A HISTORICAL TYPOLOGY OF CONJUNCTION MEANINGS

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SEMANTICS OF CONJUNCTION ☆ Vienna, December 19, 2016

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INTRODUCTION

INTRODUCTION

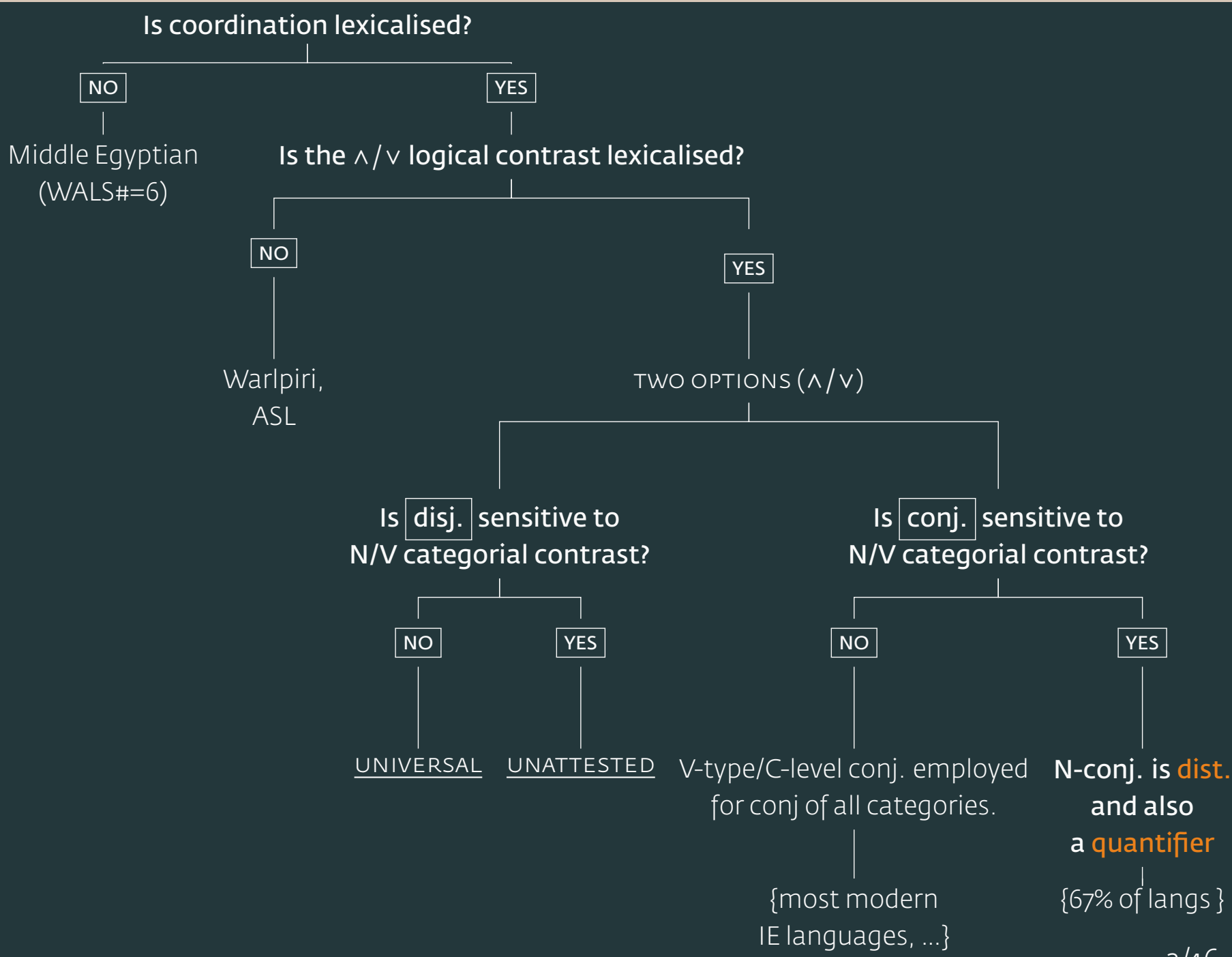
WHAT THIS TALK IS ABOUT ...

WHAT THIS TALK IS ABOUT, IN A NUTSHELL

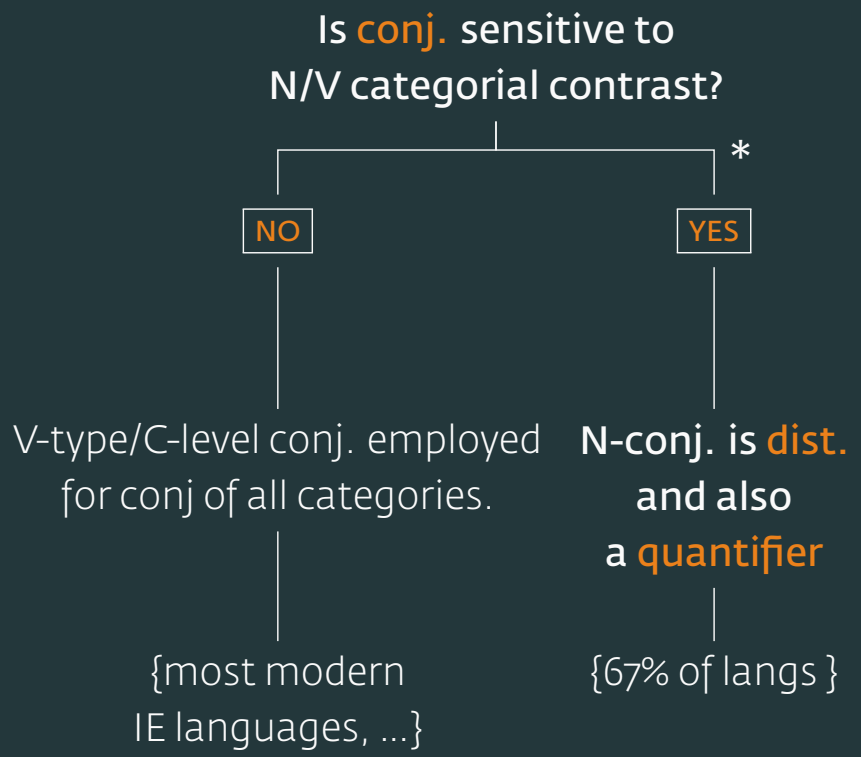
- This talk is about a **range of meanings** that conjunction markers express and the way this range **changes** through time.
- Empirically, we look at the range+changes in Indo-European and Japonic

INTRODUCTION

A TYPOLOGICAL SPACE FOR CONJUNCTION


Is coordination lexicalised?
NO
YES
Middle Egyptian (WALS#=6)
Is the ∧/∨ logical contrast lexicalised?
NO
YES
Warlpiri, ASL
TWO OPTIONS (∧/∨)
Is disj. sensitive to N/V categorial contrast?
Is conj. sensitive to N/V categorial contrast?
NO
YES
NO
YES
UNIVERSAL
UNATTESTED
V-type/C-level conj. employed for conj of all categories.
N-conj. is dist. and also a quantifier
{most modern IE languages, ...}
{67% of langs }

