なぜOV言語はCVか：語順と音韻の相関性

Why do OV languages have CV syllable structure?

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Goals

- To show that OV languages have simple syllable structure by analyzing data in *The World Atlas of Language Structures* (*WALS*).
- To explain why OV languages have simple syllable structure by phonological constraints and syntactic movement.

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OV => agglutinative
VO => inflectional

- Consistent OV languages tend to be agglutinative in their morphology. [UA#11]
  (Lehmann 1973: 47)

(1) Japanese
  a. *yomaseta* 'He caused to read.'
  b. *yomasenai* 'He does not cause to read.'
  c. *yomarenai* 'It is not being read.'

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OV => agglutinative
VO => inflectional

- Consistent VO languages tend to be inflectional in their morphology.
  (Lehmann 1973: 47)

(2) Hebrew
  a. *ka:tab* 'He wrote.'
  b. *hikti:b* 'He caused to write/be written.'
  c. *hitkatte:b* 'He corresponded (wrote reciprocally).'

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OV => moraic-counting
VO => syllable-counting

- OV languages are often mora-counting, and VO languages are syllable-counting.
  [UA#891] (Lehmann 1973)

(3) Japanese
  /su-ro-o-mo-o-sho-n/

(4) English
  /slow-mo-tion/

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OV => phrase-initial stress
VO => phrase-final stress

- In a Verb Phrase, main stress should be to the right of Verb in VO languages and to its left in OV languages [because a phrase's main stress is located on its most deeply embedded constituent, which is ordinarily the innermost complement of the phrase head]. [UA#372, cf. #893]
  (Cinque 1993, cf. Donegan and Stampe 1983)

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#893
RHYTHMIC HOLISM: Donegan & Stampe (1983) and Stampe (1985)

phrase accent ('X):	rising (final)	falling (initial)
word canon:	iambic (last syllable accented) or monosyllabic	trochaic or dactylic (first syllable accented)
timing:	isoaccentual (stress timed)	isosyllabic or isomorphic (syllable-or mora-timed)
syllable canon:	(C)V or (C)(C)V(Glide)(C)	(C)V(C)
consonantism:	diachronically shifting tonogenetic consonantism non-geminate clusters	stable geminate clusters
vocalism:	diachronically shifting diphtongal reductive	stable monophtongal harmonic
tone/register:	contour tones/register	level tone
verse:	rhyme (identities final)	alliteration (identities initial)
music:	polyphony tempered scales multiplicative rhythms	monophony modal scales additive rhythms
word order:	rigid operator last: VO, VAdv, AuxV, NAdj, AAdv, NGen, Adp NP (i.e. prepositions)	variable operator first: OV, AdvV, VAux, AdjN, AdvA, GenN, NP Adp (i.e. postpositions)
clitic order:	proclitic	enclitic
affix order:	prefixing	suffixing
morphosyntax:	more analytic	more synthetic , especially case, verb agreement
morphology:	flective or isolating	agglutinative or polysynthetic

#894
RHYTHMIC HOLISM: Gil (1986)

IAMBIC RHYTHM (WEAKER-STRONGER)	TROCHAIC RHYTHM (STRONGER-WEAKER)
unstressed before stressed	stressed before unstressed
less- before more-syllable units	more- before less-syllable units
less- before more-sonorous units	more- before less-sonorous units
less- before more complex syntactically	more- before less complex syntactically
less- before more important syntactically	more- before less important syntactically
(S)OV etc. (i.e. modifier-head order throughout)	(S)VO etc. (i.e. head-modifier order throughout)
agglutinative morphology	flective morphology
stressed-timed	syllable-timed
faster tempo (measured in syllables per unit time or per unit content	slower tempo
simple syllable structure	complex syllable structure
high consonant-vowel ratio	low consonant-vowel ratio
more obstruent segments (textually and in phonemic inventory)	more sonorant segments
more level intonation contours (less pitch variation)	more variable intonation contours (more melodic)
non-tonal	tonal

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OV => simple syllable structure
VO => complex syllable structure

- OV languages tend to have simple syllable structure. [UA#196]

(Lehmann 1973:61, cf. Plank 1998)

(5) Japanese: CV or CV*n* /se/ or /sen/

(6) English: CCCVCCCC /streŋkθs/ *strengths*

Cf. *COMPLEX

NO-CODA

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Constraints

(7) *COMPLEX

No more than one C or V may associate to any syllable position node.

(8) NO-CODA

A syllable must *not* have a coda.

(Prince and Smolensky 1993)

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Do OV languages have simple syllable structure?

