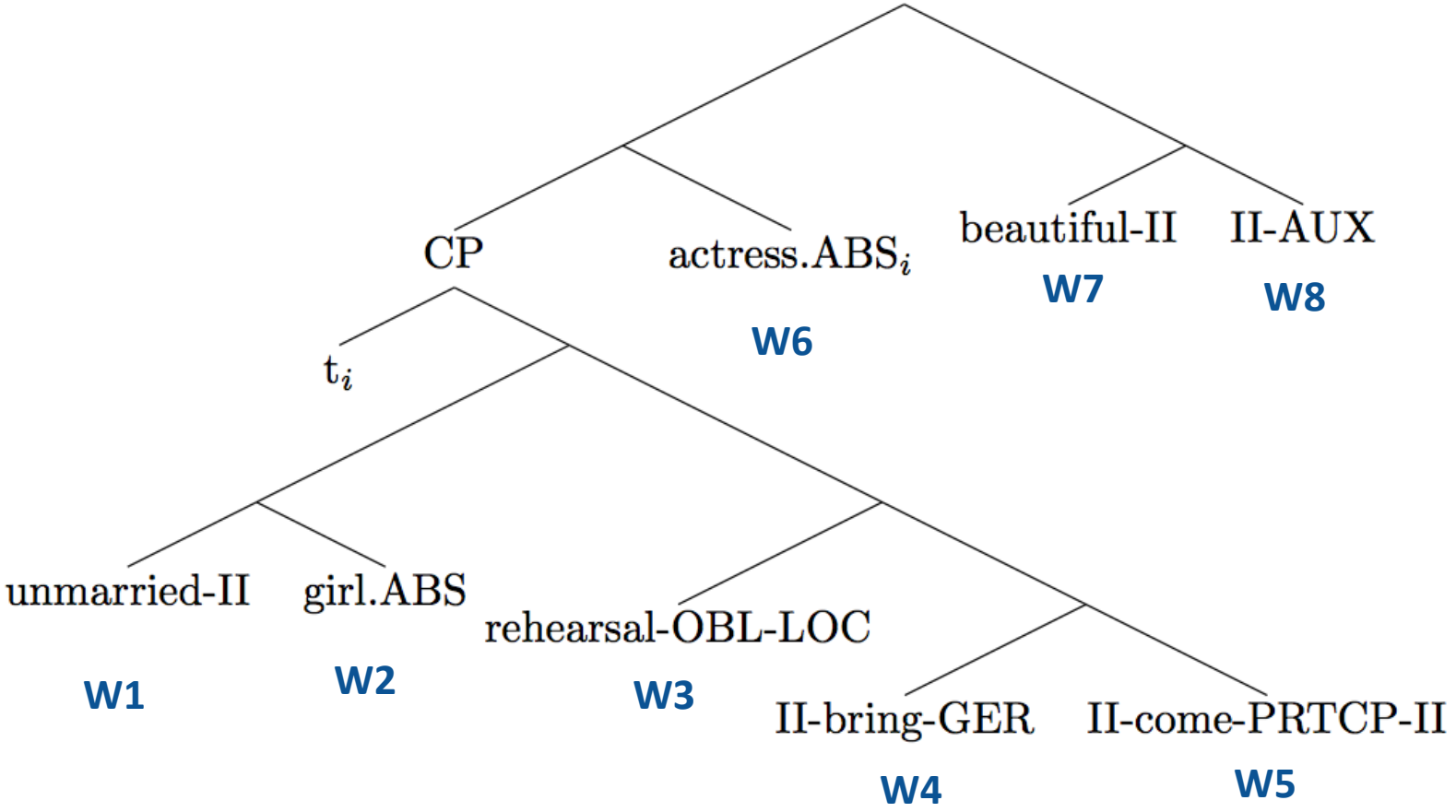
Ergative subject gap



t$_i$ unmarried-II girl.ABS rehearsal-OBL-LOC II-bring-GER II-come-PRTCP-II actress.ABS$_i$ beautiful-II II-AUX

W1 W2 W3 W4 W5 W6 W7 W8

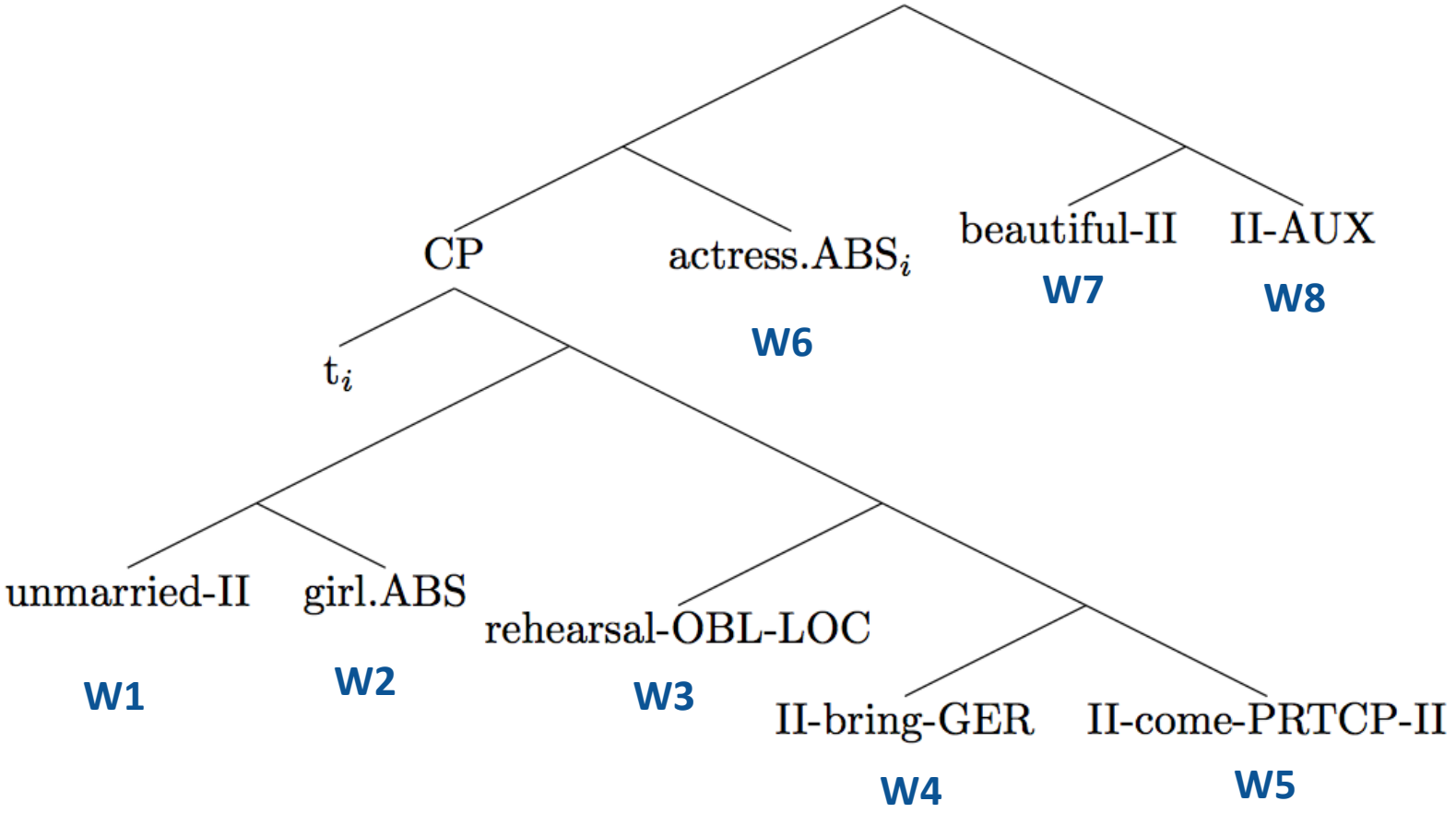
Morphological cueing



t_i unmarried-I girl.ABS ehearsal-OBL-LOC II-bring-GER II-come-PRTCP-II actress.ABS$_i$ beautiful-II II-AUX

W1 W2 W3 W4 W5 W6 W7 W8

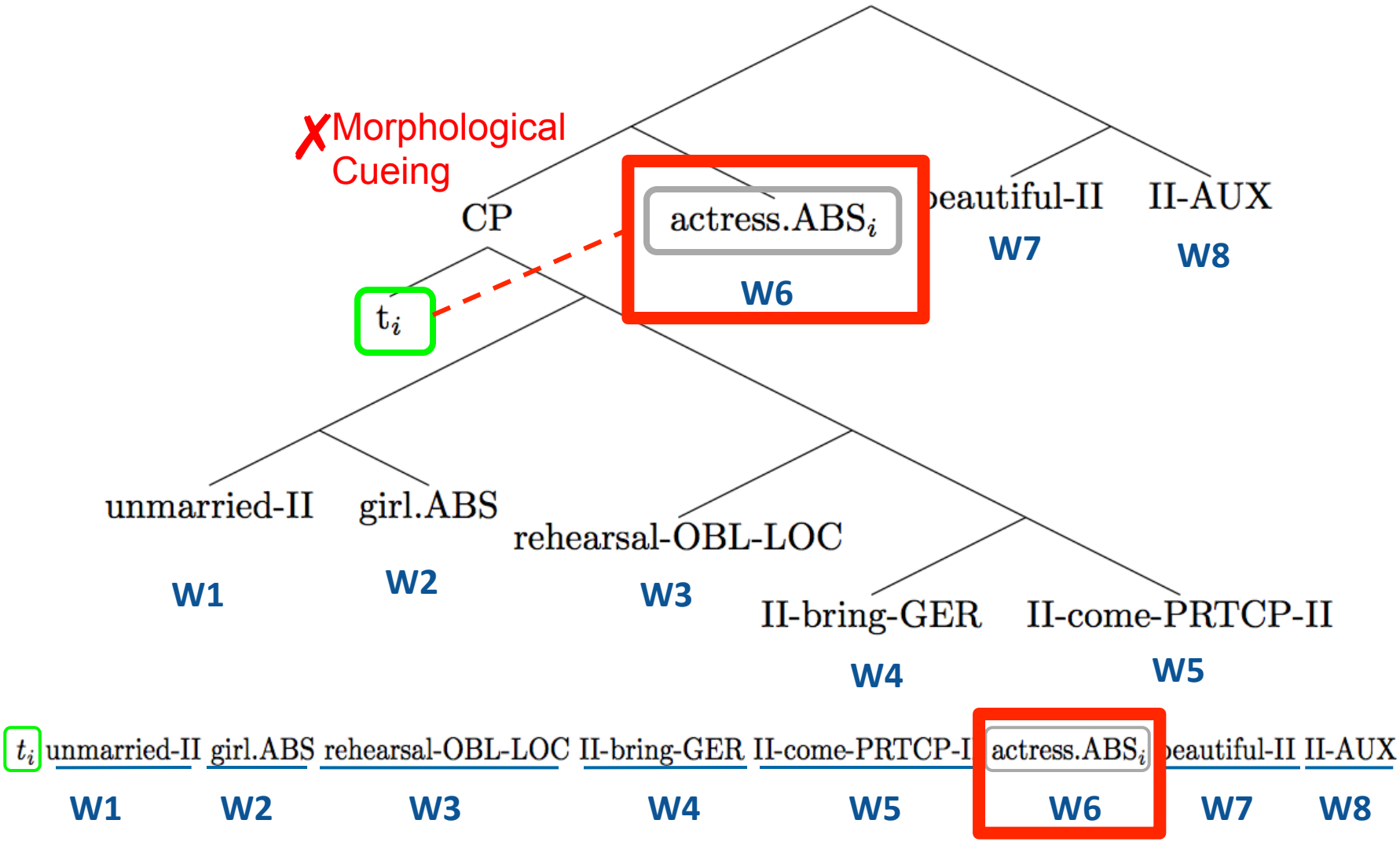
Morphological cueing



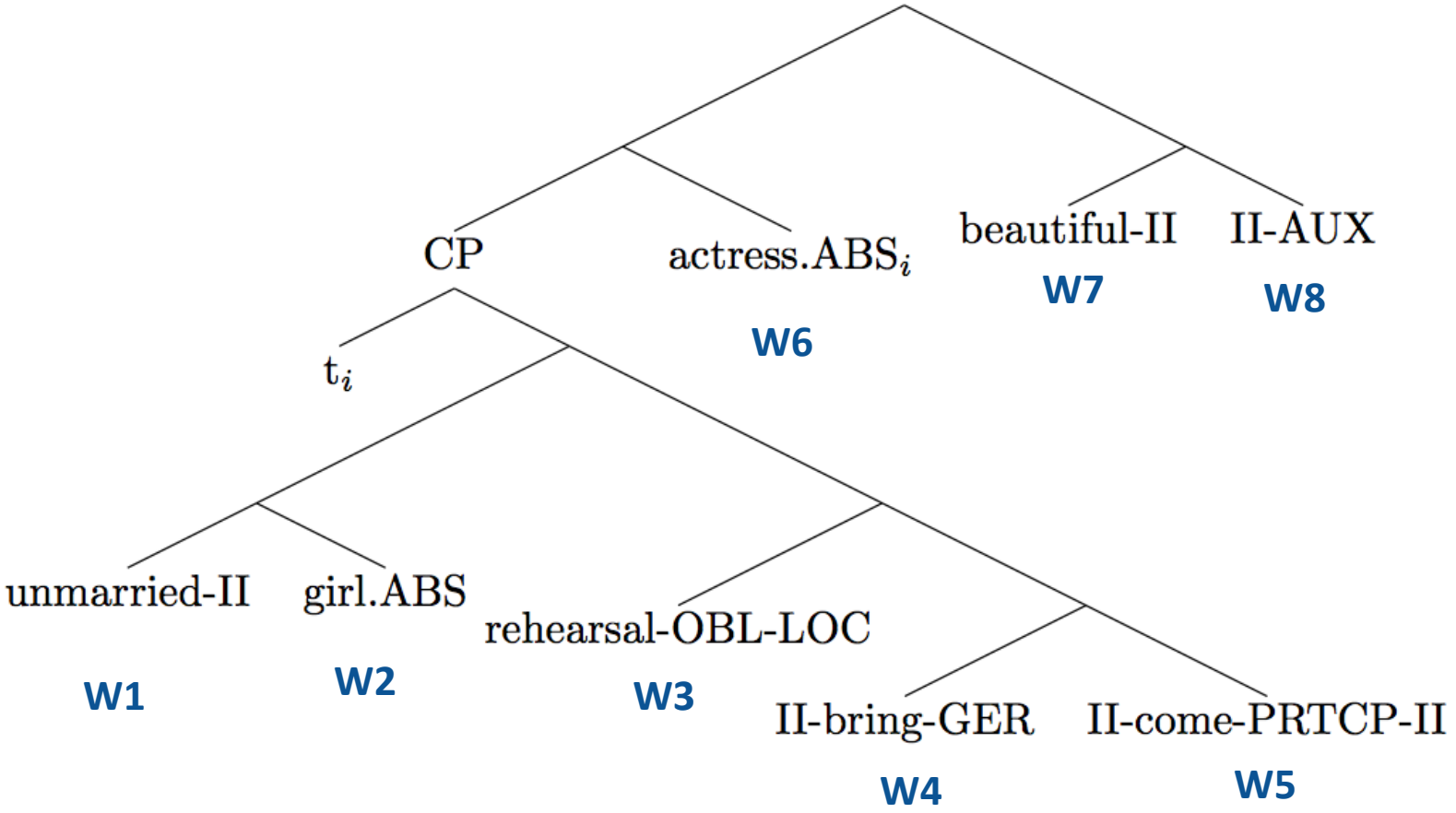
t$_i$ unmarried-II girl.ABS rehearsal-OBL-LOC II-bring-GER II-come-PRTCP-II actress.ABS$_i$ beautiful-II II-AUX

W1 W2 W3 W4 W5 W6 W7 W8

Morphological cueing



Grammatical function

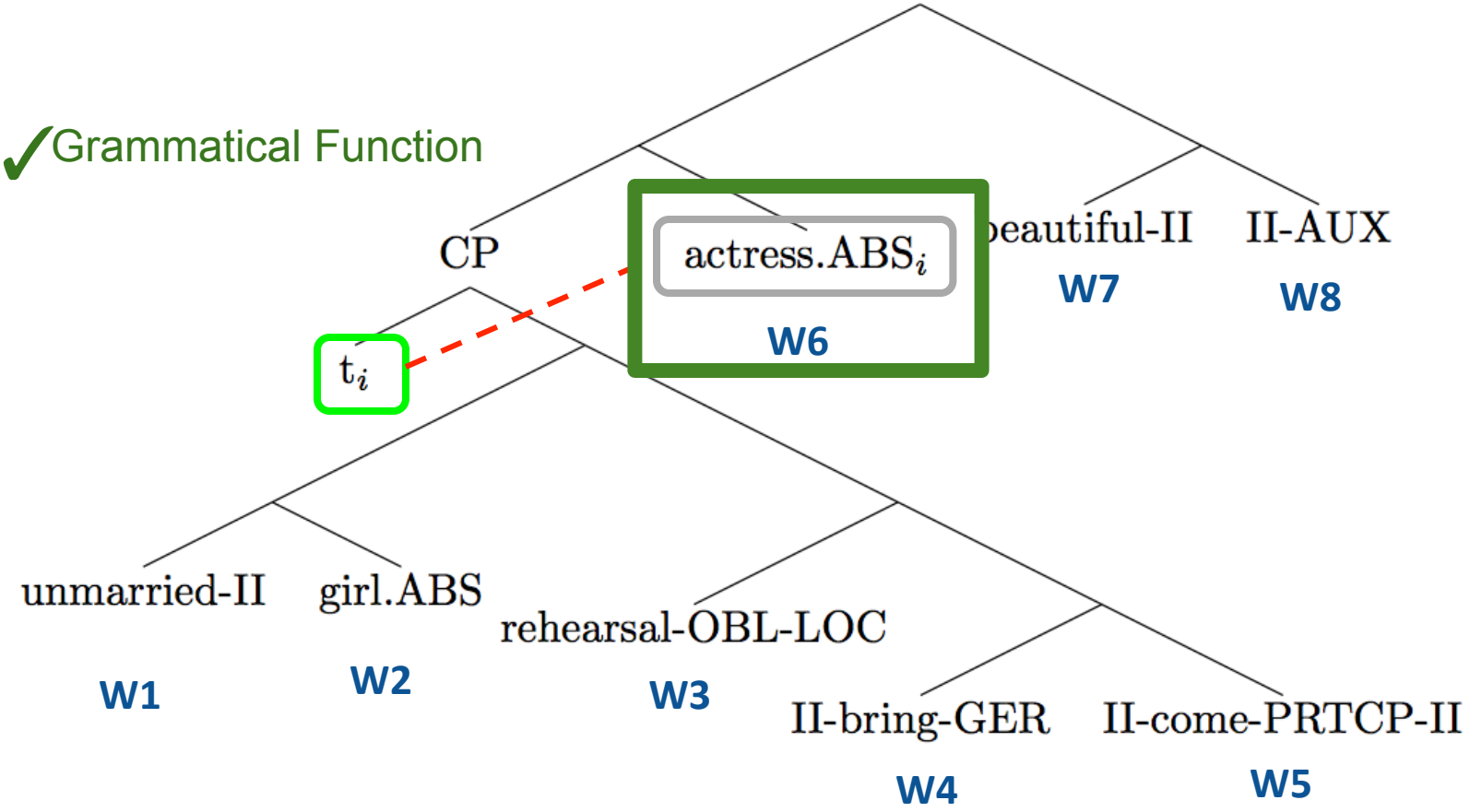


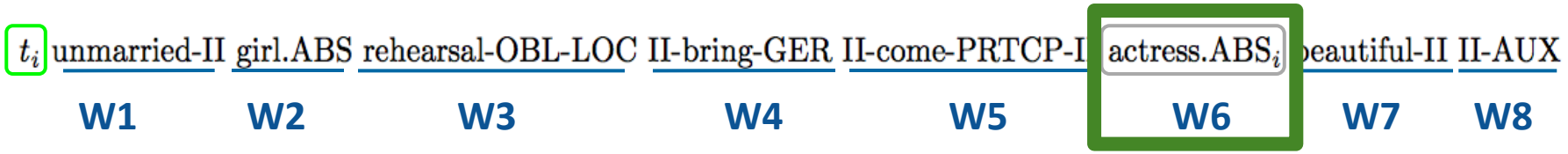
t$_i$ unmarried-II girl.ABS rehearsal-OBL-LOC II-bring-GER II-come-PRTCP-II actress.ABS$_i$ beautiful-II II-AUX