THE CONJUNCTION PARAMETER



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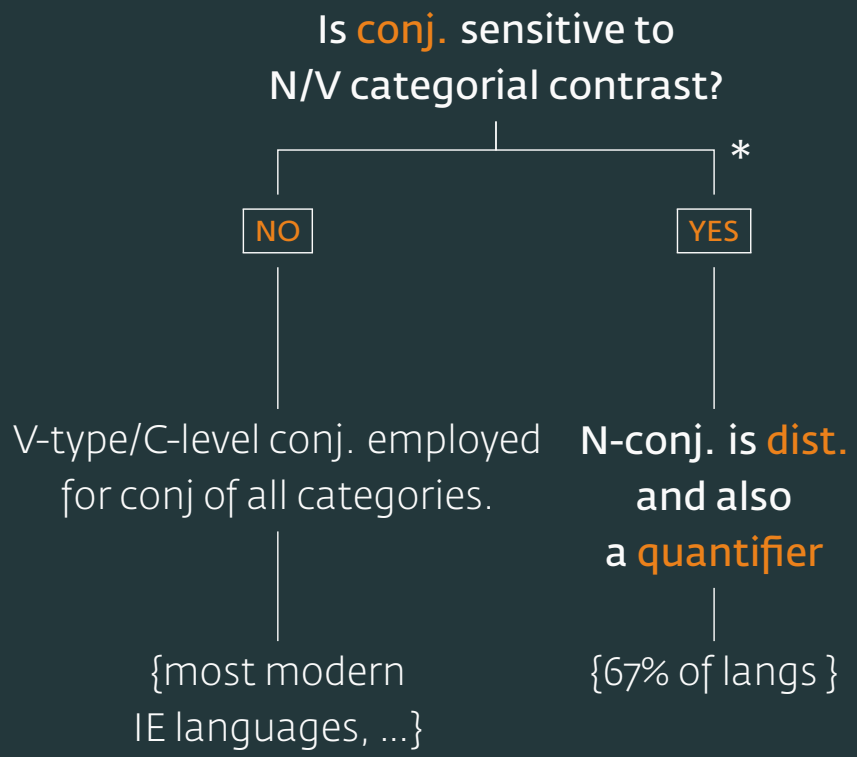

Diachronically

- YES ↦ NO (in IE)
- (NO) ↦ YES (in JP)

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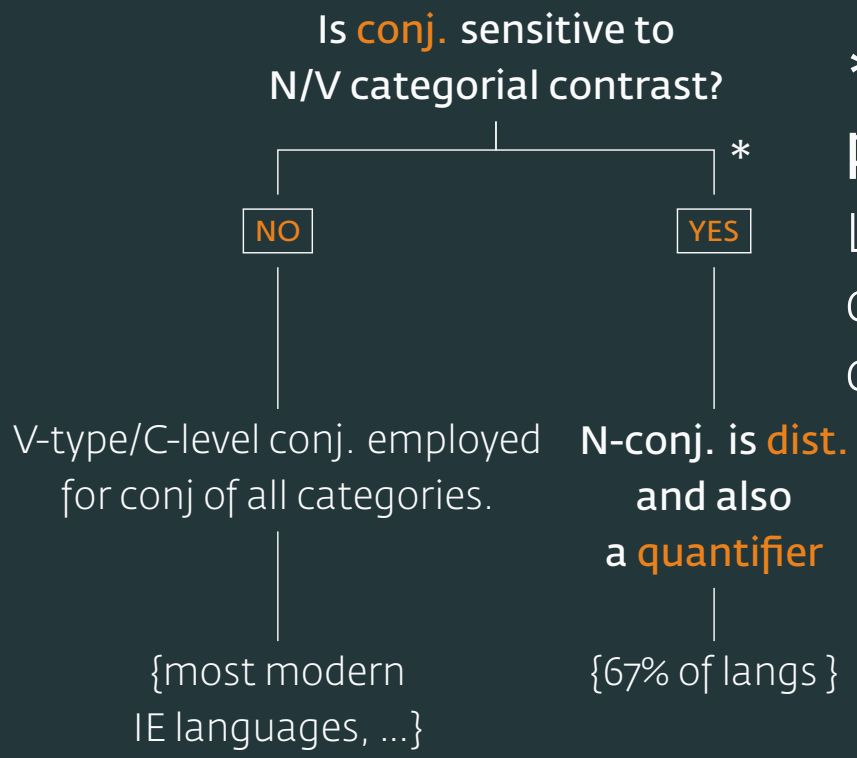

Diachronically

- YES ↦ NO (in IE)
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∗Another (independent) parameter

Left-/right-most exponence of conjunction marker in conjunction sequence (>2):

(1) English-type (allegedly univ.):
John, (∗**and**) Mary, **and** Bill ...

(2) Tibetan/Amharic-type (contra Kayne 1994):
John, (**and**) Mary, (∗**and**) Bill ...

WHAT THIS TALK IS ABOUT, IN A NUTSHELL

- This conjunction particle is cross-linguistically dubbed μ (terminologically, **quantifier particle** (Szabolcsi) or **Superparticle**)
- A sketch of these particles …

SUPERPARTICLES

SUPERPARTICLES

TWO LOGICAL ATOMS

SUPERPARTICLES: TWO LOGICAL CLASSES IN JAPANESE

The μ-series (*mo*)

The κ-series (*ka*)

SUPERPARTICLES: TWO LOGICAL CLASSES IN JAPANESE

The μ-series (*mo*)

a. ビル (も) メアリー も
Bill (mo) Mary mo
B (μ) M μ
'(both) Bill and Mary.'

The κ-series (*ka*)

a. ビル (か) メアリー か
Bill ka Mary ka
B κ M κ
'(either) Bill or Mary.'

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Bill (mo) Mary mo
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b. メアリー も
Mary mo
M μ
'also Mary'

The κ-series (*ka*)

a. ビル (か) メアリー か
Bill ka Mary ka
B κ M κ
'(either) Bill or Mary.'

b. 分かる か
wakaru ka
understand κ
'Do you understand?'

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b. メアリー も
Mary mo
M μ
'also Mary'

c. 誰 も
dare- mo
who μ
'every-/any-one'

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OUR BUSINESS TODAY

SUPERPARTICLES

BEYOND JAPANESE

- Gil (2005) observes (in his WALS entry) that **67%** of languages show formal similarity of conjunction- and quantification-marking.

BEYOND JAPANESE: NOT AN ACCIDENT

- The *μ* particle is **multifunctional**, not homophonous (accidental/in disguise). The most articulate proponents of such a view include Hagstrom (1998), Cable (2010) and Bianchi (2015).

Beyond Japanese: not an accident

Mitrović and Sauerland (2014, 2016); Mitrović (2014); Slade (2011) against homophony:

- Why would languages consistently manifest homophony of coordinate$_1$ and quantificational$_2$ μ-markers?
  ($\because \mu_1 = \mu_2$)

BEYOND JAPANESE: NOT AN ACCIDENT

Mitrović and Sauerland (2014, 2016); Mitrović (2014); Slade (2011) against homophony:

- Why would languages consistently manifest homophony of coordinate$_1$ and quantificational$_2$ μ-markers? ($\because \mu_1 = \mu_2$)
- Why can't a quantificational$_1$ and a conjunctional$_2$ μ cooccur? ($\because \mu_1 = \mu_2$)

(3) a. dono gakusei **mo** dono sensei **mo** hanashita
INDET student μ INDET teacher μ talked
`Every student and every teacher talked.'

b. * dono gakusei **mo** **mo** dono sensei **mo** **mo**
INDET student EVERY AND INDET teacher EVERY AND
hanashita
talked
`**Every** student **and every** teacher talked.'