W1 W2 W3 W4 W5 W6 W7 W8

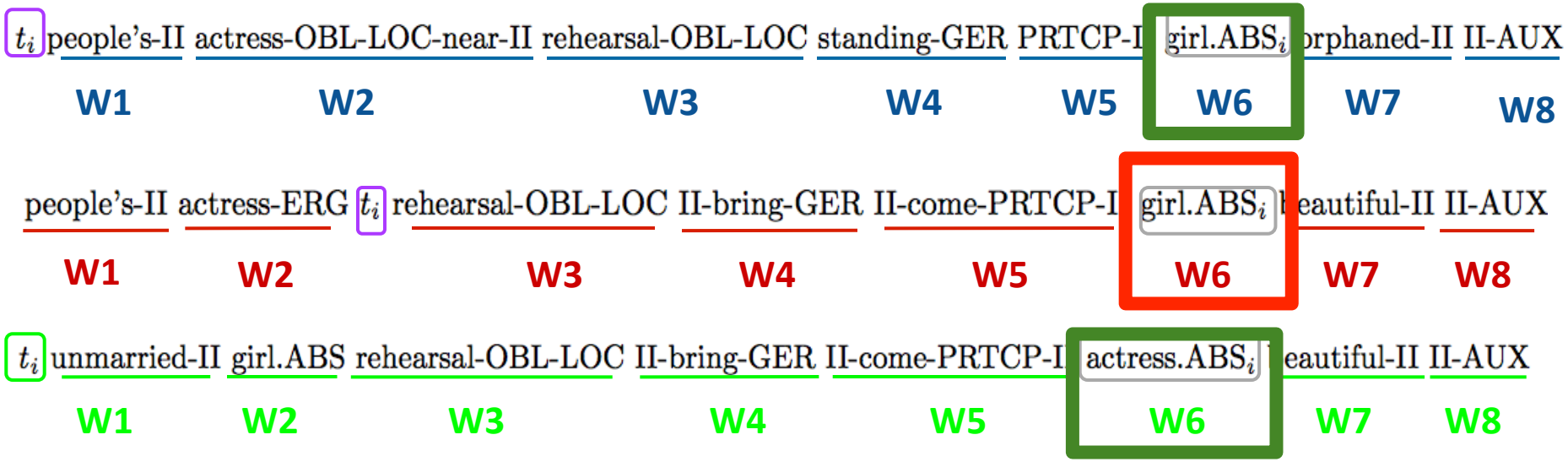
Grammatical function

✓Grammatical Function

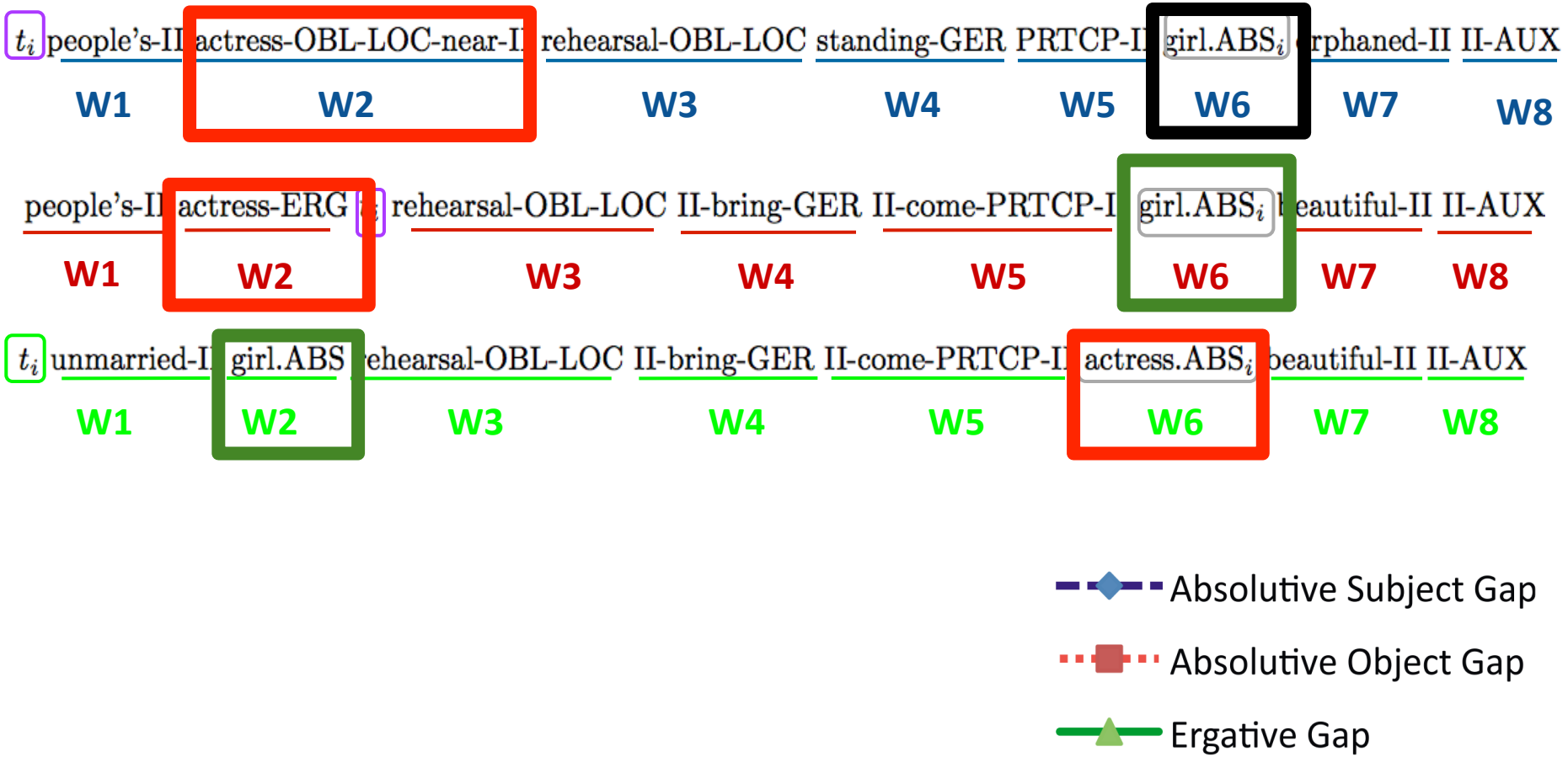




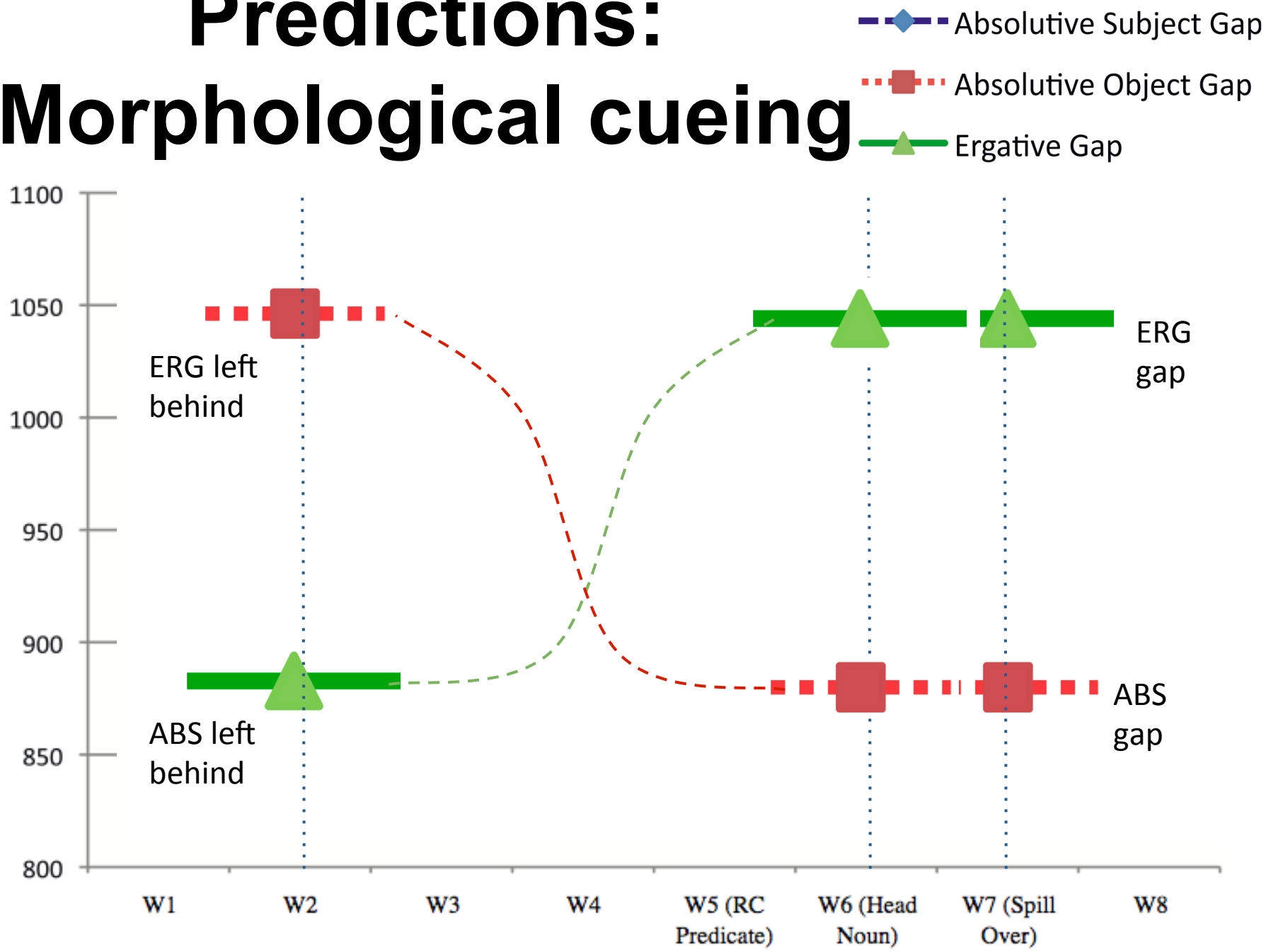
GRAMMATICAL FUNCTION PREDICTIONS



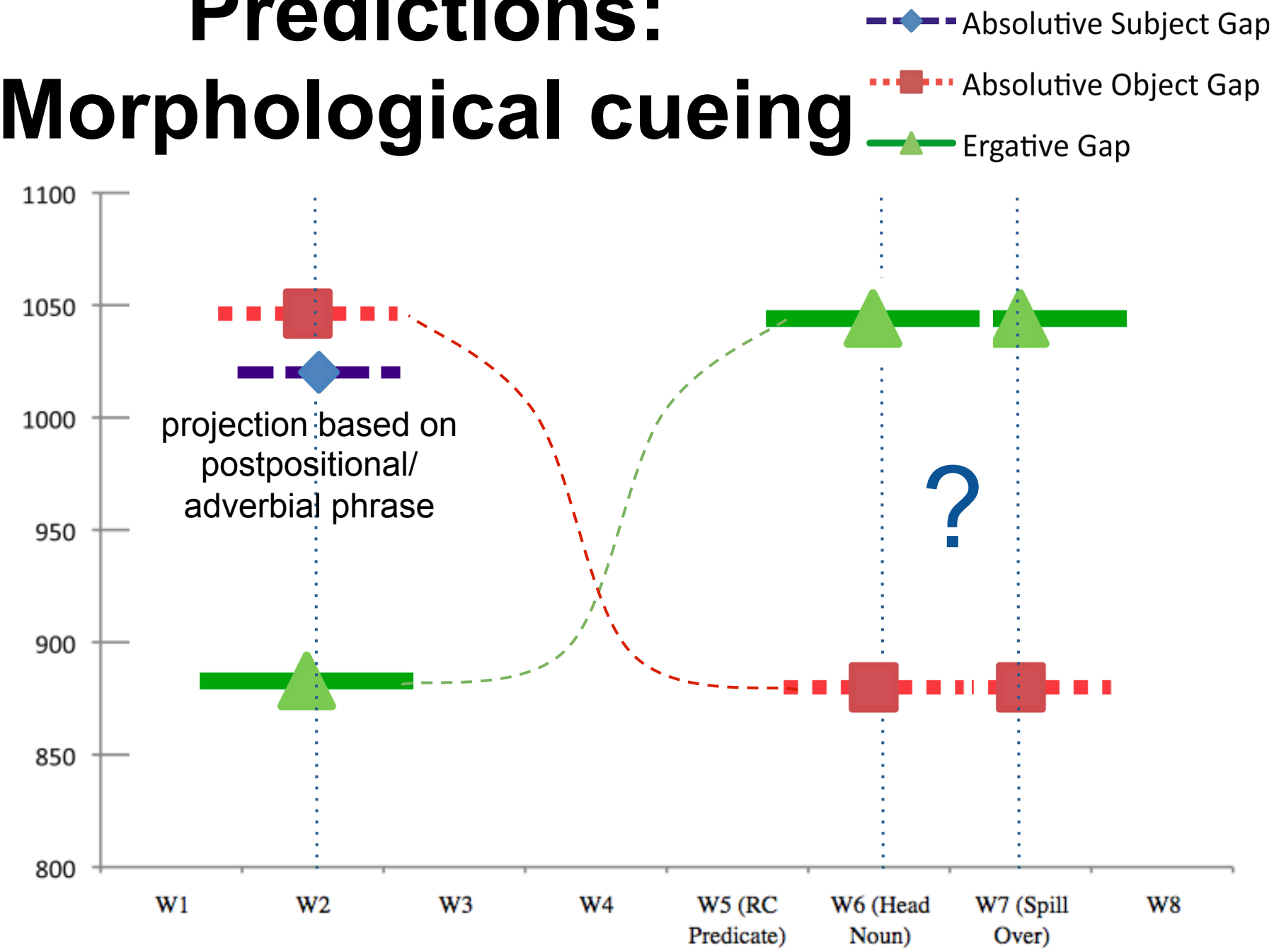
MORPHOLOGICAL CUEING PREDICTIONS



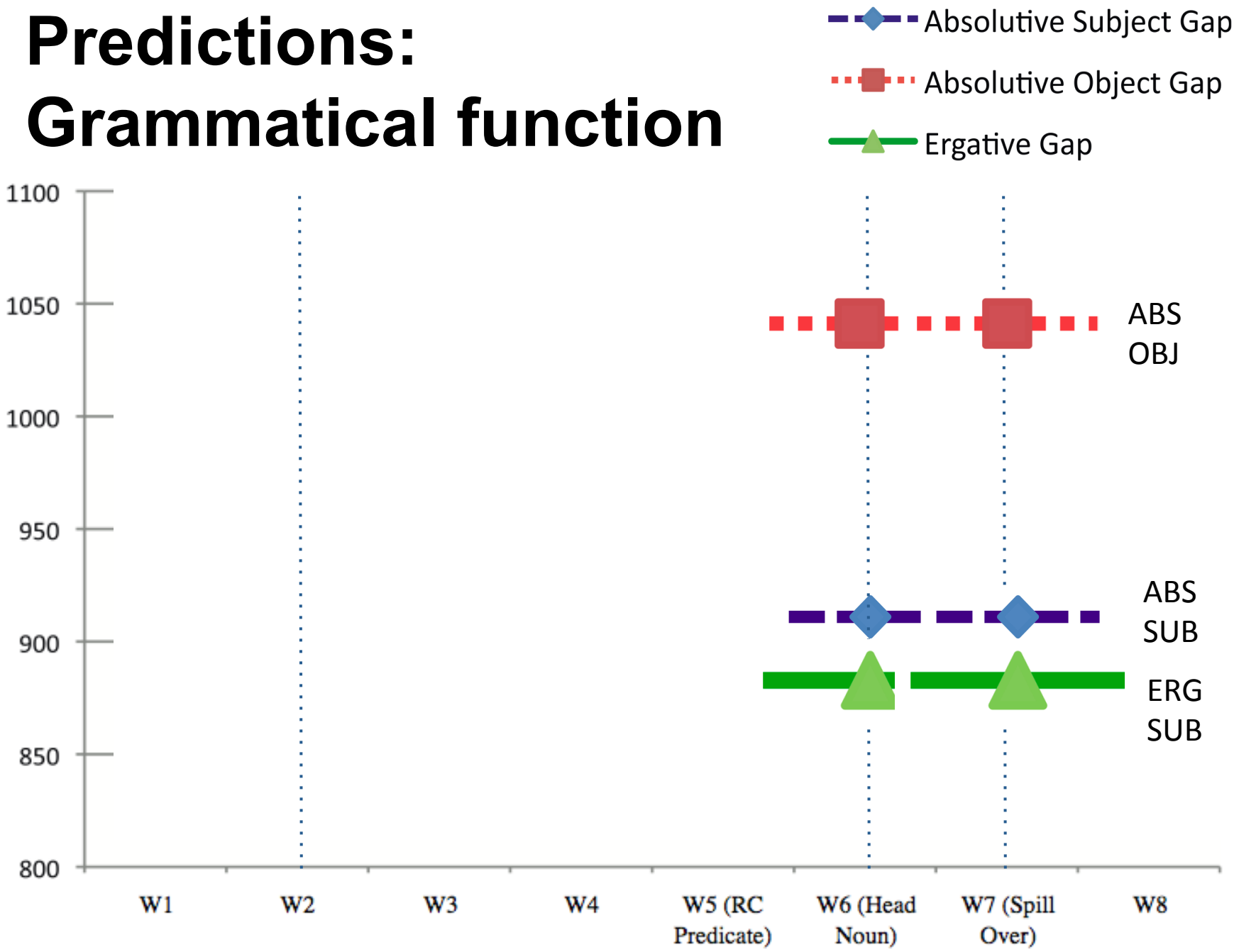
Predictions: Morphological cueing



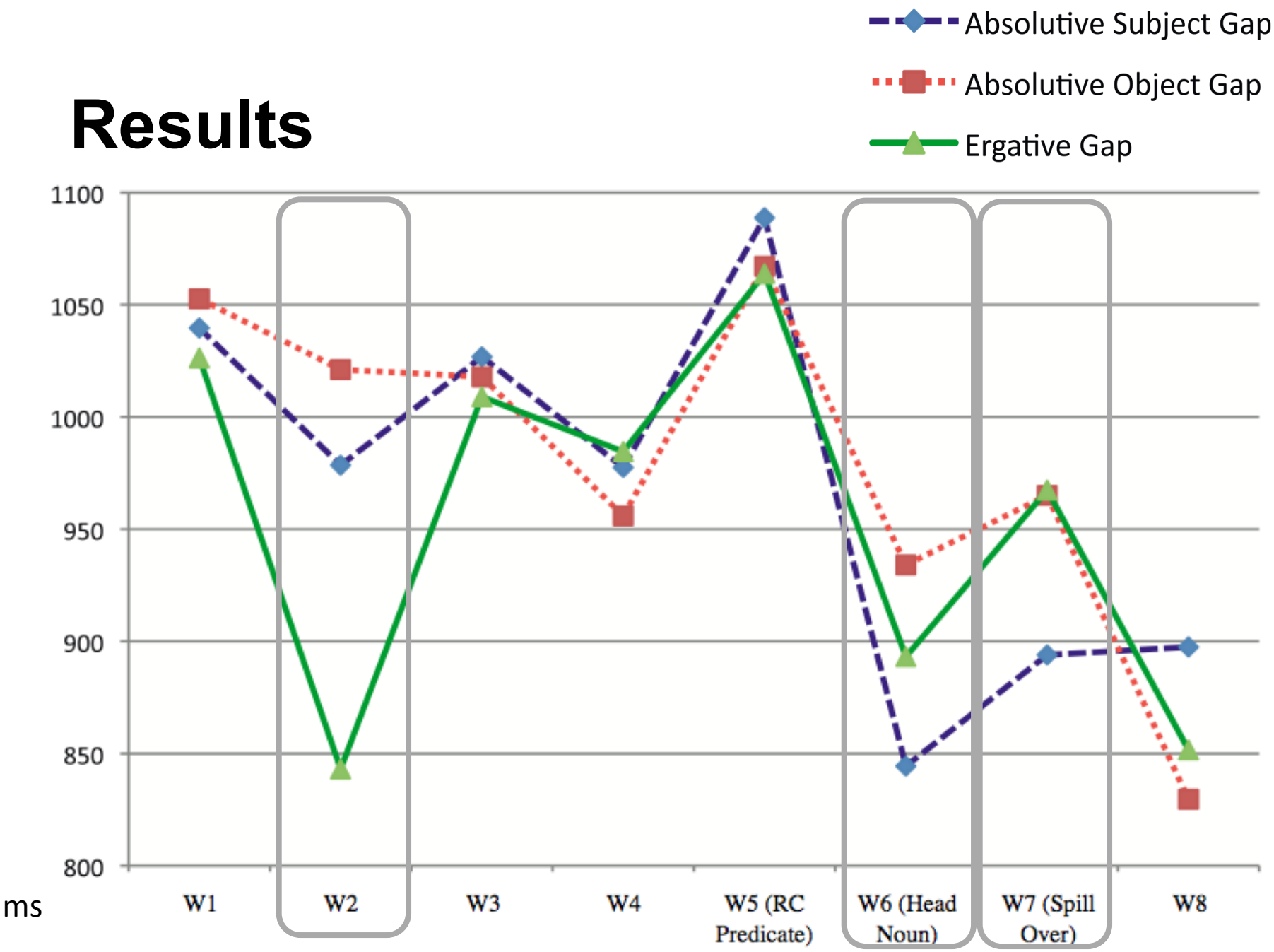
Predictions: Morphological cueing