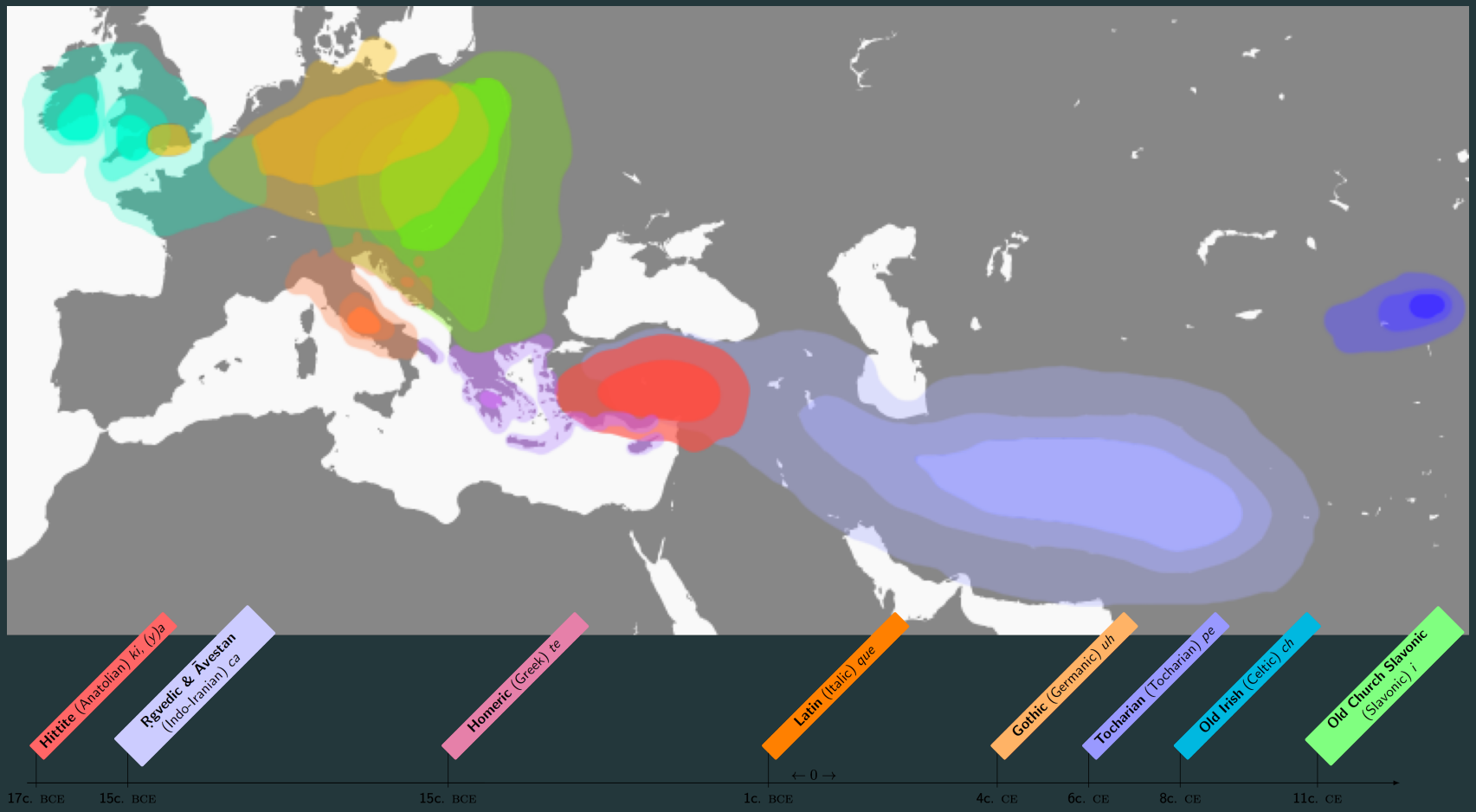
INDO-EUROPEAN

INDO-EUROPEAN

TWO CONJUNCTION SYSTEMS

TWO WAYS TO CONJOIN IN OLD IE

- Earliest IE languages show that there existed two types of coordinate structure:
  - one in which the coordinator occupies the initial (first),
  - and another in which the coordinator occupies the peninitial (second) position with respect to the second conjunct.
- diachronically, only the initial structure (a) survives (lost across all branches)
  - $\{a,b\} \xrightarrow{t} b$


Hittite (Anatolian) ki, (y)a
Rgvedic & Avestan (Indo-Iranian) ca
Homeric (Greek) te
Latin (Italic) que
Gothic (Germanic) uh
Tocharian (Tocharian) pe
Old Irish (Celtic) ch
Old Church Slavonic (Slavonic) i
17c. BCE
15c. BCE
15c. BCE
1c. BCE
← 0 →
4c. CE
6c. CE
8c. CE
11c. CE

(4) CLASSICAL LATIN (ITALIC)

a. ad summam rem pūblicam **atque** ad omnium
to utmost weal common and to all
nostrum [...]
of us

`to highest welfare **and** all our [lives]' (Cic., *Or.*, 1.VI.27-8)

b. vīam samūtem **que**
life safety and

`the life **and** safety' (Cic., *Or.*, 1.VI.28-9)

(5) VEDIC SANSKRIT (INDO-IRANIAN)

a. párṣi tásyā **utá** dviṣáh:
save.IMP.2.SG this **and** enmity

`Save us from this **and** enmity.' (*Rigveda*, 2.007.2[c])

b. vāyav-ïndraś-**ca** cetathah: sutānām
Vayu-Indra-**and** rush.2.DL rich
vājinïvasū
strength-bestowing

`Vayu **and** Indra, rich in spoil, rush (hither).'
(*Rigveda*, 1.002.5[a])

(6) GOTHIC (GERMANIC) [4th C. AD

a. ak ana lukarnastaþin **jah** liuteiþ
neither on candle.DAT.SG and light.IND.3.SG
allaim þaim in þamma
all.DAT.PL it.DAT.PL in that.M.DAT.SG
garda.
house.M.DAT.SG

`Neither do men light a candle, **and** put it under a bushel.'

(*Codex Argenteus*, Mt. 5:15)

b. (galaiþ in praitauria aftra
came.PRET.3.SG in judgement hall.ACC.SH again
Peilatus jah) wopida Iesu qaþ
P.NOM and called.PRET.3.SG J.ACC said.PRET.3.SG
uh imma.
and him.M.DAT.SG

`([Then] Pilate entered into the judgment hall again, and) called Jesus, **and** said unto him.'

(*Codex Argenteus*, Jn. 18:33)

WHY MORPHOLOGY MATTERS

- Conjunction marker (b) means more than ⟦and⟧.
- Morphology sheds light in underlying structure.

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- Conjunction marker (b) means more than ⟦and⟧.
- Morphology sheds light in underlying structure.
- Historically, first-position conjunction marker (a) are compound
  - Latin *atque* = *at* + *que*
  - Sanskrit *uta* = *u* + *ta*
  - Gothic *jah* = *j* + *uh*

(7) VEDIC & CLASSICAL SANSKRIT (INDO-IRANIAN)

a. ⟨prát⟩īdám vīśvam modate yát [kim-**ca**]
this world exults which [what-*μ*]
prthivyāmádhi
world.F.ACC-upon

`This whole world exults **whatever** is upon the earth.'

(*Rigveda*, 5.83.9^{c})

b. na yasya [kaś-**ca**] tititarti
NEG whom.GEN [who.M.SG-*μ*] able to overcome
māyā?
illusions.PL

`No one [=not **anyone**] can overcome that (=the Supreme Personality of Godhead's) illusory energy.' (*Bhāgavatapurāṇa*, 8.5.30)

NON-CONJUNCTIVE CONJUNCTION MARKER III

(8) LATIN (ITALIC)

a. auent audire quid quis-**que** senserit
want hear what what-*μ* think
`they wish to hear what **each** man's (everyone's) opinion was'

(Cic. *Phil.* 14,19)

(9) GOTHIC (GERMANIC)

a. [þishvad **uh**] (. . .) gaggis.
[where *μ*] go.2.SG.PRES.ACT.IND
`**wherever** you go' (*Codex Argenteus*, Mt. 8:19)

b. jah [hvaz- **uh**] saei hauseiþ
and who.M.SG and *pro*.M.SG hear.3.SG.IND
waurda meina
words.ACC.PL mine
`And **every** one that heareth these sayings of mine ...' (*Codex Argenteus*, Mt. 7:26)

c. na yasya [kaś-**ca**] tititarti
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TWO TYPES OF NON-CONJUNCTIVE MEANINGS