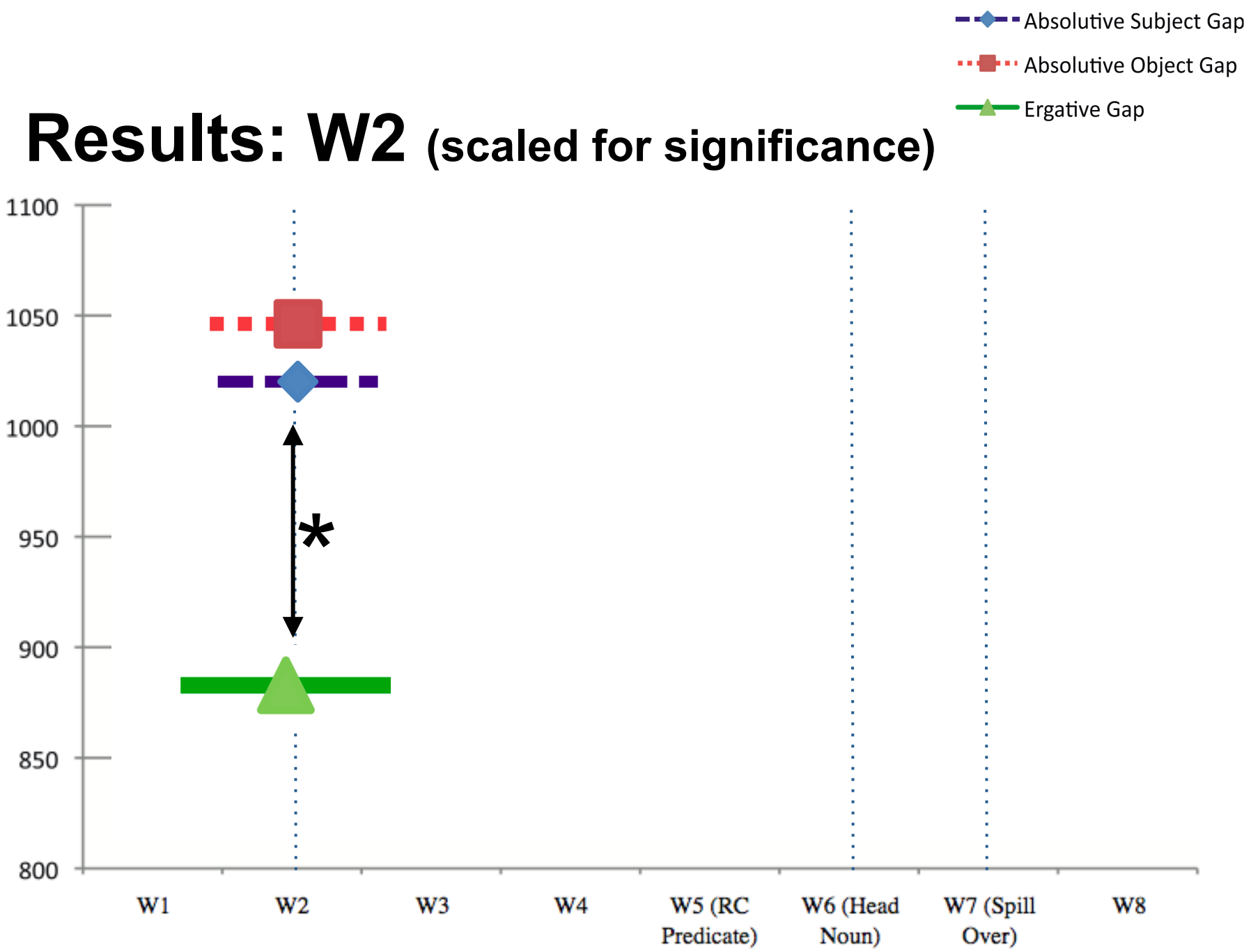
Predictions: Grammatical function



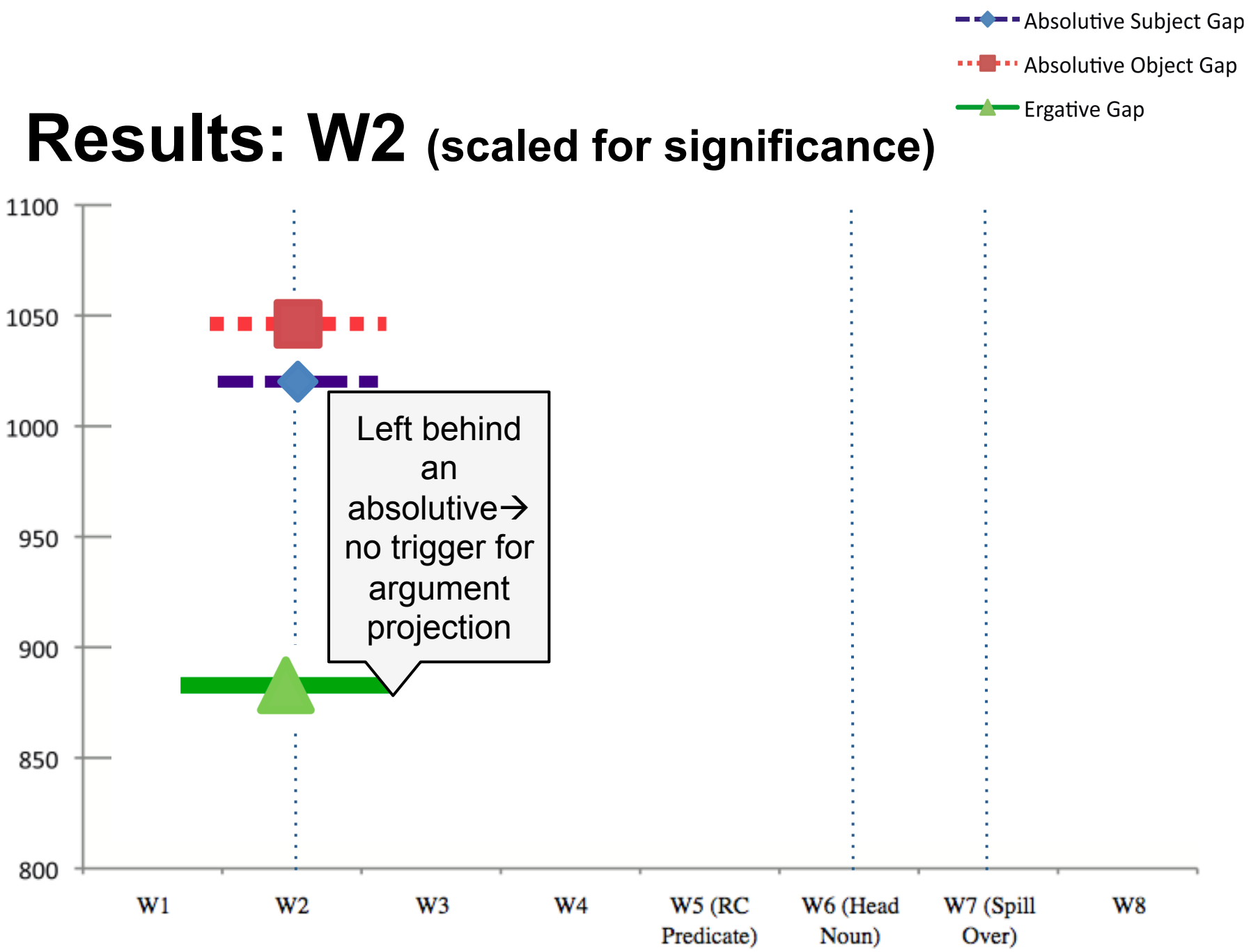
Results


Absolutive Subject Gap
Absolutive Object Gap
Ergative Gap
1100
1050
1000
950
900
850
800
ms
W1
W2
W3
W4
W5 (RC Predicate)
W6 (Head Noun)
W7 (Spill Over)
W8

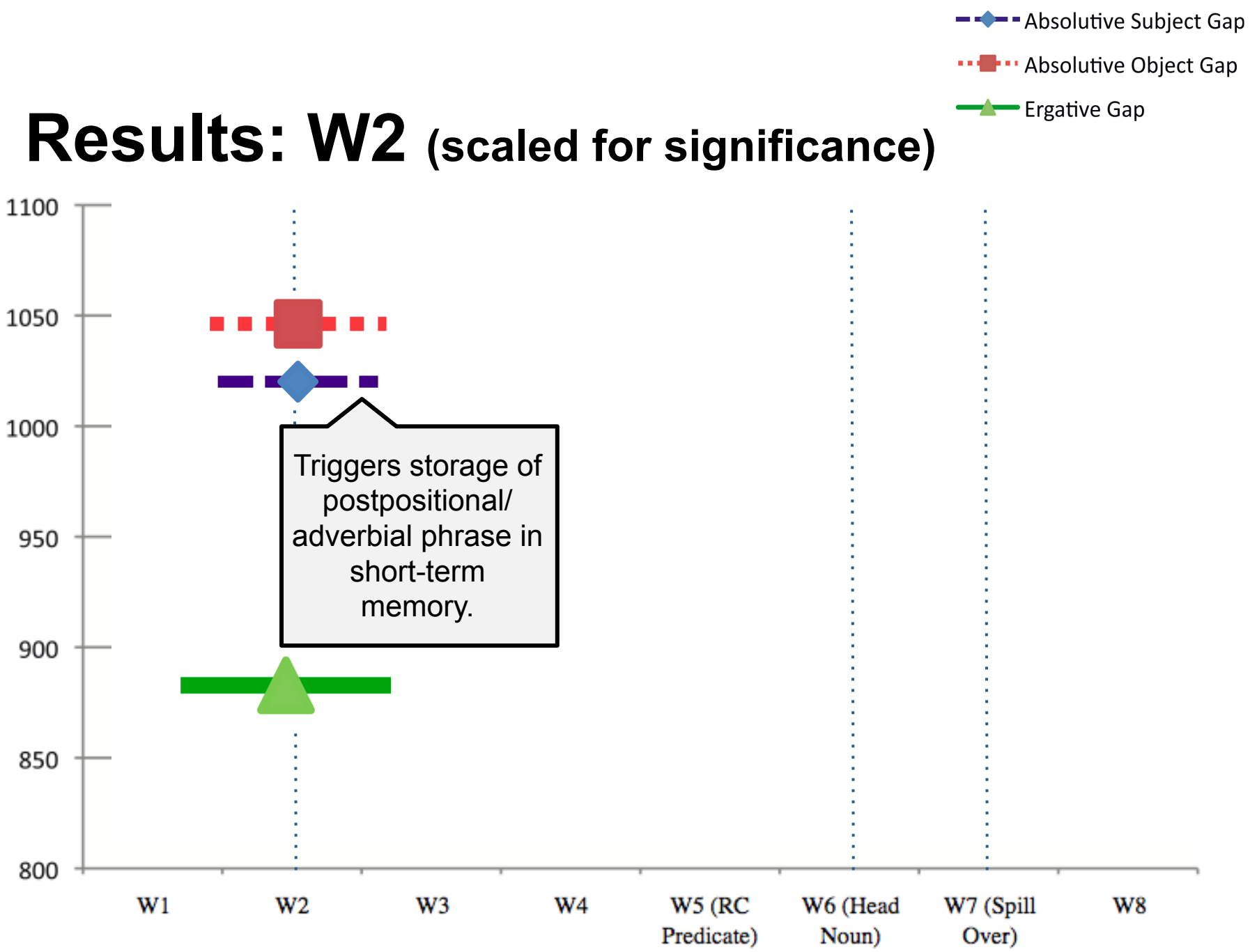
Results: W2 (scaled for significance)



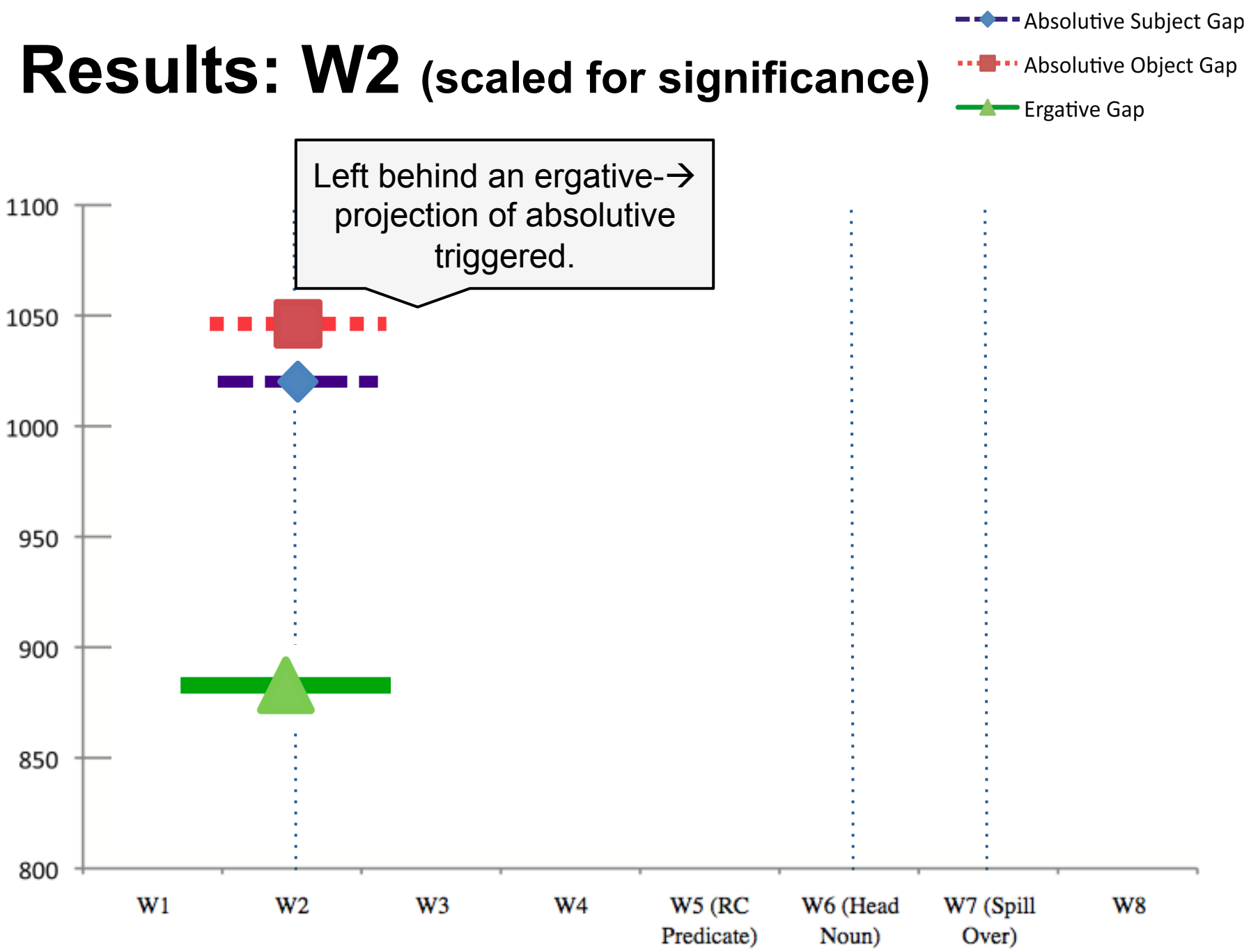
Results: W2 (scaled for significance)



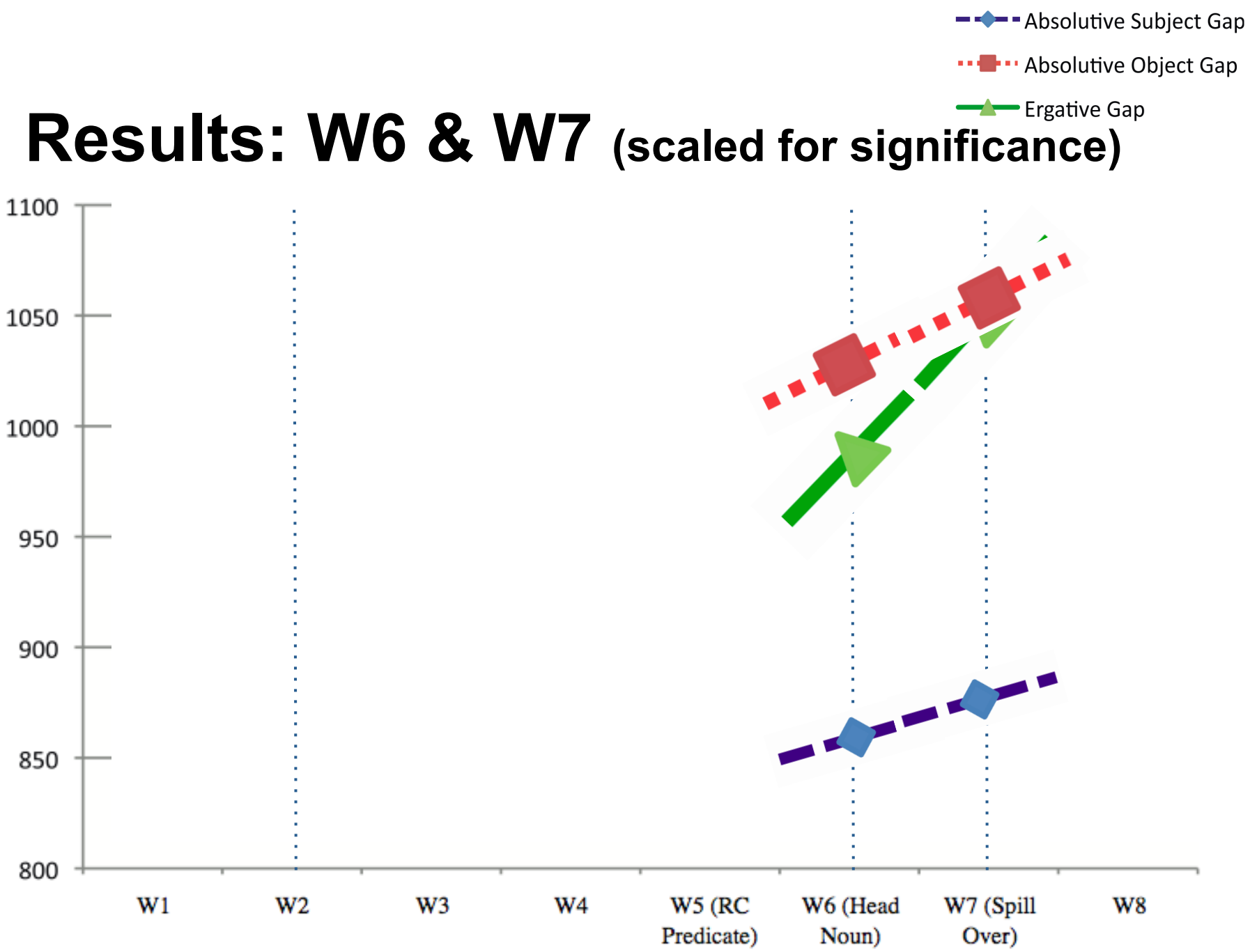
Results: W2 (scaled for significance)



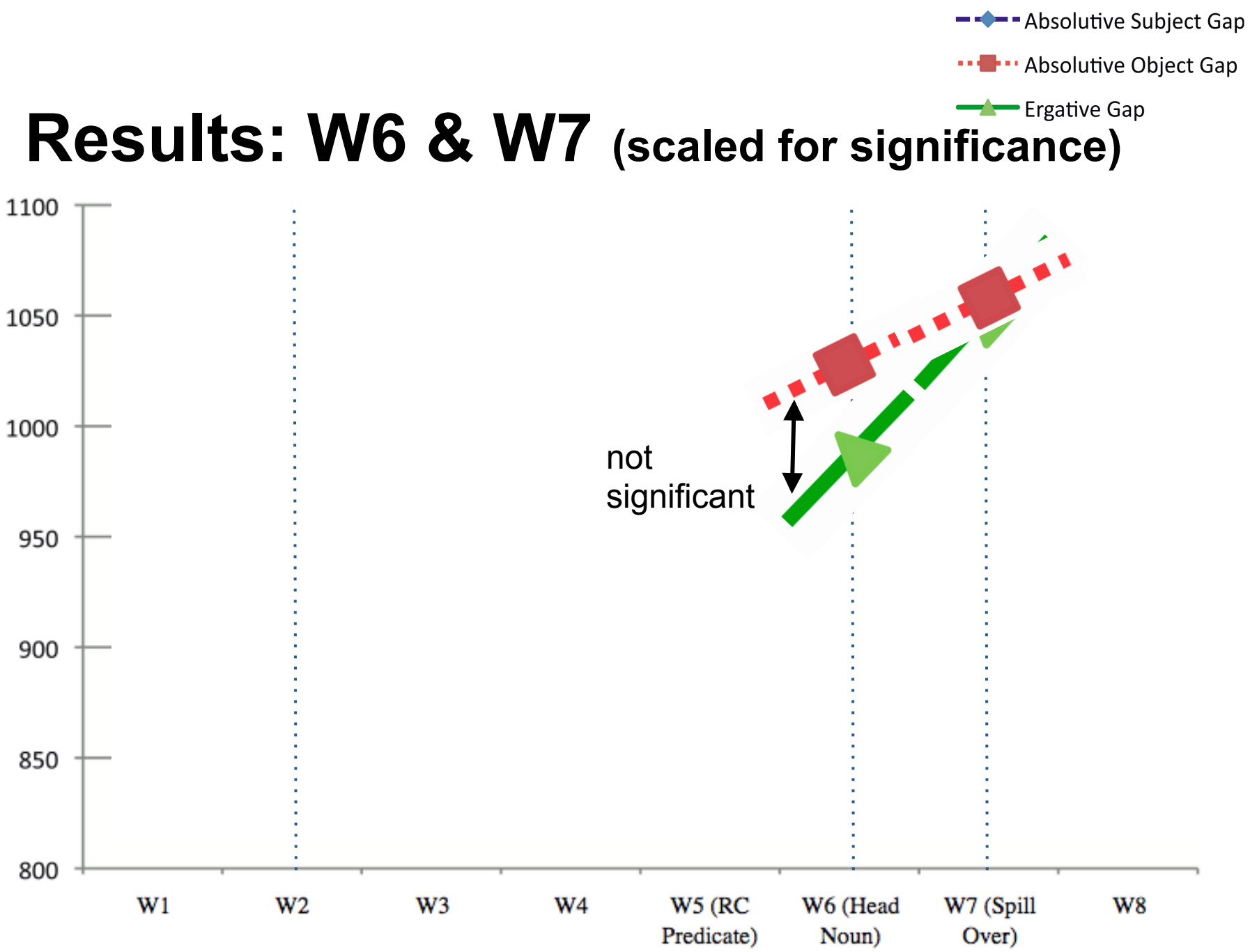
Results: W2 (scaled for significance)



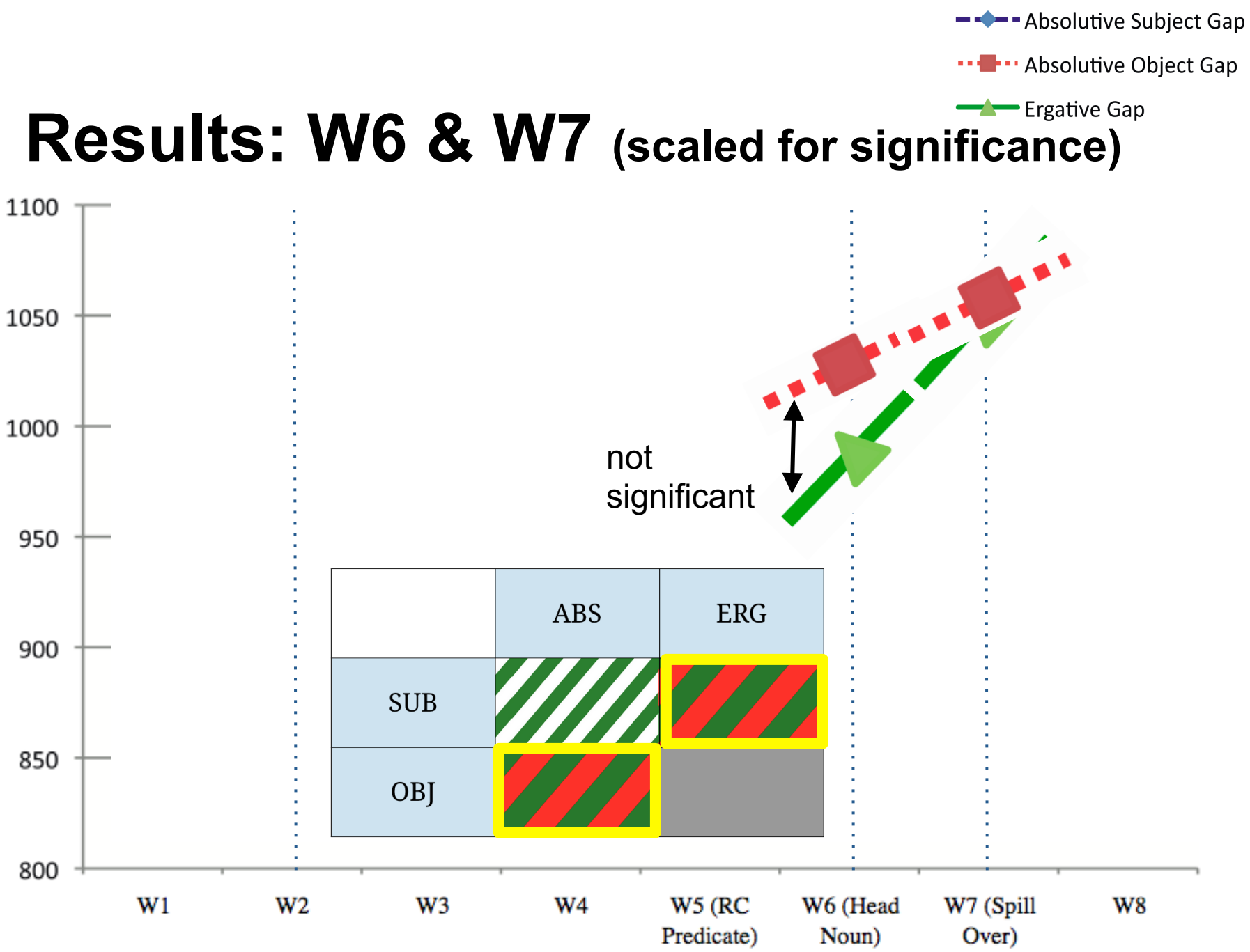
Results: W6 & W7 (scaled for significance)



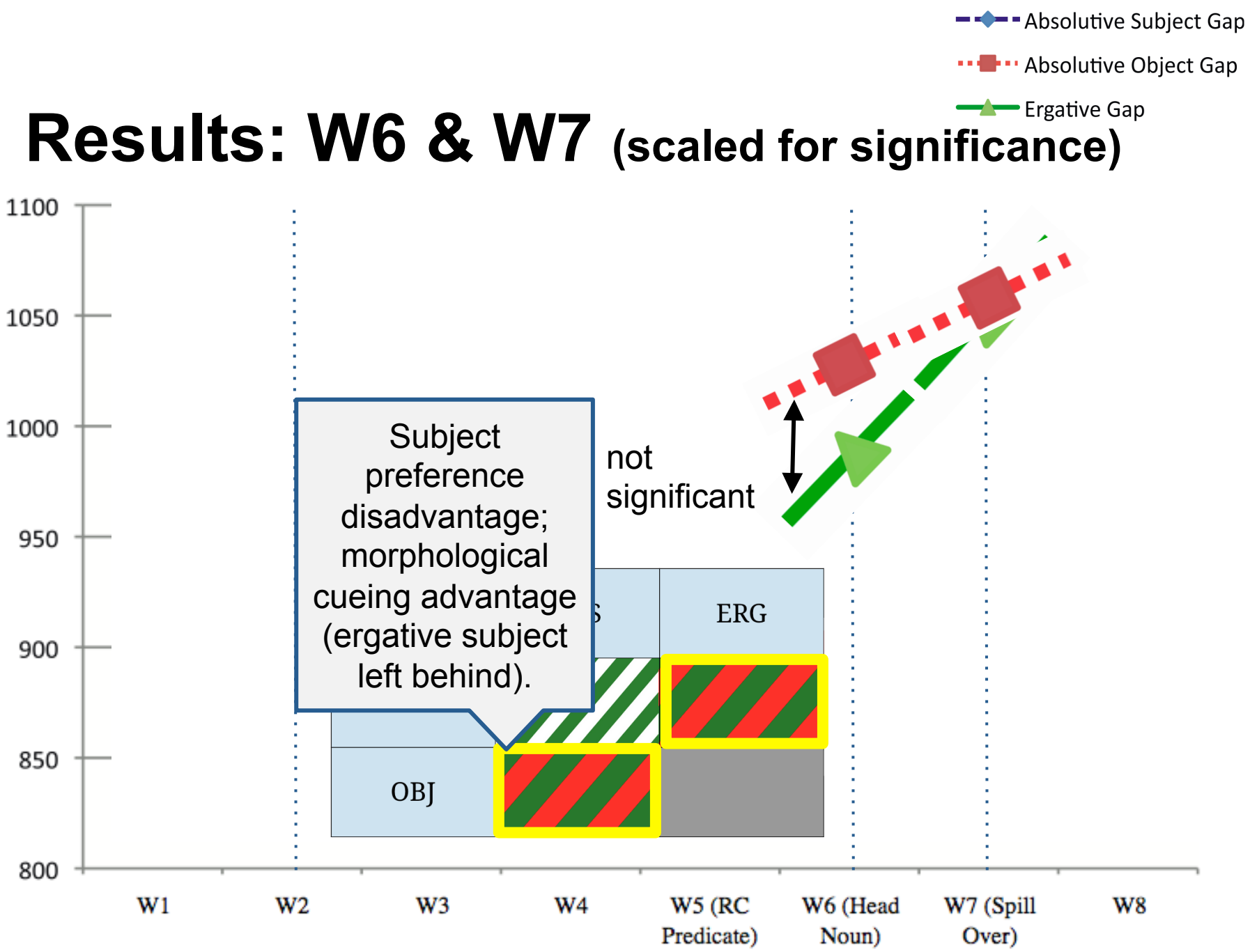
Results: W6 & W7 (scaled for significance)



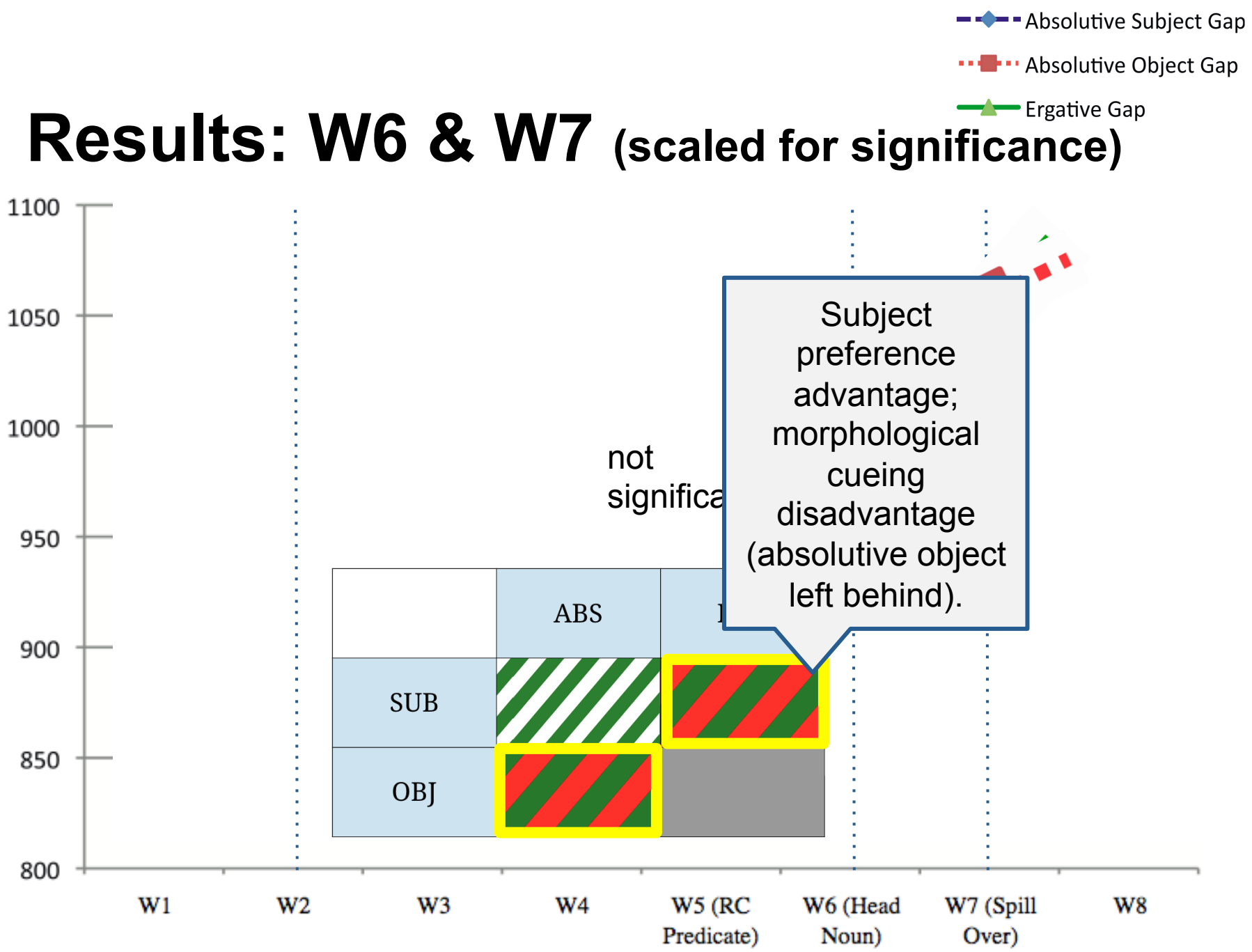
Results: W6 & W7 (scaled for significance)