- the second non-connective QUANTIFICATIONAL function is non-singular -- when attached to a *wh*-base, μ may generate one of the two possible quantificational expressions:
  - A universal ($\forall$) distributive terms
  - B negative polarity indefinite ($\exists$) terms

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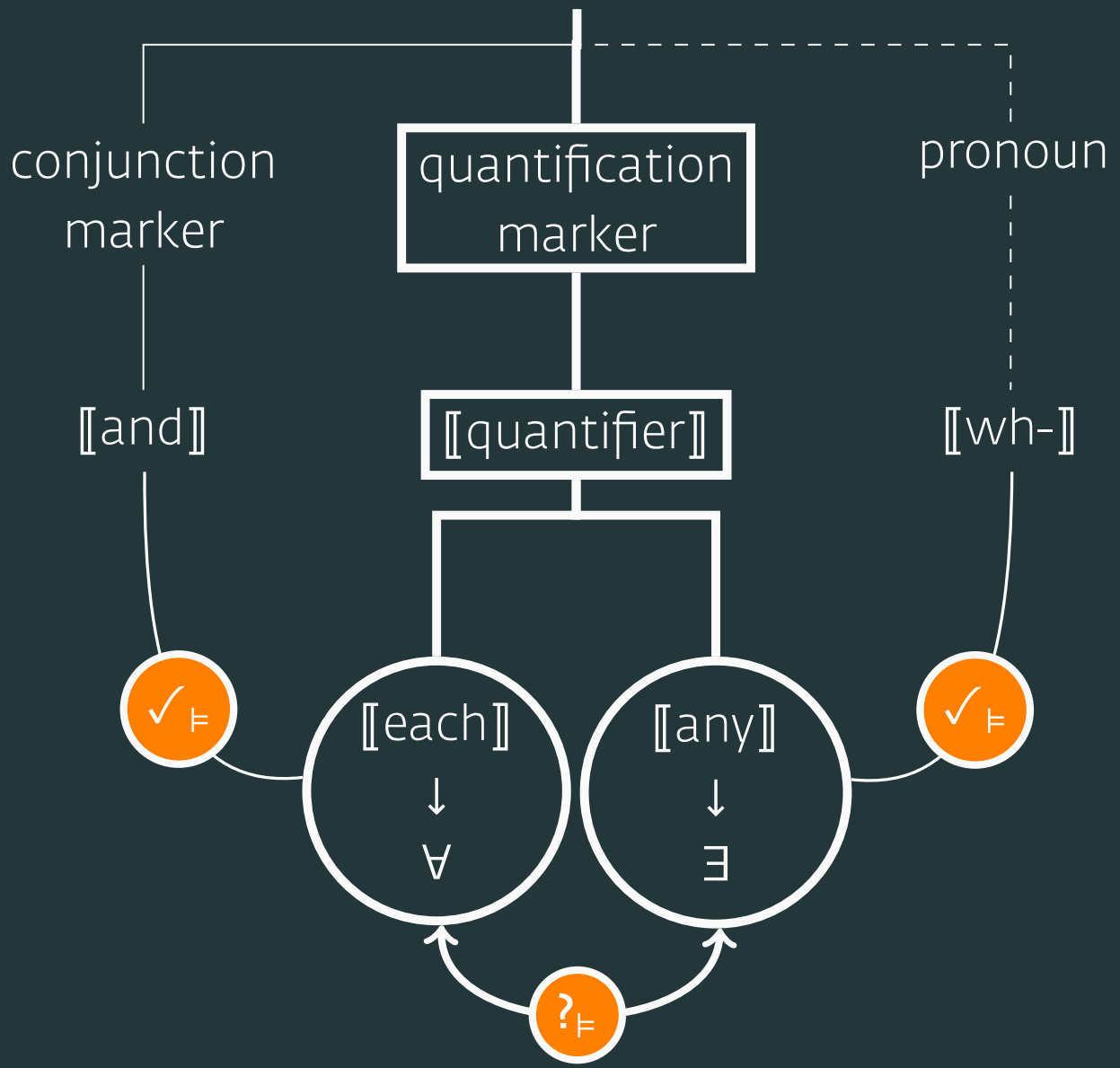
	μ MARKER	CONJ.	ADDITIVE	DISTR.	NPI	FCI
Slav.	*i*	+	+	–	+	–
Ilr.	*-ca*	+	+	–	+	+
Gmc.	*-uh*	+	+	+	–	+
Ital.	*-que*	+	+	+	–	+
Anat.	*-(y)a*	+	+	+	–	+
Toch.	*-ra*	+	+	+	–	+
Cel.	*-ch*	+	(+)	+	–	+
Gk.	*-τε*	+	(+)	–	–	(+)

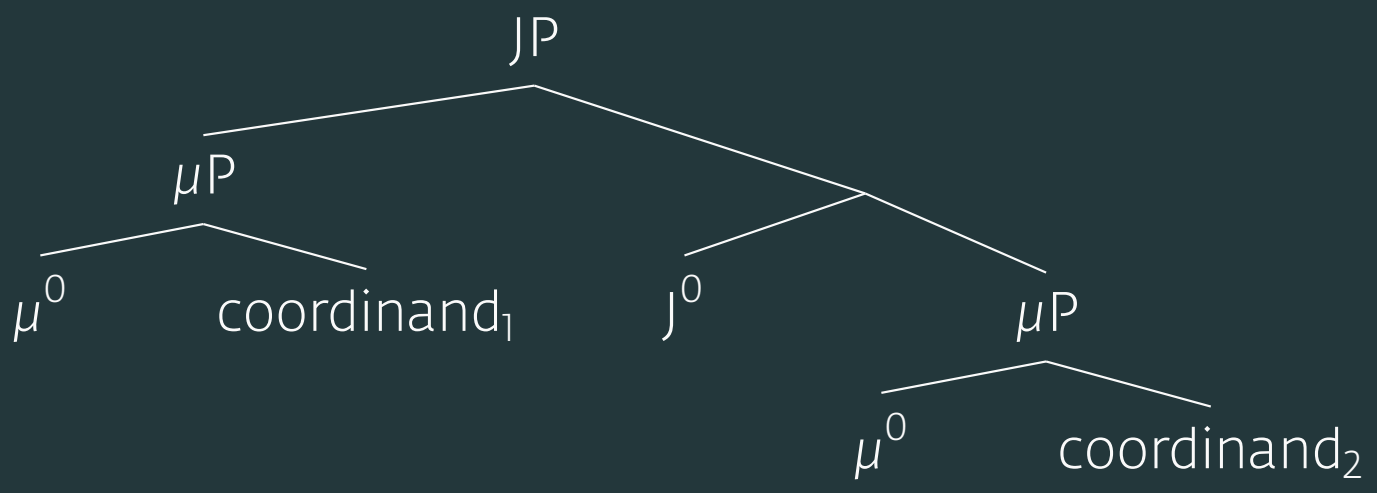
The allosemy of the IE conjunction markers like ⟦kwe⟧=