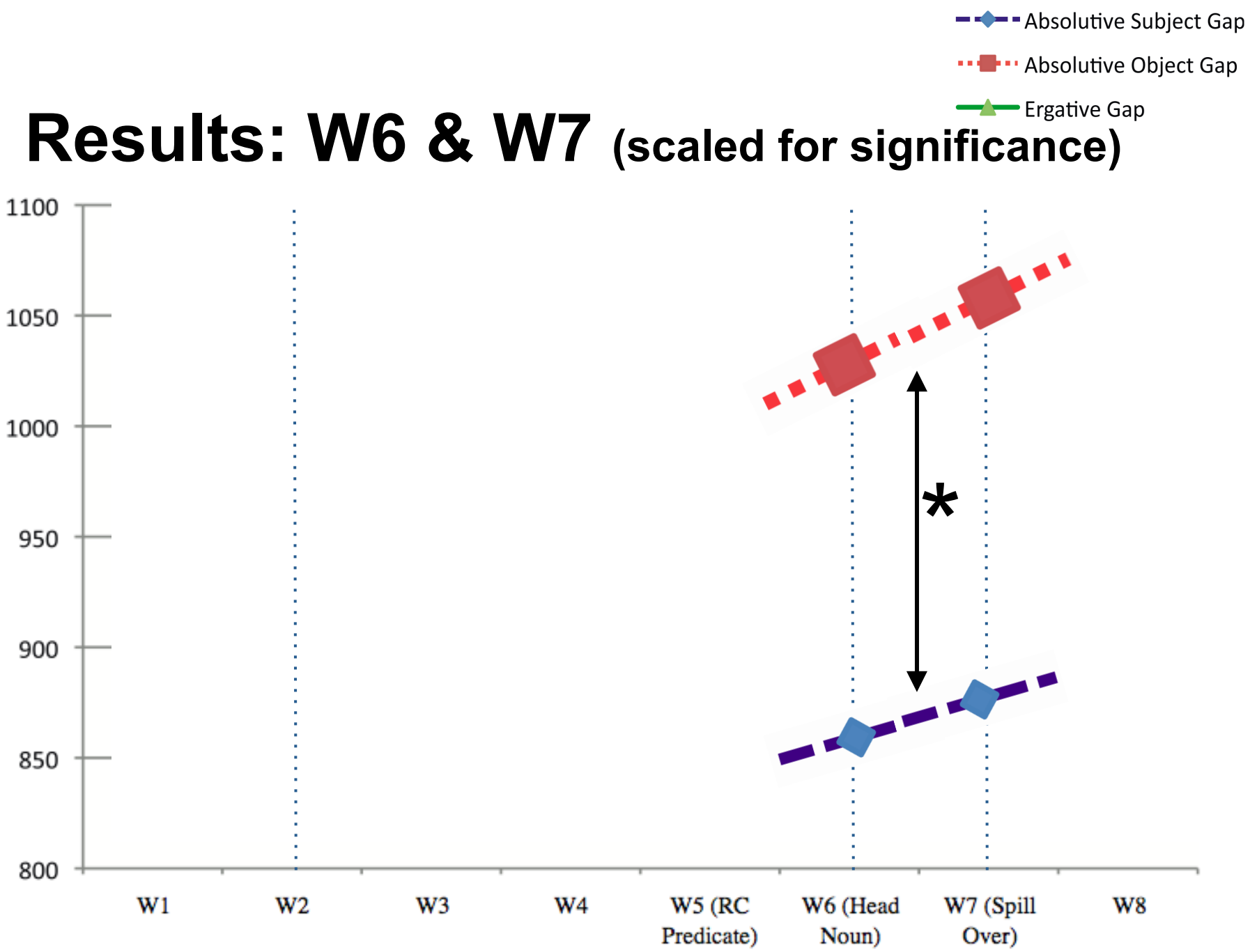
Results: W6 & W7 (scaled for significance)



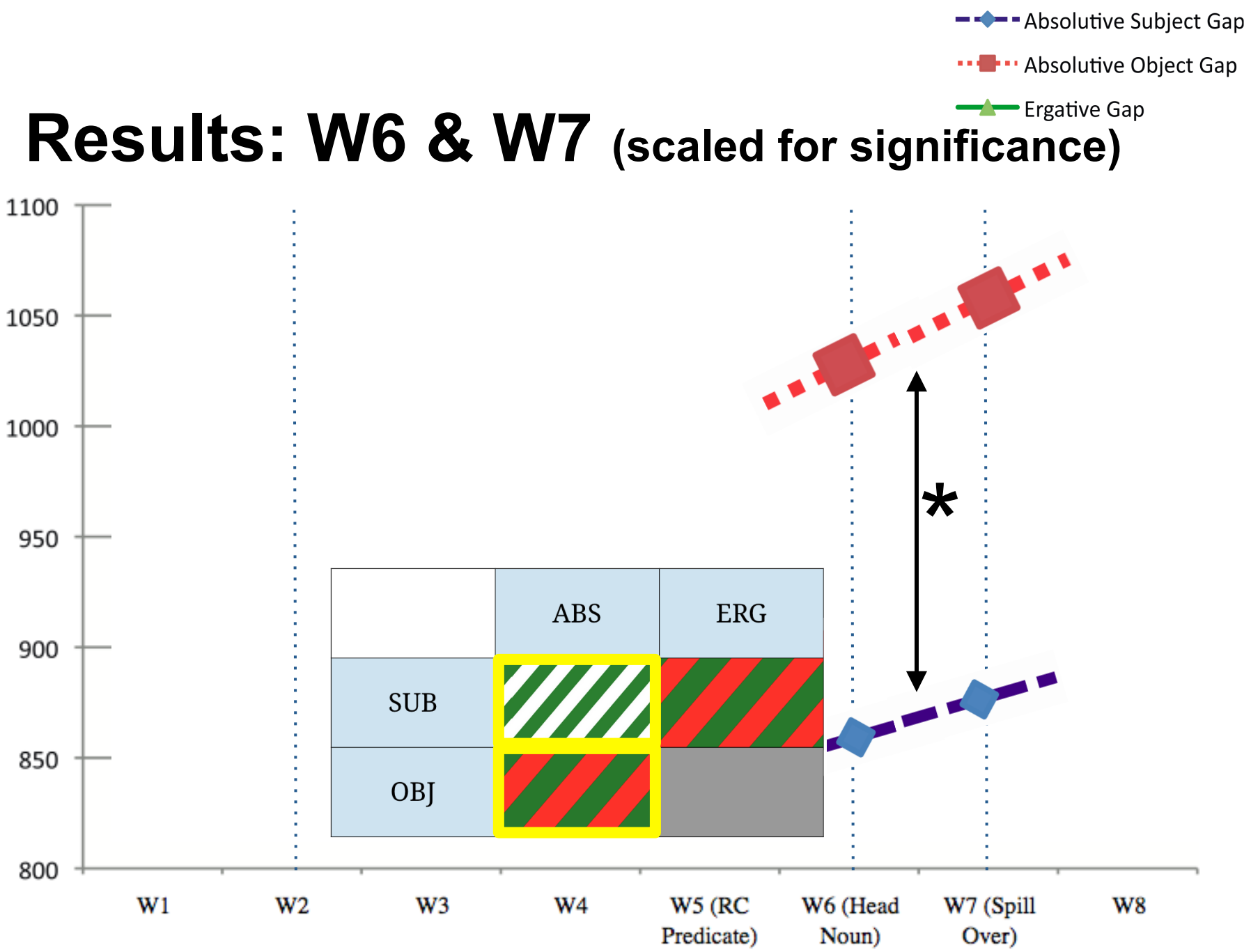
Results: W6 & W7 (scaled for significance)



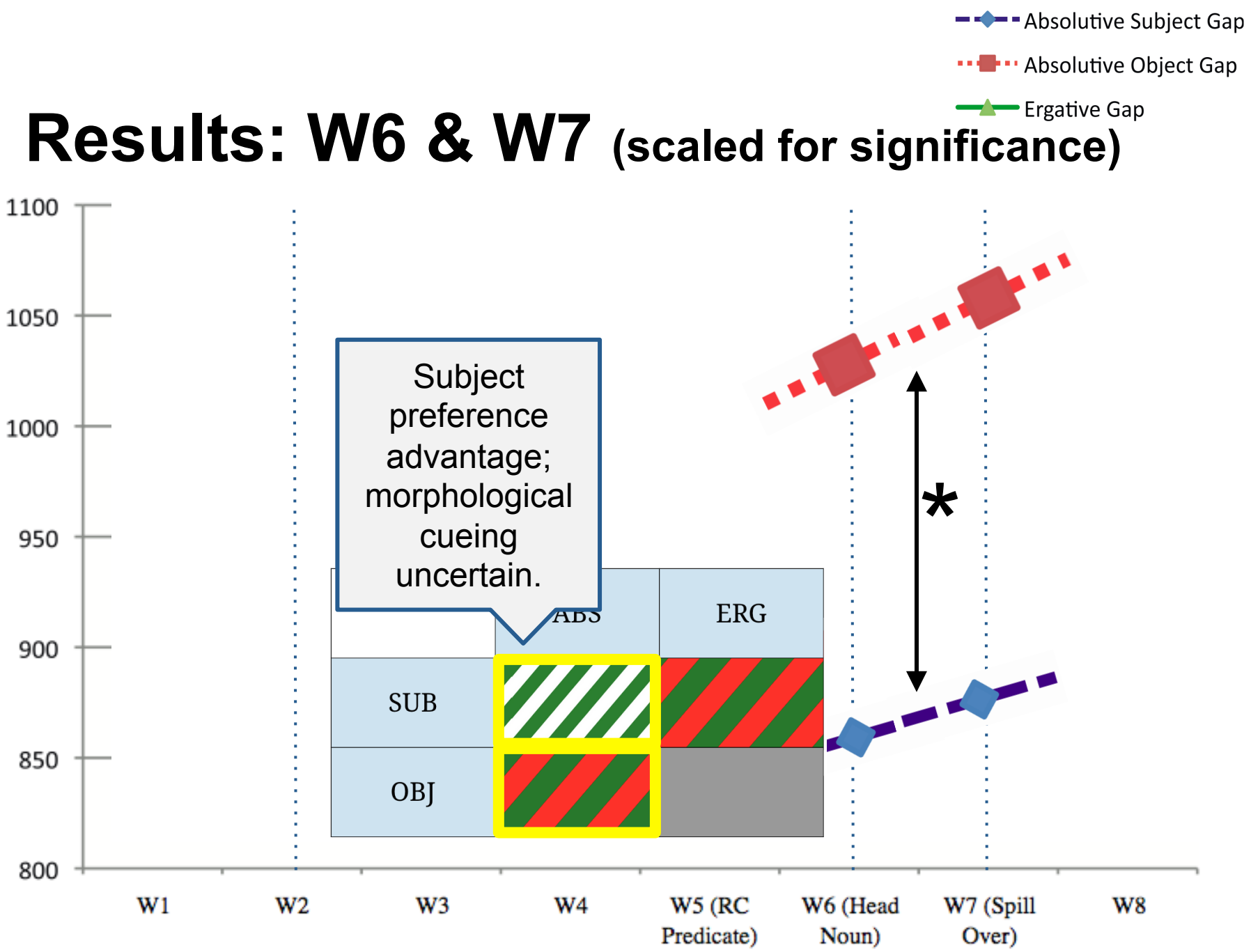
Results: W6 & W7 (scaled for significance)



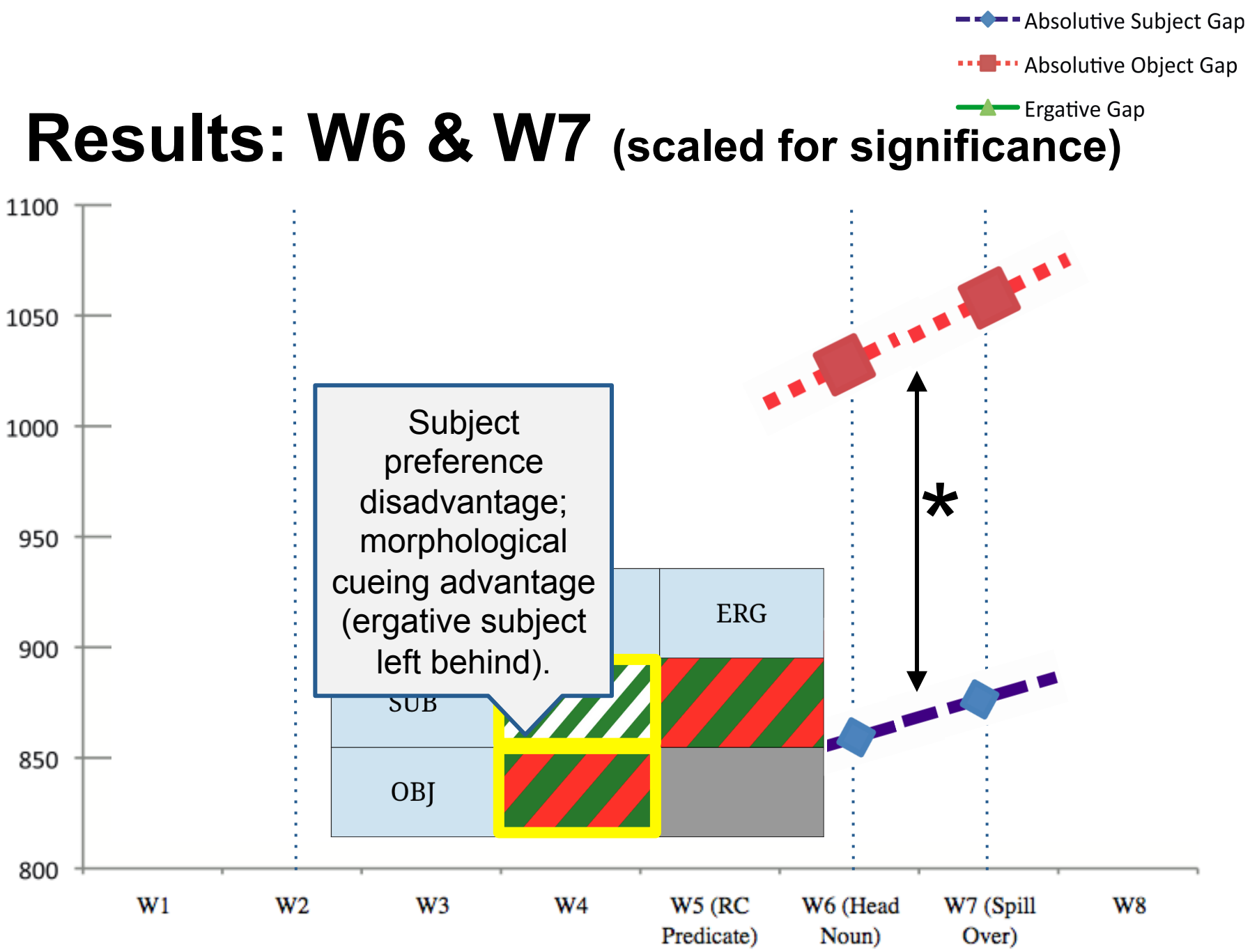
Results: W6 & W7 (scaled for significance)



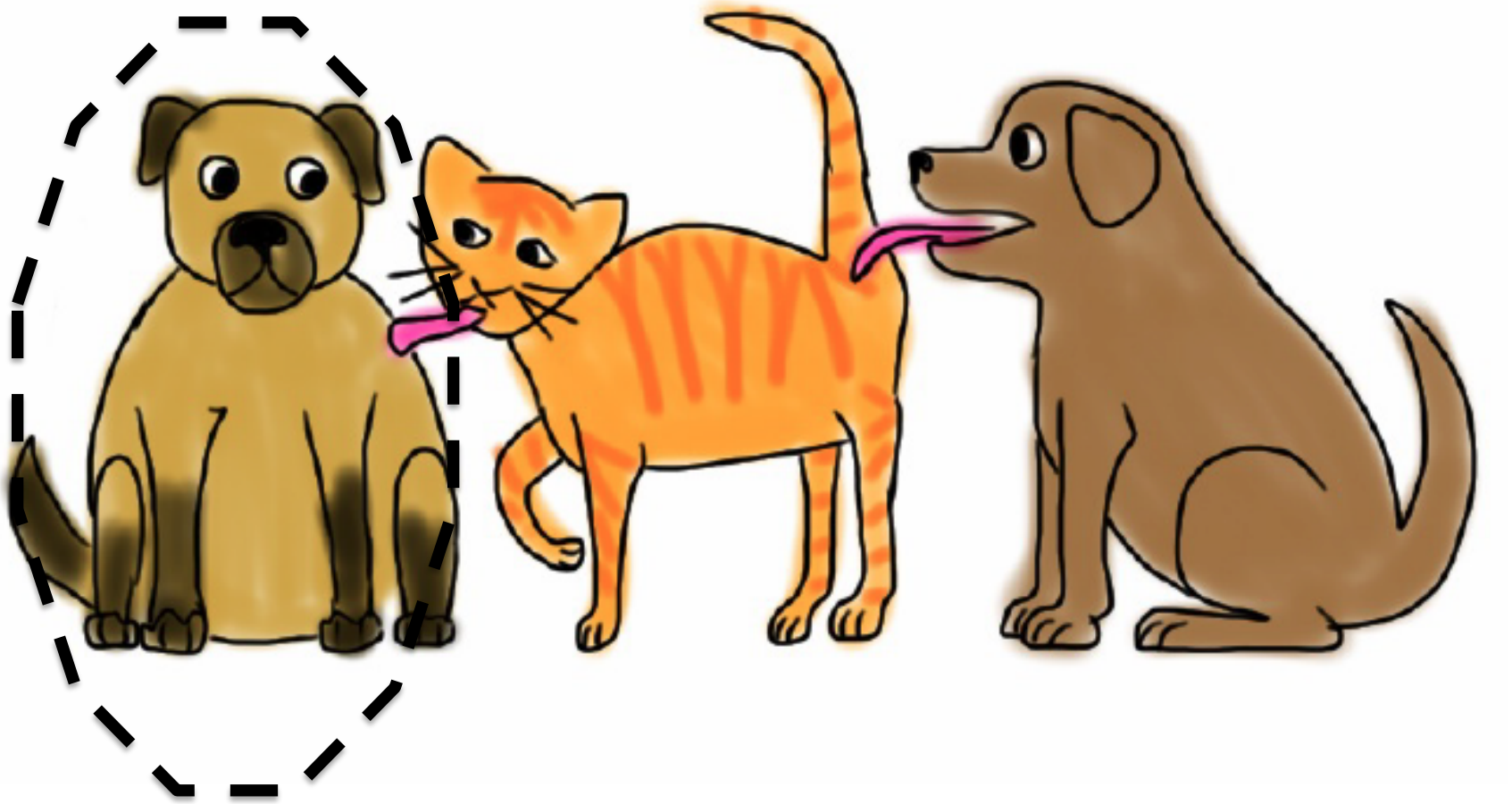
Results: W6 & W7 (scaled for significance)



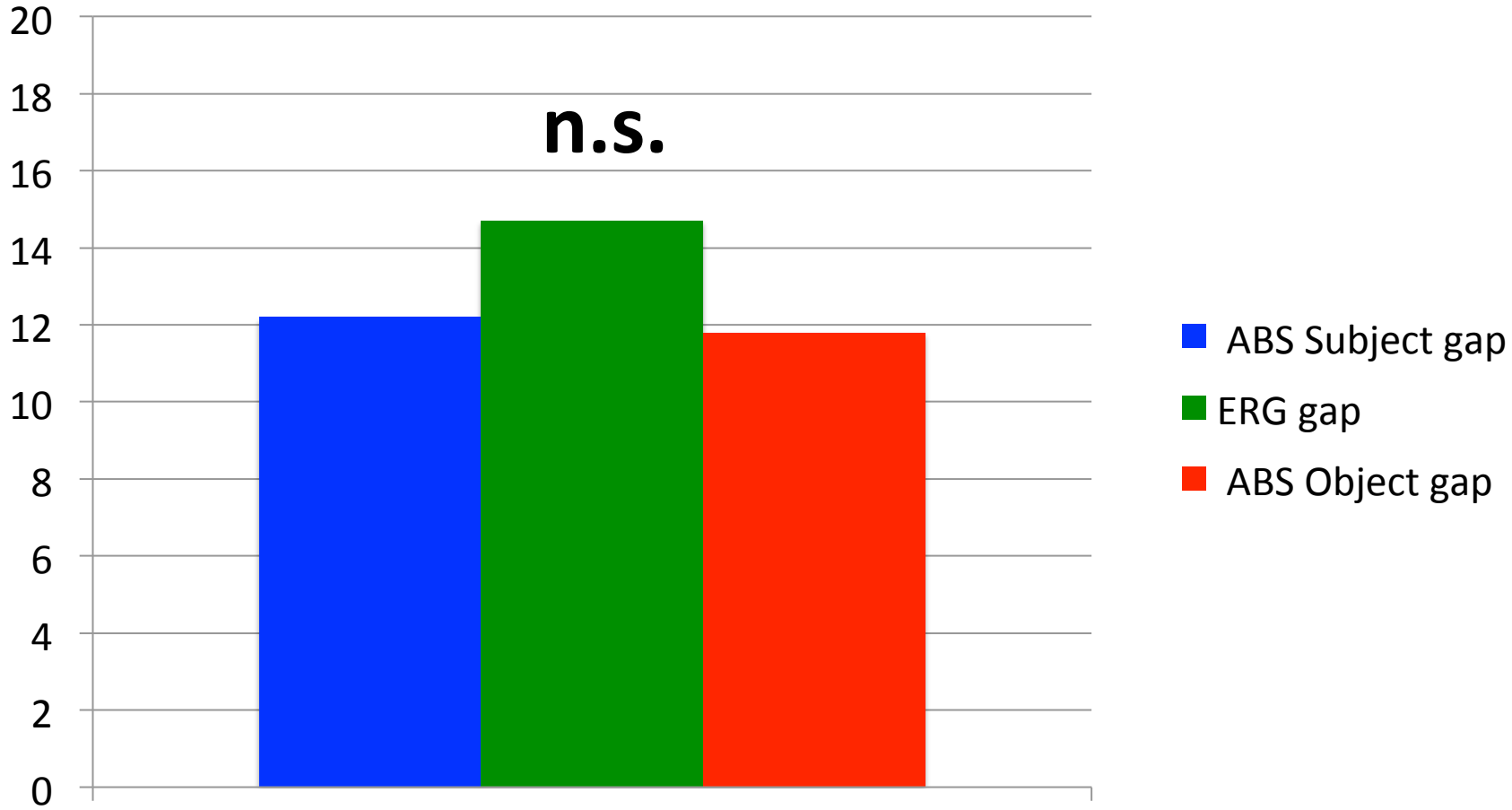
Results: W6 & W7 (scaled for significance)



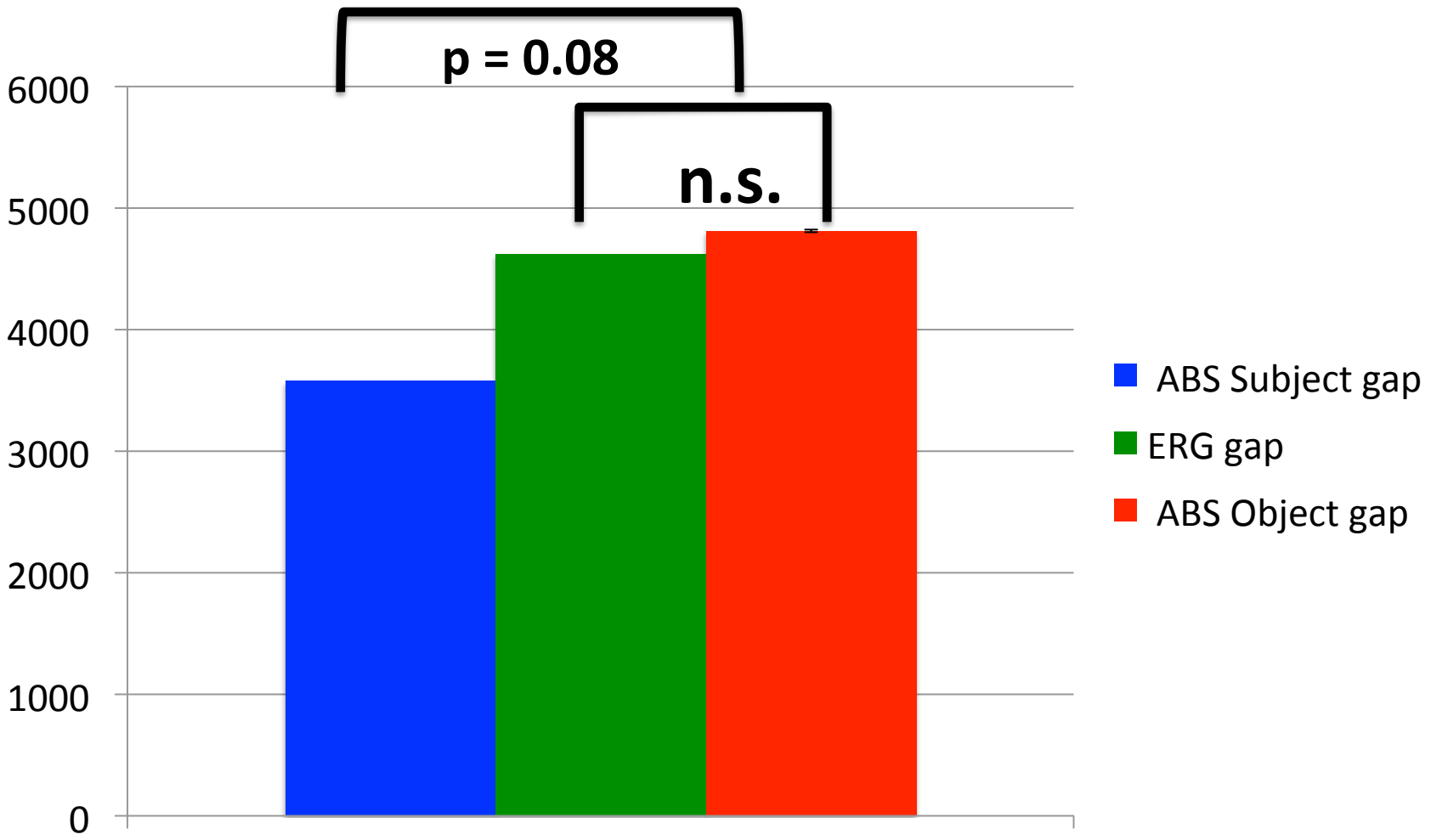
DIFFERENT METHODOLOGY: SPM



PICTURE-MATCHING: ERROR RATE IN HEAD NOUN CHOICE, %

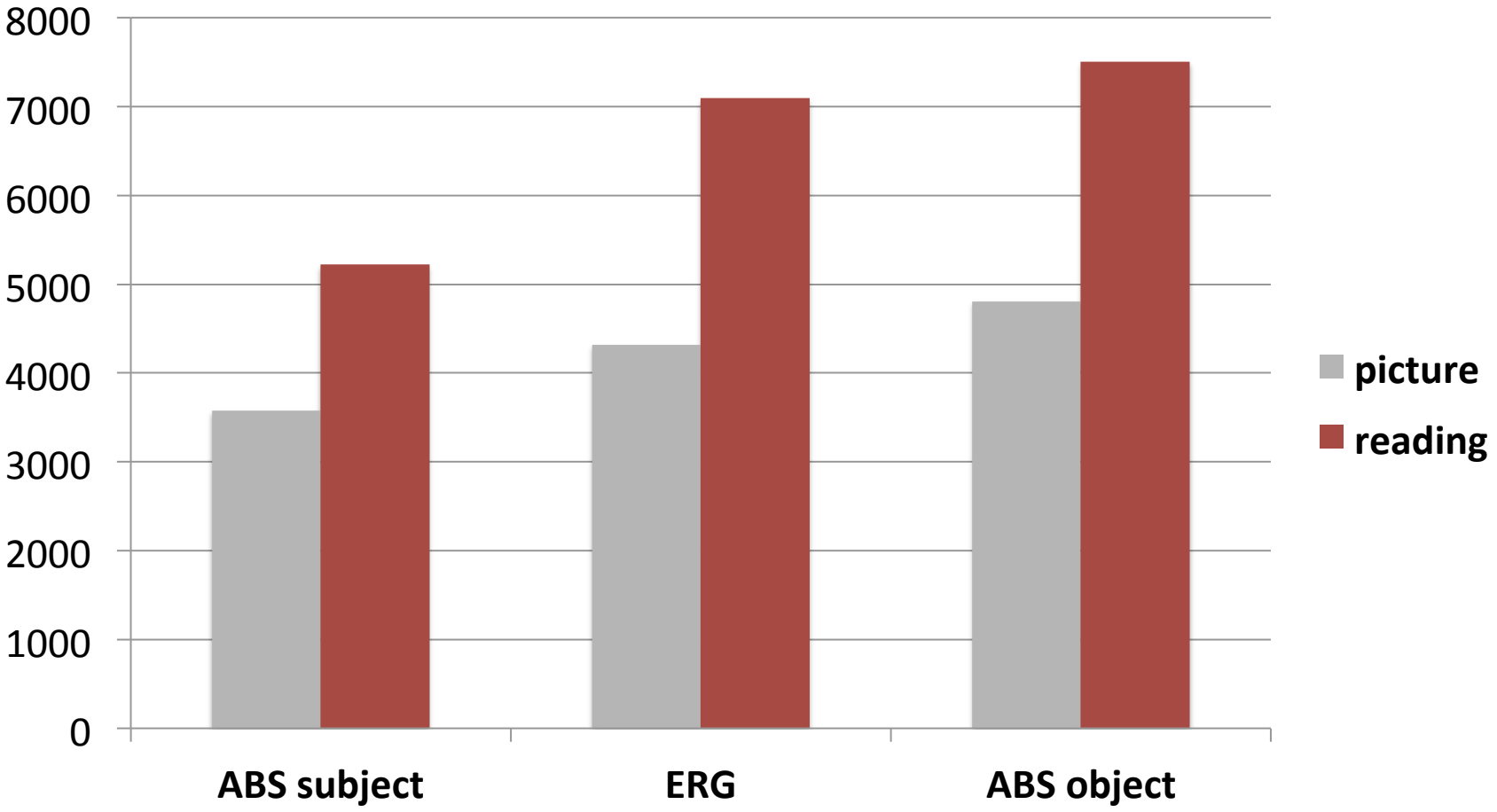


PICTURE-MATCHING: RESPONSE TIME ON CORRECT CHOICES



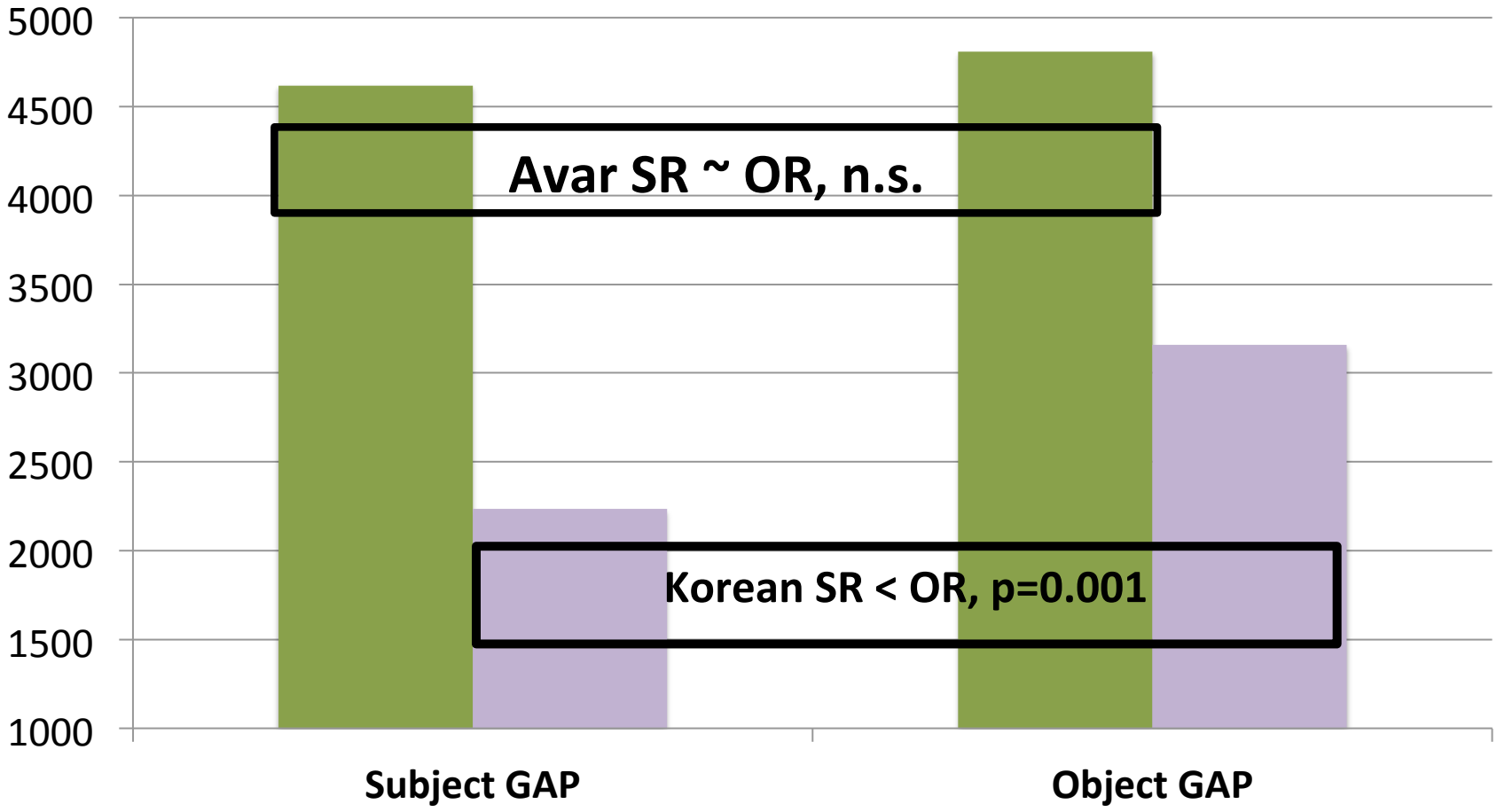
Picture-matching results, RT (ms) at picture selection, 48 subjects

READING AND PICTURE-MATCHING

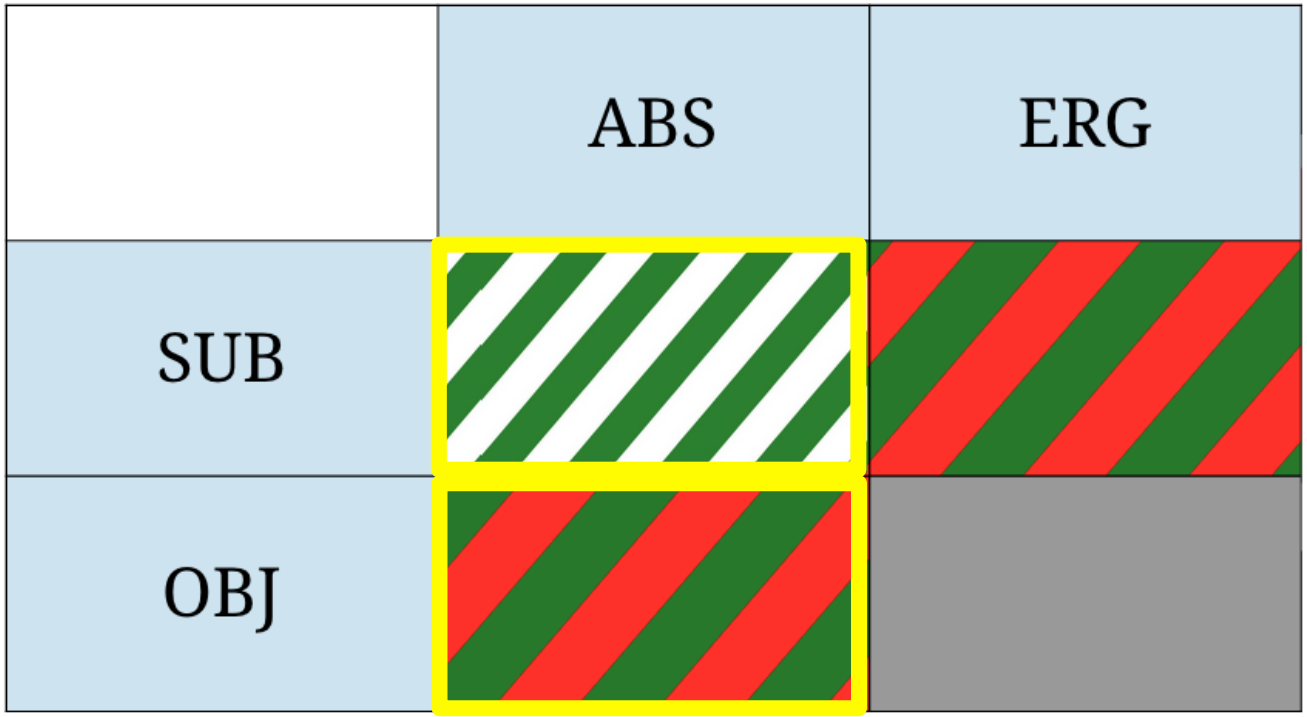


Reading sums over W1-7

PICTURE-MATCHING: AVAR VS. KOREAN

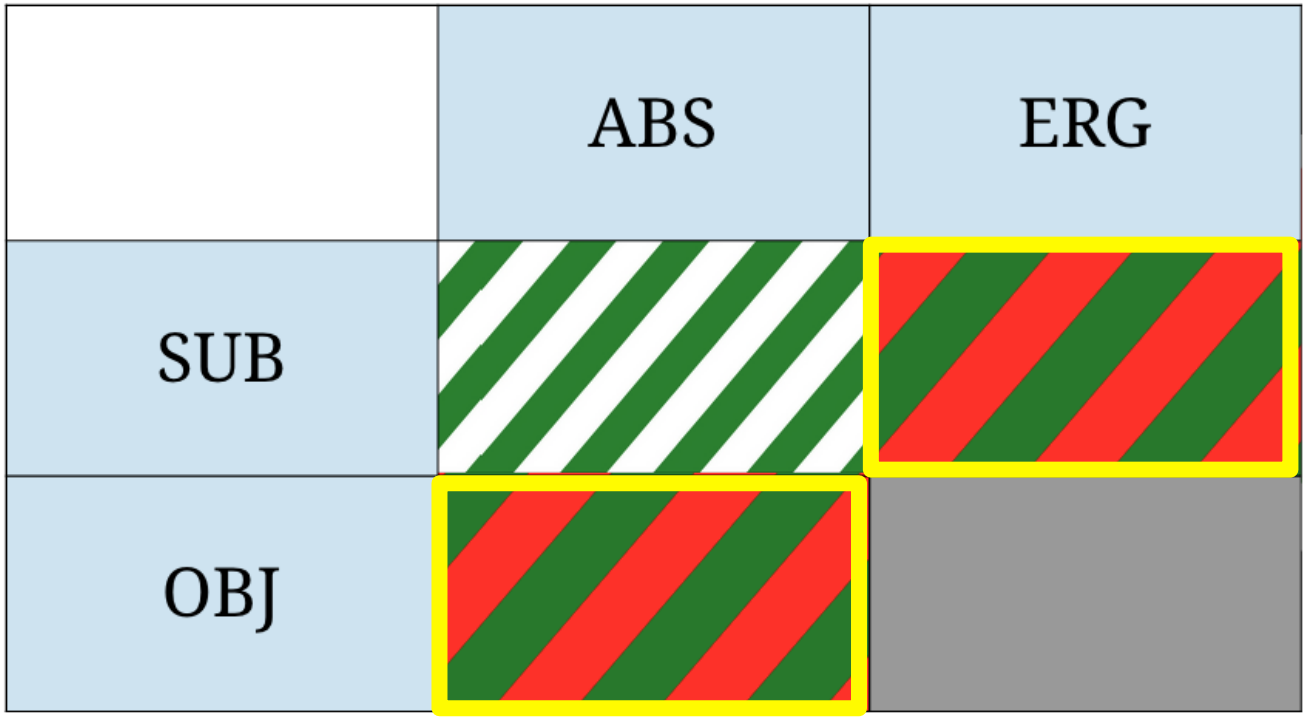


INTERPRETATION



Significant difference → the **subject preference** is real, but only within ABS

INTERPRETATION



No significant difference ⟶ **grammatical function** & **morphological cueing** "cancel each other out"

BACK TO OUR STARTING POINT

- Ergative subjects in Avar are not more difficult to process than absolutive objects
- … but they are not easier either!
- the processing explanation for syntactic ergativity is hard to maintain

WHAT THIS MEANS OUTSIDE ERGATIVE LGS

- Subject preference in nominative-accusative languages is a cumulative effect of morphological cueing and structural position
- Genuine subject preference in in nominative-accusative languages is to be sought in ambiguous relative clauses where surface cues are absent or suppressed
- Stay tuned…

Beyond Avar

- Avar is head-final, and its relative clause looks participial
- What about head-initial languages with a genuine relative clause?