INDO-EUROPEAN

THE UNDERLYING STRUCTURE

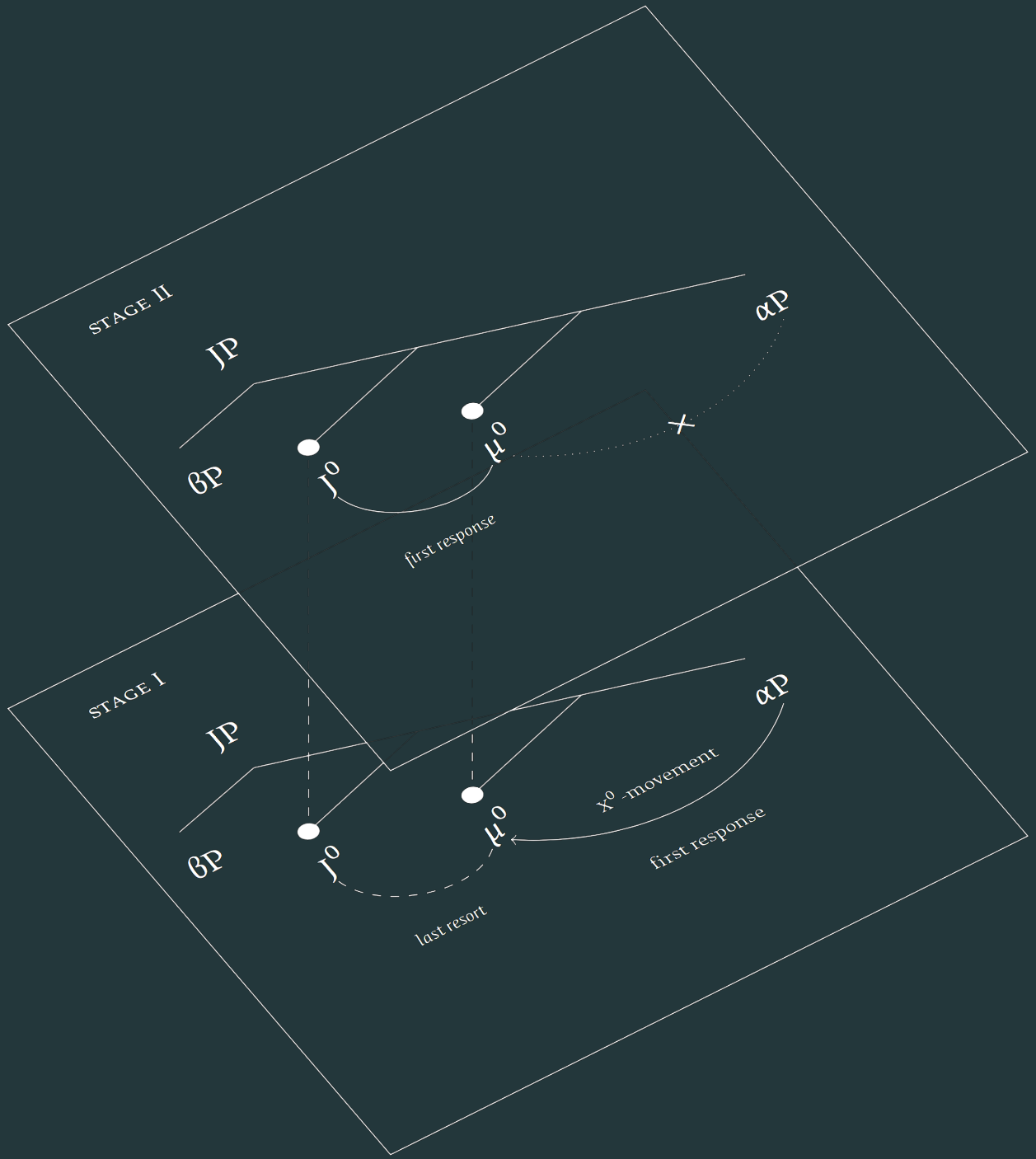
(11)



- Bimorphemic fact is borne out: J + *μ*

INDO-EUROPEAN

THE CHANGE AND THE LOSS OF MULTIFUNCTIONAL SEMANTICS


STAGE II
JP
βP
αP
J^0
μ^0
x
first response
STAGE I
JP
βP
αP
J^0
μ^0
x^0 -movement
first response
last resort

THE LOSS OF 2P: GREEK

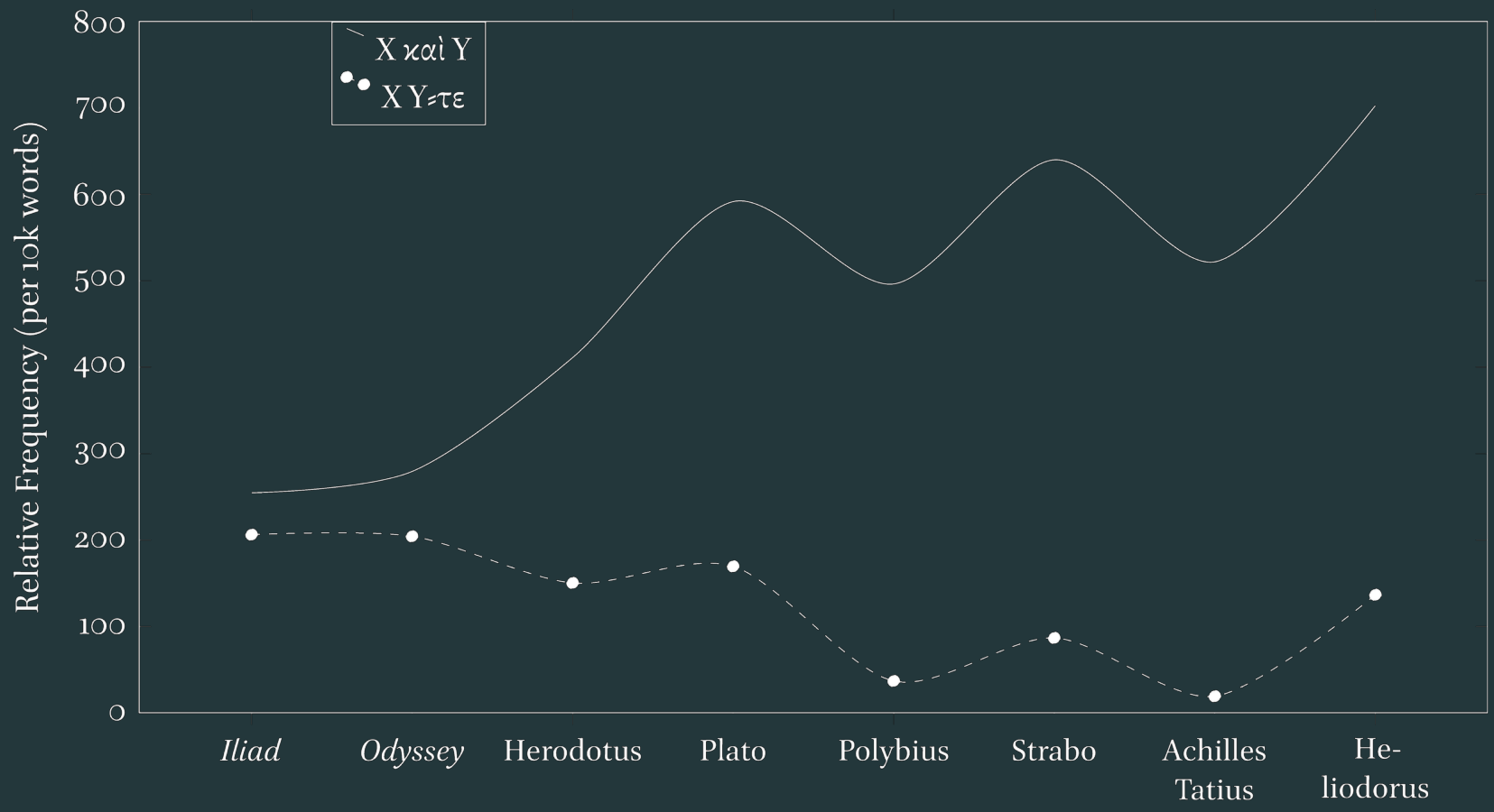


Figure 1: Relative frequency of *και* and *τε*. (Goldstein, 2016, 65, fig. 4)

JAPONIC

OLD JAPANESE μ I

- In the earliest OJ corpus (*Man'yōshū* MYS, 8th c.), the [*wh*+μ] quantificational expressions were confined to inherently scalar (σ) complements, as first noticed by Whitman (2010) .
- Old Japanese: not only is the polar construction absent from the μ-system, but μ^0 subcategorised for scalar hosts only.
    - μ was not only distributive but also inherently scalar.