Beyond Avar

- Avar is head-final, and its relative clause looks participial
- What about head-initial languages with a genuine relative clause?
- Needed: a head-initial morphologically ergative language without syntactic ergativity

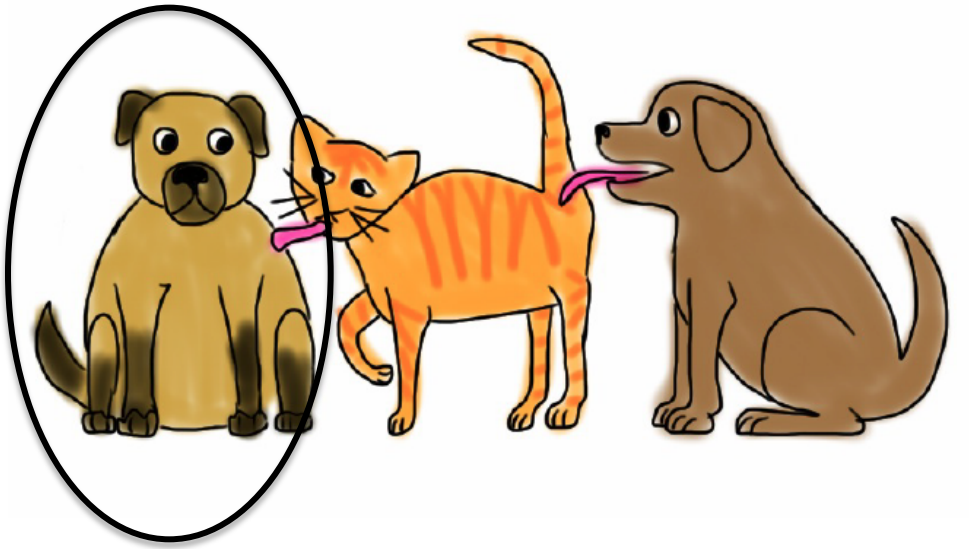
PROCESSING STUDY: NIUEAN

WHERE IS NIUEAN?

Niuean vs Avar

	Niuean	Avar
Word order	VSO	SOV
Headedness	Strictly head-initial	Non-rigidly head-final
Morphological ergativity	Yes	Yes
Syntactic ergativity	No	No
Relativization with a gap	Subject, object	All constituents
Agreement	None	Gender/number agreement with ABS
Reading tradition?	Only the Bible	Kind of…

NIUEAN SENTENCE-PICTURE MATCHING

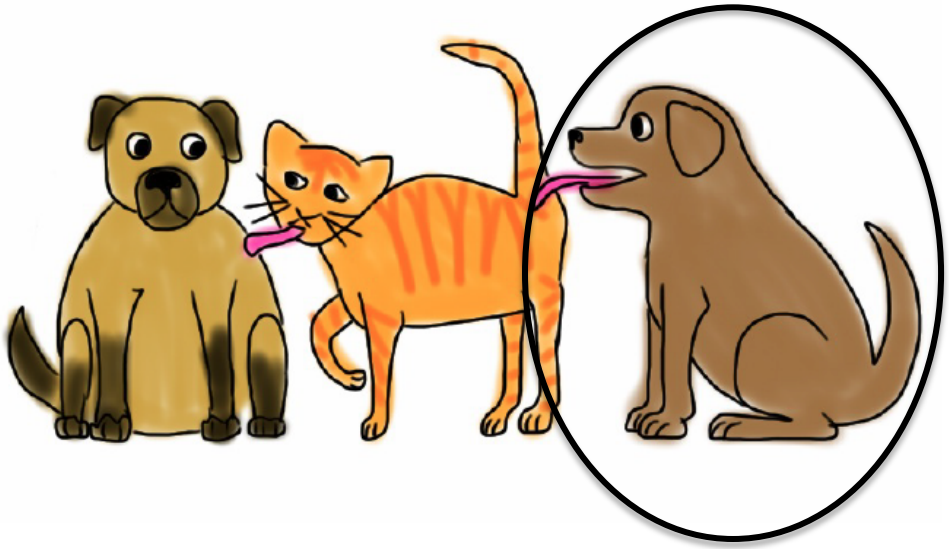


Ko fe	e	kulī$_i$	[ne	epoepo	he	puti ___$_i$?
where	ABS	dog	DEP.TENSE	lick	ERG	cat

ABS obj gap

'Where is the dog that the cat is licking?'

NIUEAN SENTENCE-PICTURE MATCHING

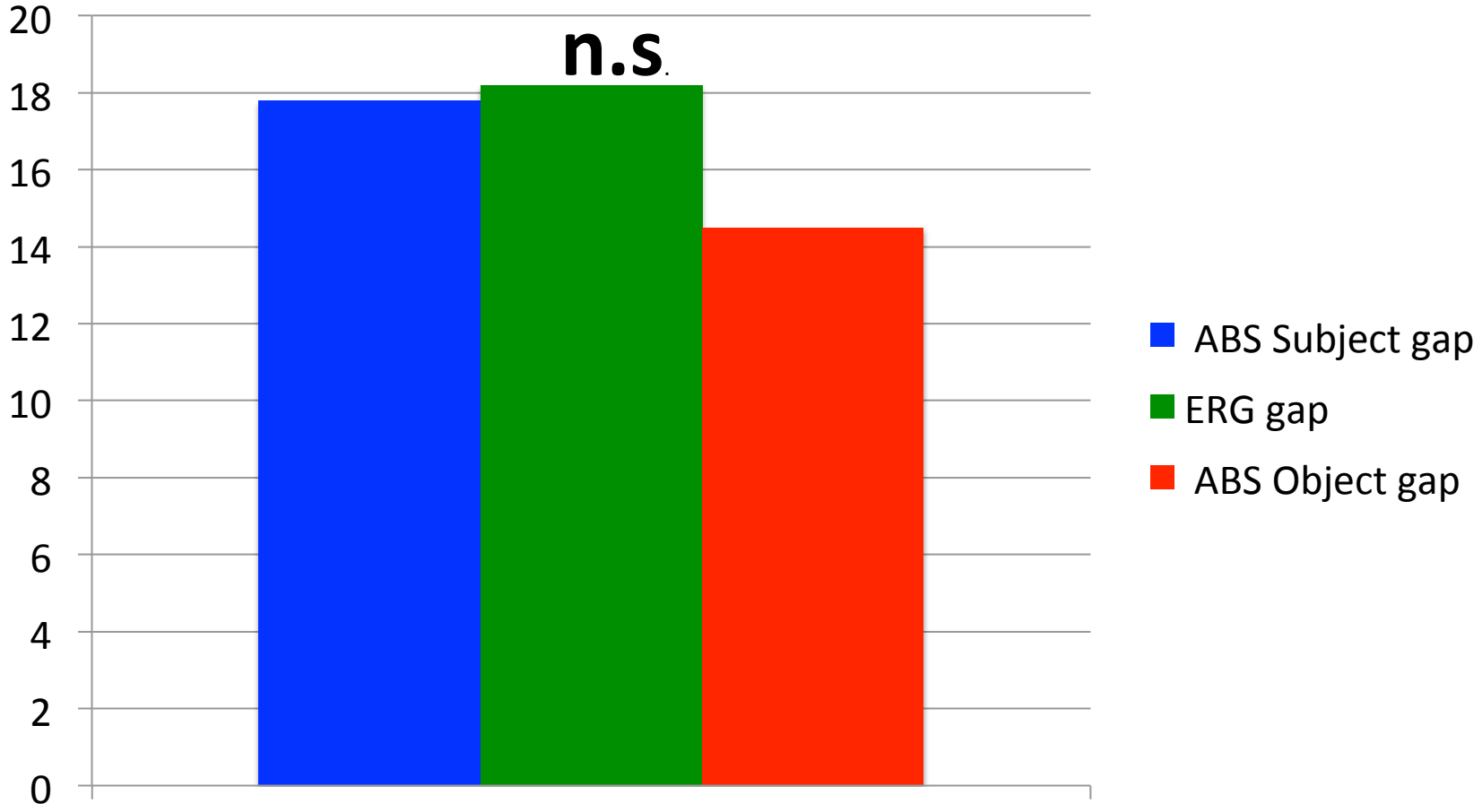


Ko fe	e	kulī$_i$	[ne	epoepo	___$_i$	e	puti?
where	ABS	dog	DEP.TENSE	lick		ABS	cat

ERG gap

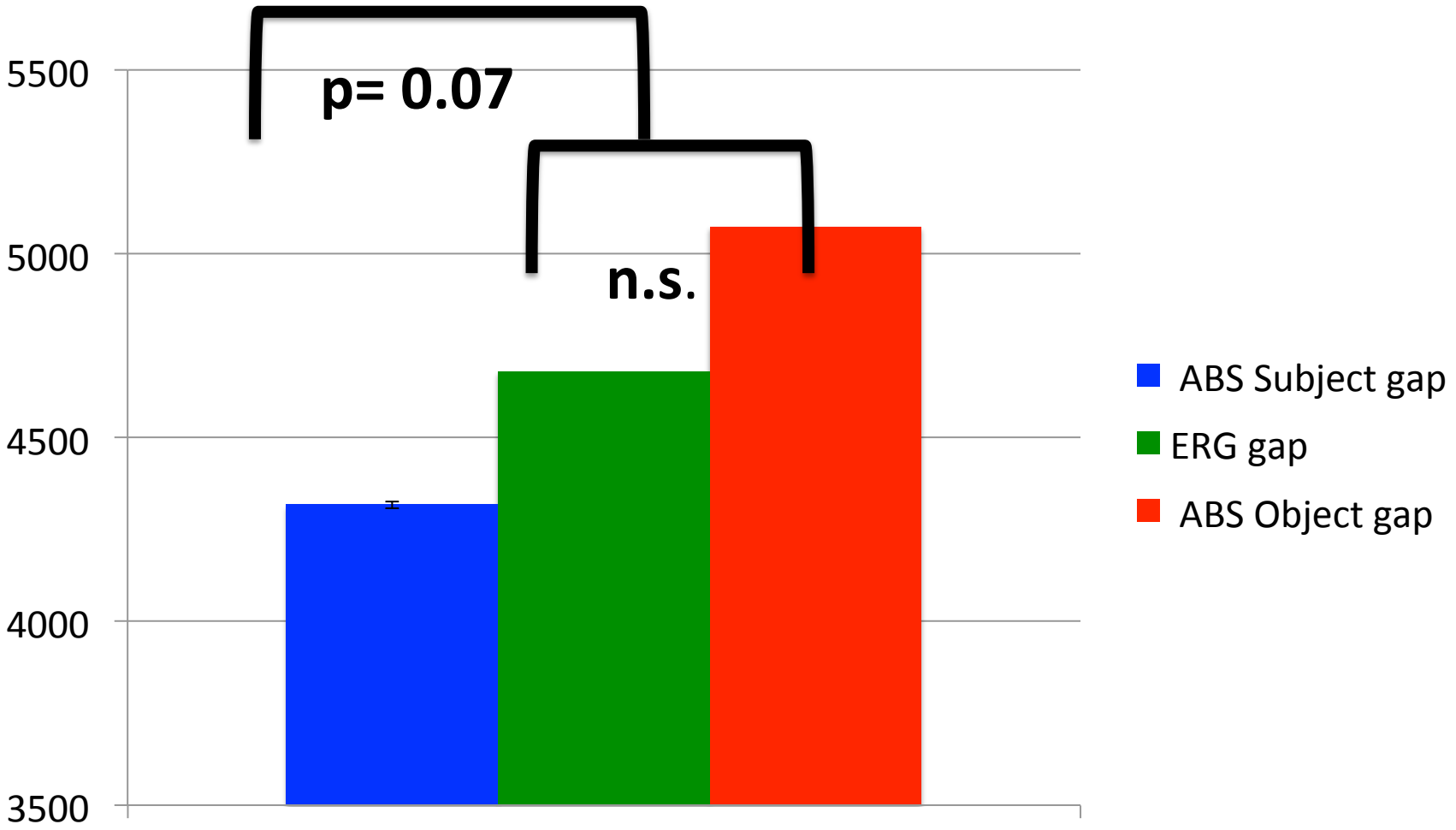
'Where is the dog that is licking the cat?'

PICTURE-MATCHING: ERROR RATE IN HEAD NOUN CHOICE, %



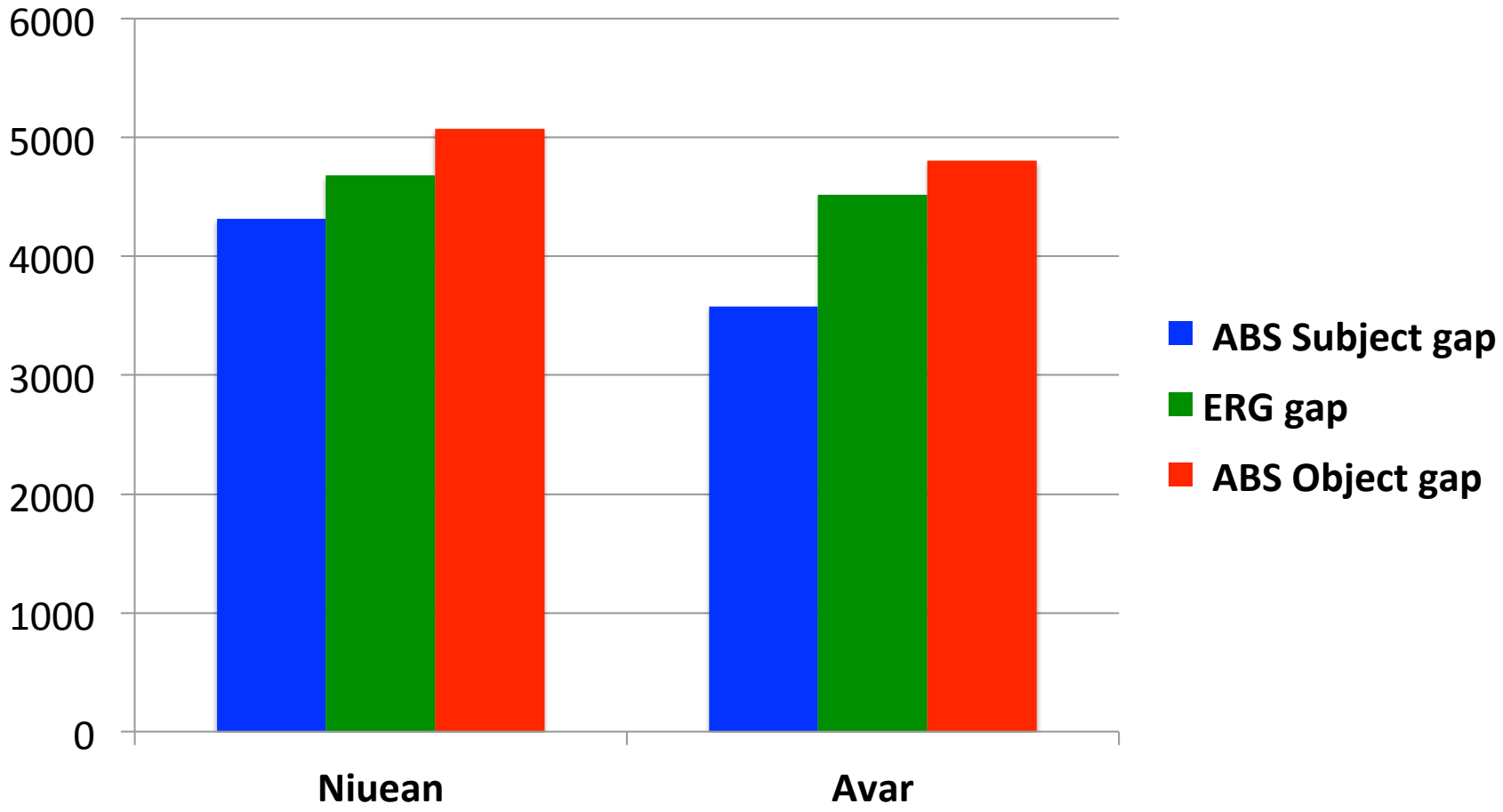
The mean RT for questions gotten wrong was not significantly different than question gotten correct (p=0.8556)

PICTURE-MATCHING: RESPONSE TIME ON CORRECT CHOICES



Picture-matching results, RT (ms) at picture selection, 47 subjects (Longenbaugh & Polinsky 2015; 2016)

NIUEAN = AVAR


6000
5000
4000
3000
2000
1000
0
Niuean
Avar
ABS Subject gap
ERG gap
ABS Object gap

WHAT THIS MEANS FOR ERGATIVE LGS

- Languages without syntactic ergativity do not show difficulty in the extraction of the ergative DP as compared to the absolutive object
- Therefore, we cannot make an argument that ergative gaps are inherently difficult
- Syntactic ergativity does not follow from a processing constraint

WHAT THIS MEANS OUTSIDE ERGATIVE LGS

- Subject preference in nominative-accusative languages may be due to a cumulative effect of morphological cueing and structural position
- Genuine subject preference in in nominative-accusative languages is to be sought in ambiguous relative clauses where surface cues are absent or suppressed

IS THERE A CLEAN SUBJECT PREFERENCE IN RELATIVIZATION?