(12) 以都母 々々々 於母加 古比 須々
itu-mo **itu-mo** omo-ga kwopi susu
when-*μ* **when**-*μ* mother-GEN yearning by
`I **always, always** think of my mother [i.e. at all times]'
(MYS, 20.4386; trans. by Vovin 2013, 146)

(13) 佐祢斯 [欲能 伊久陀 母]
sa-ne-si [ywo-no **ikuda** **mo**]
PRE-sleep-PAST [night-SUB **how many** *μ*]
阿羅祢婆
ara-**neba**
exist-NEG-COND
`As there have been **few** nights in which we slept together ...' (MYS 5.804a, ll. 46--47)

OLD JAPANESE *μ* III

	# of attestations
SCALAR [*wh*+*μ*]	total 24
itu mo `when *μ*'	12
iku mo `how much/many *μ*'	11
NON-SCALAR [*wh*+*μ*]	total 0
ado/na/nado mo `what/why *μ*'	0
ika mo `how *μ*'	0
ta mo `who *μ*'	0

- Change #1: **loss of obligatorily scalar complementation**

(14) たれ も　見おぼさん事
tare mo mi-obos-an koto
who *μ* see.INF-think.HON-TENT/ATTR matter
`the fact that **everybody** wanted to see' (HM II:226/2; Vovin 2003, 128)

Classical Japanese: rise of polarity II

- Change #2: **rise of polarity-sensitivity**

(15) いま は なにの 心 も なし
ima fa **nani**-no kokoro **mo** **na**-si
now top **what**-gen idea *μ* neg-fin
`I do not have **any thoughts** [but of meeting you] now'

(IM XCVI: 168.9; Vovin 2003, 424)

THE TOOLS FOR AN ANALYSIS

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EXHAUSTIFICATION

EXAMPLE OF A SYSTEM FROM ENGLISH DISJUNCTION

- In English, '**or**' is always ambiguous between two *implicated meanings*.
  a. Either it carries an IGNORANCE implicature,
  b. or it carries a SCALAR implicature.

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a. (16) $\rightsquigarrow \Diamond[j] \wedge \Diamond[b] \wedge \Diamond[j \vee b] \wedge \Diamond[j \wedge b]$
"The speaker **doesn't know** whether Mary saw John and the speaker **doesn't know** whether Mary saw Bill and the speaker **doesn't know** whether Mary saw John and Bill."

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"The speaker **doesn't know** whether Mary saw John and the speaker **doesn't know** whether Mary saw Bill and the speaker **doesn't know** whether Mary saw John and Bill."

b. (16) $\rightsquigarrow [j \vee b] \wedge \neg[j \wedge b]$
"**Mary saw John or Bill, but not both**."

FORMALISING ALTERNATIVES & THEIR PRUNING

$j \vee b$

FORMALISING ALTERNATIVES & THEIR PRUNING

$j \vee b$ ⟵ assertion

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$j \wedge b$ ⟵ σ-alts

FORMALISING ALTERNATIVES & THEIR PRUNING

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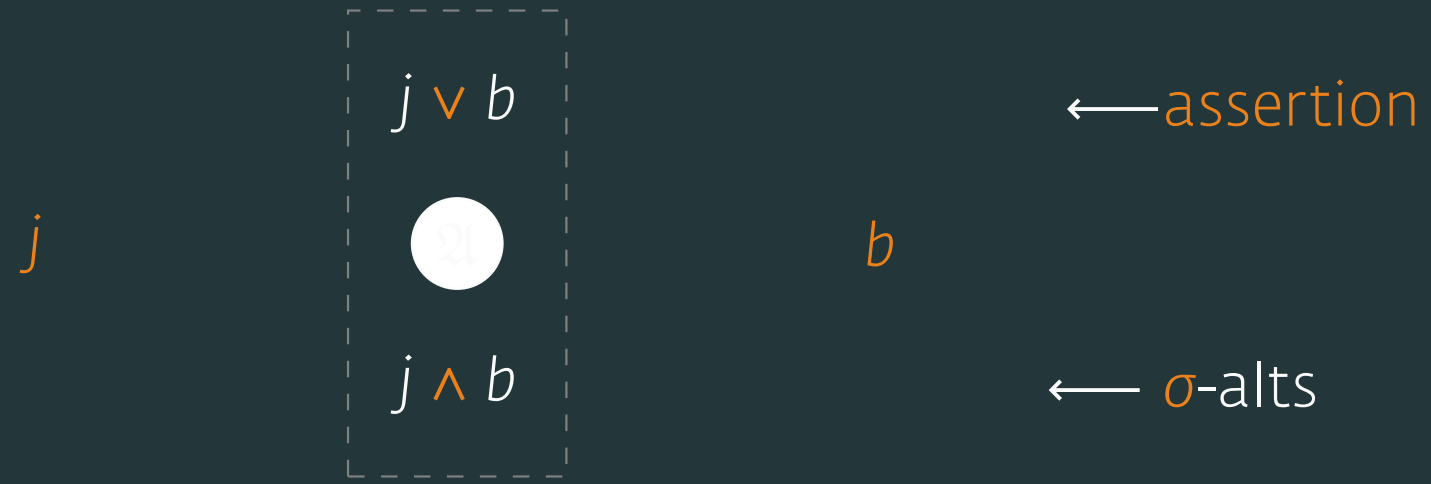
⟵ σ-alts

FORMALISING ALTERNATIVES & THEIR PRUNING



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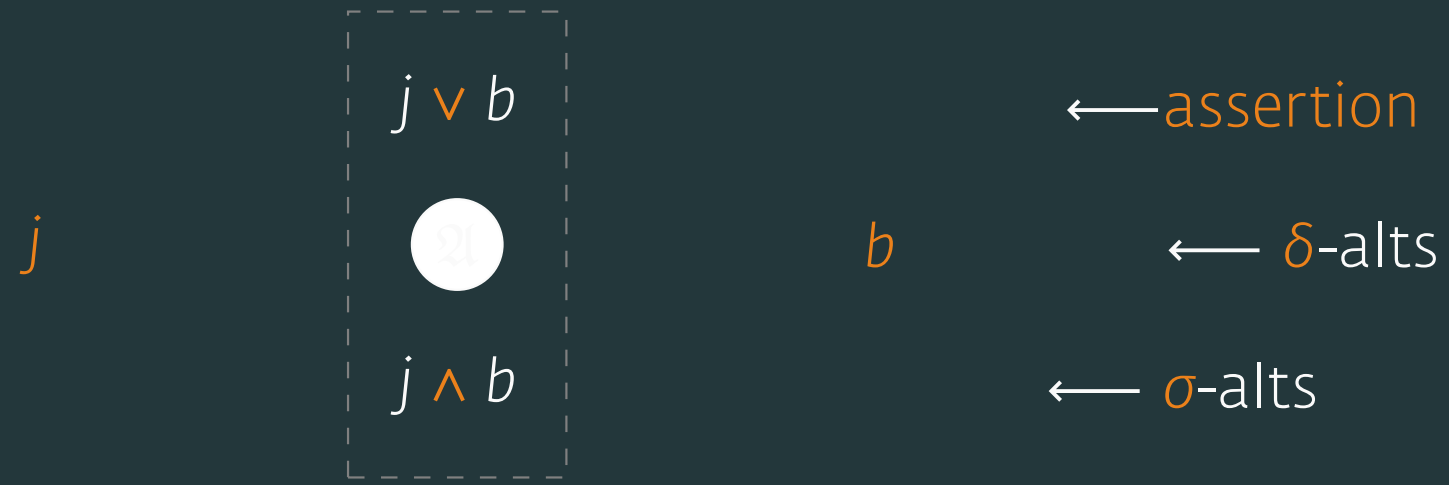