AMBIGUITIES

- German feminine and neuter nouns

die Spionin, [*die* *die Komissarin*

the spy.FEM $REL_{NOM/ACC}$ [the superintendent.FEM]$_{NOM/ACC}$

verfolgt hat]

chased has

(i) ‘the spy who has chased the superintendent’

(ii) ‘the spy whom the superintendent has chased’

(Bader & Meng 1999; Schwarz 2007)

AMBIGUITIES

- Russian inanimates (masc and neuter)

  akvarium, [*kotoryj* *zagoraživaet* *jaščik*]

  fishtank which.$\text{MASC}_{\text{NOM/ACC}}$ blocks $\text{box}_{\text{NOM/ACC}}$

  (i) 'the fishtank that blocks the box'

  (ii) 'the fishtank that the box blocks'

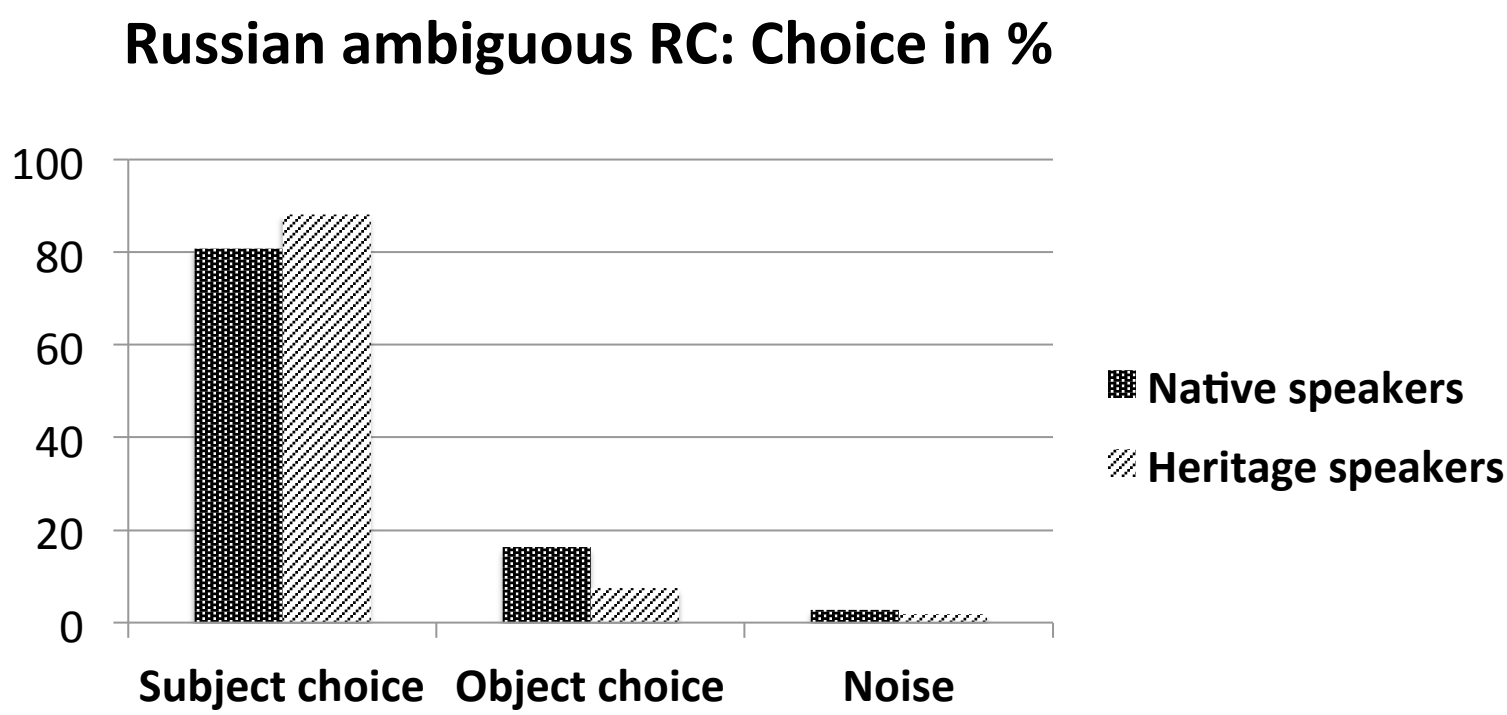
(Polinsky 2011; Clemens et al. 2015)

AMBIGUITIES

- In ambiguous extractions, both German and Russian show a strong subject preference (about 80%, depending on a particular study)
- Even in the presence of context cues favoring the object, German speakers show subject preference, contrary to pragmatics (Schwarz 2007)

AMBIGUITIES

In ambiguous extractions, both German and Russian show a strong subject preference



MAYAN LANGUAGES

MAYAN ERGATIVITY

- Mayan languages are exclusively head-marking and thus express ergativity via agreement
- Some Mayan languages are syntactically ergative (e.g., Q'anjob'al), some are not (e.g., Ch'ol); all have pockets of RC ambiguities

	Avar	Niuean	Ch'ol
Morphological but not syntactic ergativity	Yes	Yes	Yes
Headedness	SOV	VSO	VOS
Ergativity expressed vis	Case	Case	Agreem't

CH'OL

SUBJECT RELATIVE – CH'OL

Ta' jul-i jiñi x'ixik$_i$ [ta'-bä y-il-ä-yety __$_i$]
PRFV arrive-ITV DET woman PRFV-REL 3.ERG-see-TV-2.ABS
'The woman who saw you arrived.'

OBJECT RELATIVE – CH'OL

Ta' jul-i jiñi x'ixik$_i$ [ta'-bä aw-il-ä __$_i$]
PRFV arrive-ITV DET woman PRFV-REL 2.ERG-see-TV
'The woman who you saw arrived.'

CH'OL

AMBIGUOUS STRING – CH'OL

Ta' juli jiñi x'ixik ta'bä itsäk'ä jiñi wiñik.

SR: 'The woman who cured the man arrived' *or*

OR: 'The woman who the man cured arrived.'

SUBJECT RELATIVE – CH'OL

Ta'	jul-i	jiñi	x'ixik$_i$	[ta'-bä	i-tsäk'-ä	jiñi	wiñik	__$_i$]
PRFV	arrive-ITV	DET	woman	PRFV-REL	3.ERG-cure-TV	DET	man	

'The woman who cured the man arrived.'

OBJECT RELATIVE – CH'OL

Ta'	jul-i	jiñi	x'ixik$_i$	[ta'-bä	i-tsäk'-ä	__$_i$	jiñi	wiñik.]
PRFV	arrive-ITV	DET	woman	PRFV-REL	3.ERG-cure-TV		DET	man

'The woman who the man cured arrived.'

MAYAN EXPERIMENTS: SPM

(Clemens et al. 2015)

CH'OL RESULTS IN A NUTSHELL

- Unambiguous RCs: Significantly faster response time on **ergative gaps** as compared to **absolutive object gaps**
  - 1377 ms (subject gap)/1513 (object gap), p <.0001

- Ambiguous RCs: Strong preference for subject interpretation
  - 74% subject gap, 15% object gap, 11% noise

(100 subjects; see Clemens et al. 2015 for details and for similar results for Q'anjob'al)

INTERPRETATION

- **Case, but not agreement**, interferes with syntactic function under processing

- Ergative languages that express alignment through case have a different processing profile than ergative languages that express alignment via agreement

CONCLUSIONS

CONCLUSIONS: OUTLINE

- Ergativity
- Subject preference and the Case Trap
- Psychological reality of subjects

CONCLUSIONS: ERGATIVITY

- **Back to where we started:** The majority of morphologically ergative languages also manifest syntactic ergativity
  - ABS can undergo A-bar movement leaving a gap at the extraction site, but ERG cannot
  - The split can happen even in closely related languages (Mayan, Polynesian)

CONCLUSIONS: ERGATIVITY

- **Back to where we started:** The majority of morphologically ergative languages also manifest syntactic ergativity
  - ABS can undergo A-bar movement leaving a gap at the extraction site, but ERG cannot
  - The split can happen even in closely related languages (Mayan, Polynesian)
- Syntactic ergativity is puzzling because ERG is subject, so ERG gaps should be favored

CONCLUSIONS: ERGATIVITY

- **Processing hypothesis**: Syntactic ergativity follows from processing constraints, which may be gradient (soft) in some languages and categorical (strong) in others
- Experimental data from Avar, Niuean, and Mayan indicate that the processing account of syntactic ergativity is untenable

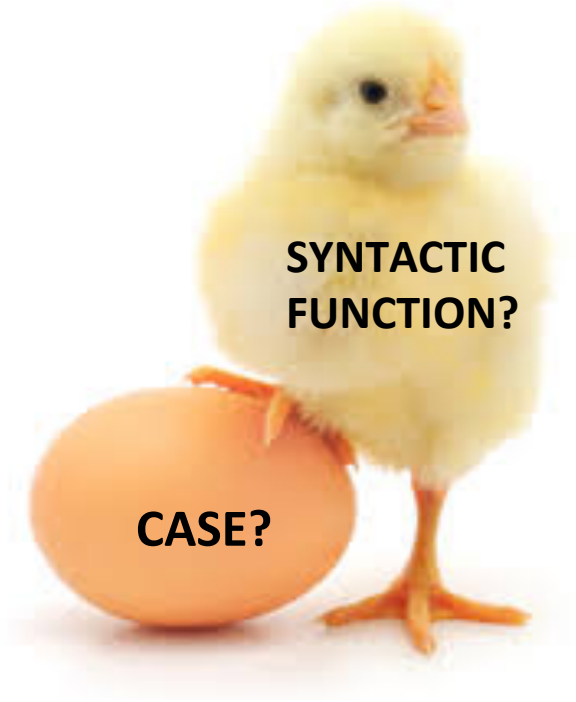
BEYOND TODAY'S TALK

- Assuming that the processing hypothesis does not work, we need a syntactic account of syntactic ergativity
- What is the right explanation behind syntactic ergativity?

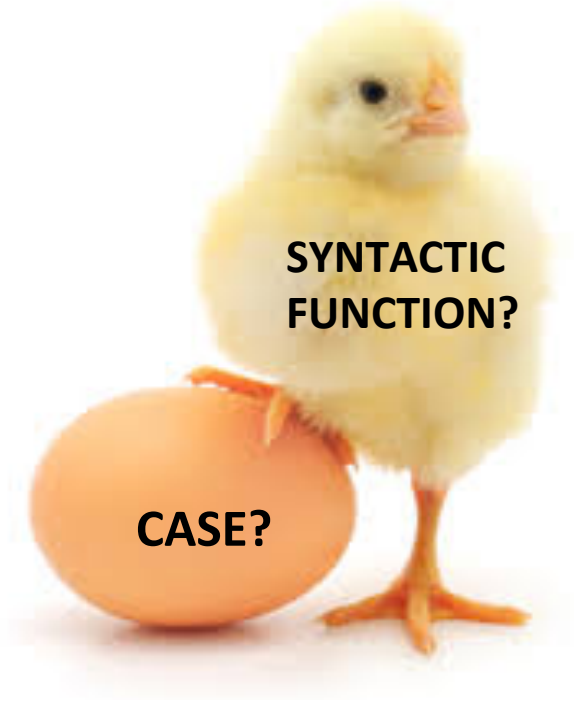
CONCLUSIONS: SUBJECT PREFERENCE

- Case cues may interfere with subject preference, either enhancing it (as in nominative-accusative languages), or obscuring it (as in ergative languages)
- Most reliable instances of subject preference are observed in ambiguous strings where case cues are absent

CONCLUSIONS: CASE TRAP



CONCLUSIONS: CASE TRAP



CONCLUSIONS: PSYCHOLOGICAL REALITY OF GRAMMATICAL FUNCTIONS

Ergative languages allow us to dissociate the effect of grammatical function and surface case

Gain for theoretical linguists: testing the psychological reality of grammatical functions

CONCLUSIONS: PSYCHOLOGICAL REALITY OF GRAMMATICAL FUNCTIONS

- All the results show a strong difference between transitive subjects (ERG) and intransitive subjects (ABS)
- No evidence for a single category "subject"
- What matters is the competition of two arguments (subject and object)
- Experimental support for the configurational theory of case/GFs (Marantz 2000; Baker 2015; Levin & Preminger 2015)

ACKNOWLEDGMENTS

- *Avar*: Yakov Testelets, Gadzhi Mamedov, Magomed Magomedov, Murad Ziralov
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- *Funding:* Max-Planck Institute, NSF, Davis Center at Harvard, DRCLAS at Harvard, UMD CASL

THANK YOU!

BARKALA!

FAKAAUE LAHI!

WOKÖX AWALÄ!

YUJ WAL DIOS!

DANKE SCHÖN!

EXTRAS

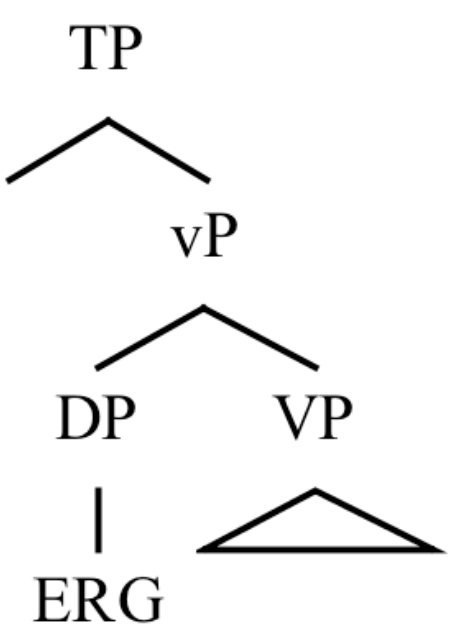
ALTERNATIVE: A SYNTACTIC ACCOUNT

MAIN PROPOSAL

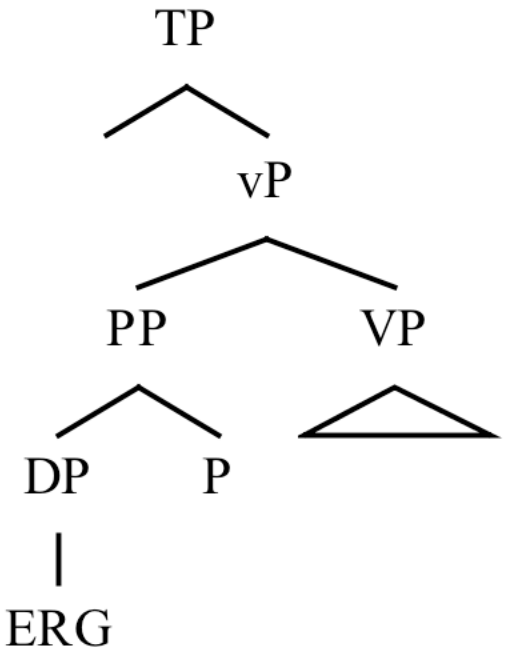
- Syntactic ergativity follows from the status of the ergative as a PP, not DP
  - Some languages have PP-ergatives, others, DP-ergatives
- The PP status of the ergative is associated with a cluster of structural properties which together form a macro-parameter

TWO ERGATIVES

- Parametric variation in ergative case assignment:



OR



Prepositional phrases and A-bar movement

- A PP is a syntactic island for movement
  - DP cannot escape from the island
  - Possible solution: Move the entire PP
- The entire PP cannot move if
  - Movement operator is null (as in relativization), cf. den Dikken (1995)
  - The P head is silent

Prepositional phrases and A-bar movement

- The entire PP cannot move if
  - Movement operator is null (as in relativization), cf. den Dikken (1995)
  - The P head is silent (also prevents stranding)

- Syntactic ergativity arises when the P head is null and A-bar movement involves a null Op

PRECEDENTS FOR PP-SPECIFIERS

- Japanese *ni*-passive (Fukuda 2009, 2013)
- English passives (Goodall 1997)
- Prepositional experiencer subjects (Landau 2010)

PP vs. DP: General contrasts

	PP	DP
Can extract (A-bar move) leaving a gap at the extraction site	No	Yes
Subextraction from XP is possible	No	Yes (unless independently constrained)
Can serve as pivot of cleft	No	Yes
Can determine agreement	Only if DP-agreement with all absolutives (subj and obj) is available	Yes
Can serve as binder of anaphors	No	Yes
Can host floating quantifiers	No	Yes
Is accessible to A-movement	No	Yes

COMPARING TWO LANGUAGES

- Tongan
  - Syntactic ergativity
  - Ergative shows PP properties
- Niuean
  - Morphological ergativity only
  - Ergative has all DP properties

Tongan vs Niuean

- Co-occurrence with a preposition
- Neither language has preposition stacking (**from about that corner*)
- Tongan ergative cannot co-occur with a preposition: **ki ‘e he ta’ahine* ‘with the girl’
- Niuean ergative can co-occur with a preposition: *ke he tama* ‘with the child’

TONGAN ERGATIVE

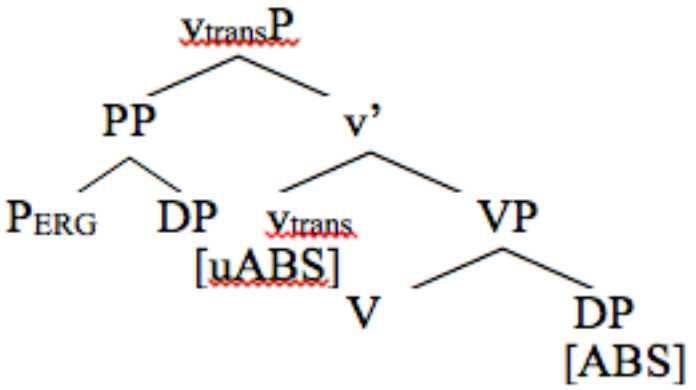
	PP
Can combine with a preposition	No
Can extract (A-bar move) leaving a gap at the extraction site	No
Can serve as pivot of cleft	No
Is accessible to A-movement	No
Can host floating quantifiers	No

NIUEAN ERGATIVE

	DP
Can combine with a preposition	Yes
Can extract (A-bar move) leaving a gap at the extraction site	Yes
Can serve as pivot of cleft	Yes
Is accessible to A-movement	Maybe
Can host floating quantifiers	Yes

GENERAL HYPOTHESIS

- Languages with syntactic ergativity have a prepositional ergative; the preposition makes it impossible for the ergative to extract



GENERAL HYPOTHESIS

- The presence of a prepositional phrase in the subject position is associated with a set of correlated properties, for example:
  - The ergative cannot serve as a binder of anaphors
  - There is no raising and control in the narrow (syntactic) sense
  - The ergative cannot be pivot of cleft
  - Agreement is with the absolutive, not ergative
  - Other properties: TBD