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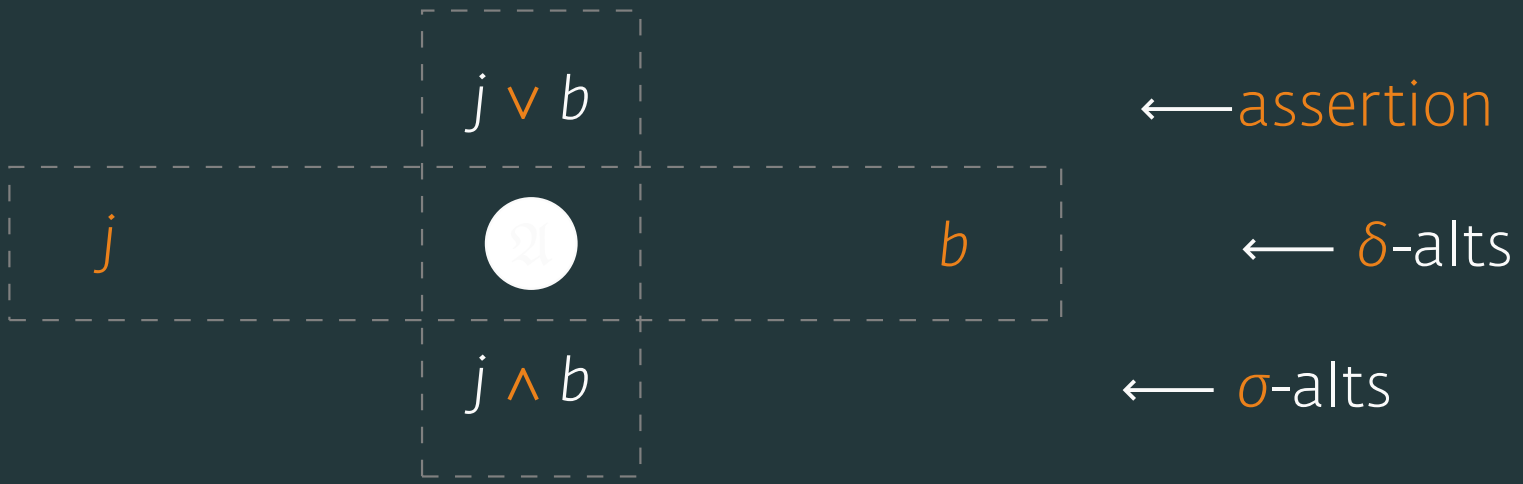

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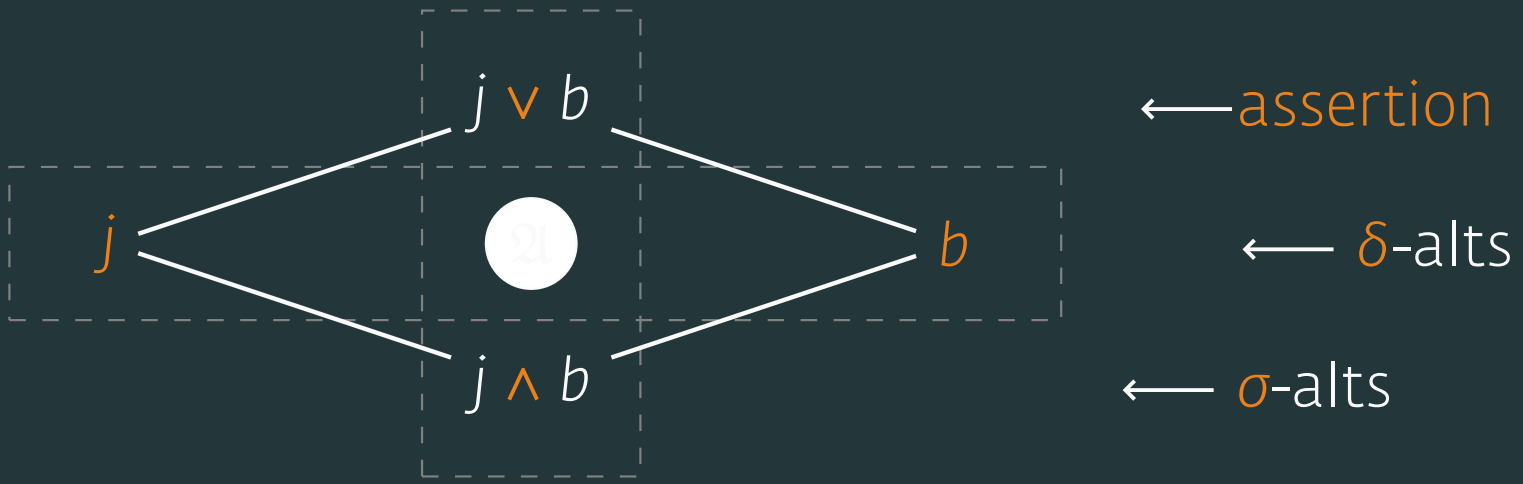
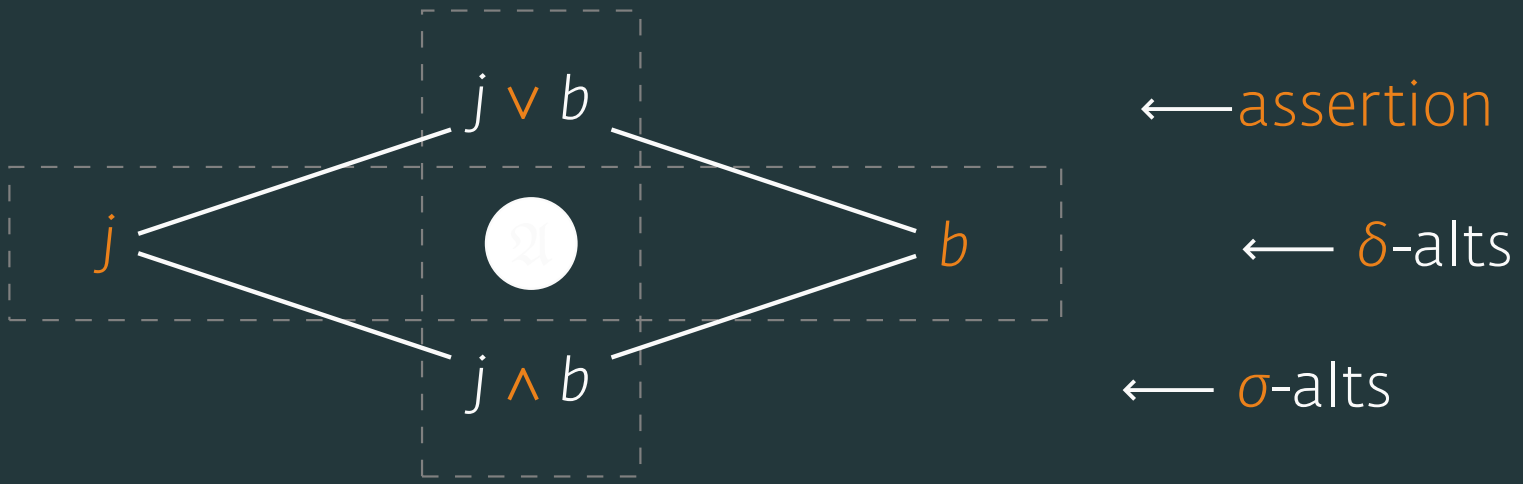


∴ There two kinds of alternatives: **subdomain** (δ) and **scalar** (σ) ones.

- The choice between which ones are relevant is made in syntax using a covert exhaustification operator akin to a silent '**only**' – $\mathfrak{x}$.

FORMALISING ALTERNATIVES & THEIR PRUNING



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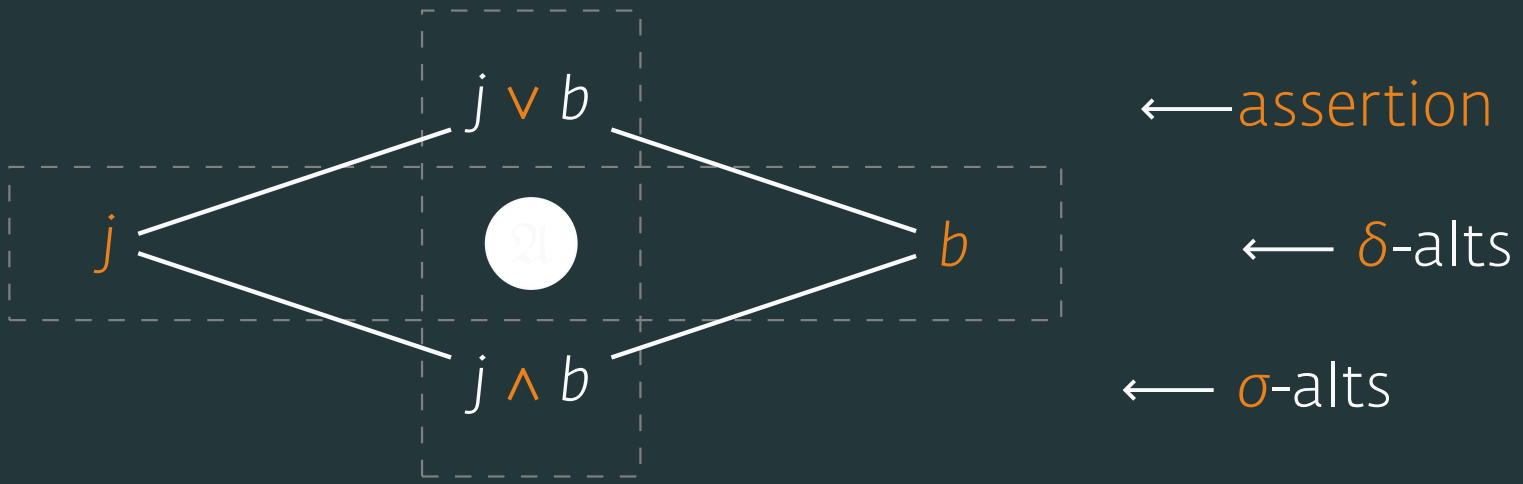


∴ There two kinds of alternatives: **subdomain** (δ) and **scalar** (σ) ones.

- The choice between which ones are relevant is made in syntax using a covert exhaustification operator akin to a silent '**only**' – $\mathfrak{x}$.

- The operator $\mathfrak{x}$ is a silent variant of the adverb '**only**'.
- What does it mean?

(17) $\mathfrak{x}(p) = p \wedge \forall q \in \mathfrak{A}(p)\Big[[p \not\Vdash q] \rightarrow \neg q\Big]$

- This LF is read as: **the assertion, p, is true and any non-entailed alternative to the assertion, q an alternative, is false.**

- The Classical (early middle) Japanese μ-system: $\boxed{\mu\varnothing}$ (or allowing both $[\sigma]$- or $[\delta]$-carrying complements).
  - non-scalar hosts with $[\delta]$ specification $\longrightarrow$ polarity system kicks in automatically as per Chierchia's (2013) system
- Change in inferential procedure due to featural change (grammaticalisation):

(18) a. $[\![[\neg\ \mu\mathrm{P}]_1]\!] \rightsquigarrow$ SI: $\mathfrak{A}_{[\sigma]}\Big[\neg[\ \ldots[_{\mu\mathrm{P}}\quad \exists_{[+\sigma]}\quad \mu]]\Big]$
$\neg > \forall \vdash \neg\forall$

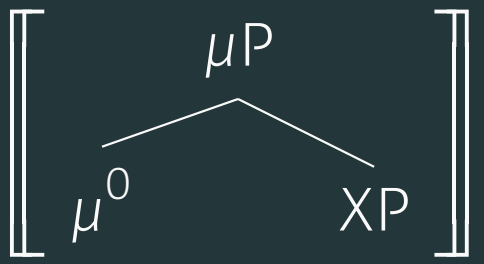
b. $[\![[\neg\ \mu\mathrm{P}]_2]\!] \rightsquigarrow$ NPI: $\mathfrak{A}_{[\delta]}\Big[\neg[\ \ldots[_{\mu\mathrm{P}}\quad \exists_{[+\delta]}\quad \mu]]\Big]$
$\forall > \neg \vdash \neg\exists$

THE TOOLS FOR AN ANALYSIS

OUR μ

- CLAIM: μ invokes exhaustification
- essentially comes with two semantic functions:
  i. alternative ($\mathfrak{A}$) activations
  ii. obligatory exhaustification via a silent (Chierchian) exh. operator ($\mathfrak{x}$)

(19) An informal entry for $[\![\mu^0]\!]$



$$= \quad [\![\mu]\!]^{M,g,w}\Big([\![\text{XP}]\!]\Big)$$

$$= \quad \{[\![\text{XP}]\!]\}^{\mathfrak{A}}$$

$$\rightarrow \quad \mathfrak{x}\Big([\![\text{XP}]\!]\Big)\Big(\{[\![\text{XP}]\!]\}^{\mathfrak{A}}\Big)$$

(20) $$\mathfrak{X}_{[\delta\mathfrak{A}]}(p) = \begin{cases} \text{polarity reading} & \text{if under } \neg \\ \text{FC reading} & \text{if under } \diamond \\ \text{additive reading} & \text{if } \mathfrak{X} \text{ is iterative } (\mathfrak{X}^2) \\ \bot & \text{otherwise} \end{cases}$$

- How do we derive additivity? Recursive exhaustification. (Fox, 2007)

(21) HITTITE (ANATOLIAN)

a. nu-wa ÚL [kuit **ki**] sakti
and-QUOT NEG [who μ] know.2.SG.PRES
`You know *nothing* (=not *anything*)' (KUB XXIV.8.I.36)

(22) $\left[\mathfrak{x}_{[\delta]}\left[\text{ You do}\mathbf{n't}\text{ know [}\textit{what-}\mu\text{] }\right]\right]$ . . . . . =(21a)

a. ASSERTION: (= p)
$\forall x \in \mathfrak{D}\left[\textsc{thing}(x) \wedge \neg\textsc{know}(\textsc{you}, x)\right]$

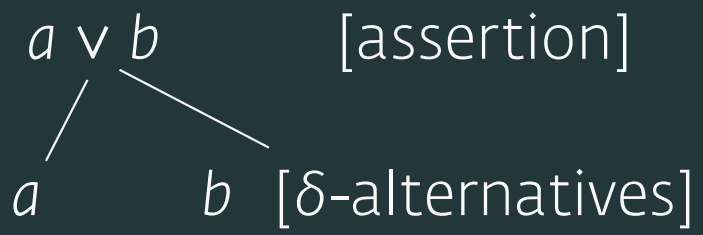
b. $\mathfrak{A}(p) = \left\{\forall x \in \mathfrak{D}'\left[\textsc{thing}(x) \wedge \neg\textsc{know}(\textsc{you}, x)\right] \mid \mathfrak{D}' \subset \mathfrak{D}\right\}$

c. $\mathfrak{x}_{[\delta]}(p) = p$ ($\because$ all alts. entailed under neg.)

DERIVING UNIVERSAL QUANTIFICATION

(23) $[\![\text{who}]\!] = [\![\text{someone}]\!] = \exists x \ldots = a \vee b \vee \ldots$

(24) a. ACTIVE δ-ALTERNATIVES: . . . . . =(9b)



b. EXHAUSTIFICATION:
$\mathfrak{x}^{R}_{[\delta]}(a \vee b) = a \wedge b \quad (\vdash \forall)$

- Similar implementation by Bowler (2014) for Warlpiri.

THANK YOU!

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