- Haspelmath, Martin, Matthew S. Dryer, David Gil, and Bernard Comrie (eds.) 2005. *The World Atlas of Language Structures (WALS)* [with The Interactive Reference Tool].
- Combined features:

Word order: OV, VO or No dominant order

Syllable: Simple, Moderately complex or Complex

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Syllable structure

- Simple: CV (Hawaiian, Mba)
  (C)V (Fijian, Igbo, Yareba)
- Moderately complex:
  CVC_C [C_C: limited? (HT)]
  CC_2V [C_2: liquids or glides]
  CC_2VC (Darai /bwak/ 'father')
- Complex: (C)(C)(C) V (C)(C)(C)(C)

(Maddieson 2005 in *WALS*)

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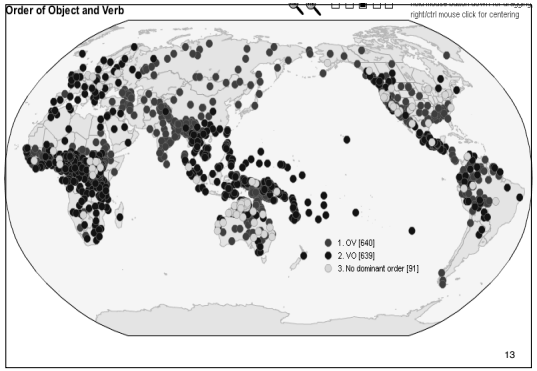

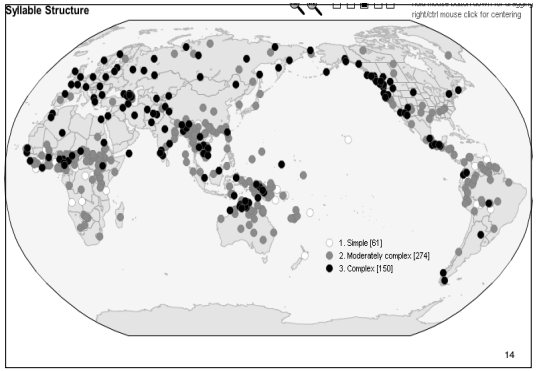

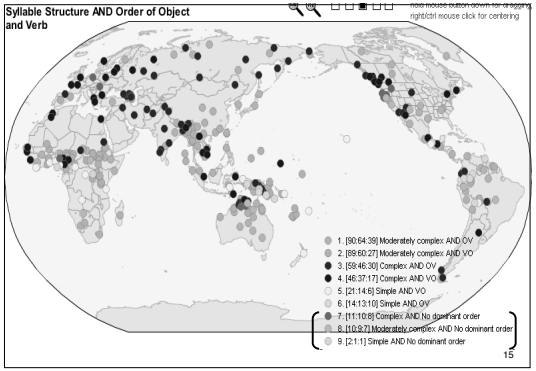

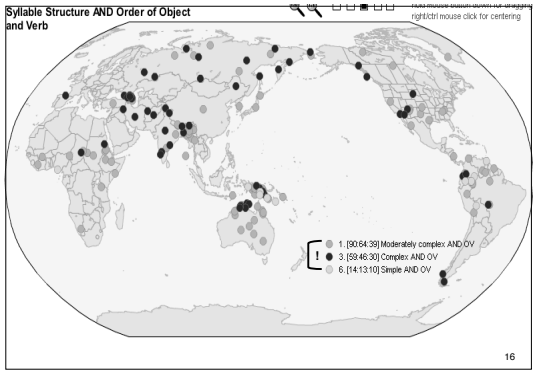

Epenthesis/Deletion

- Hindi

(10) a. pre:m -> pəre:m (CCVC -> CVCVC)
b. krisn -> krisən (CCVCC -> CCVCVC)

- Basque <- Latin

(11) a. liburu <- libru(m) (CVCVCV <- CVCCV)
b. luma <- pluma(m) (CVCV <- CCVCV)

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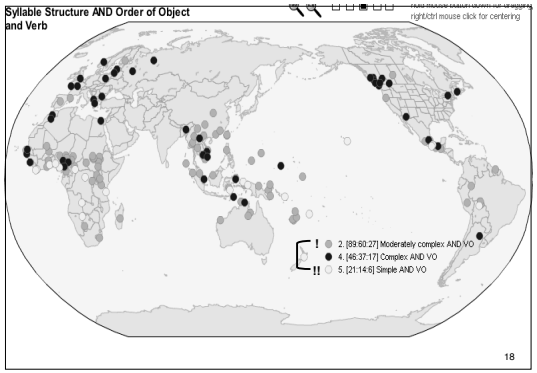

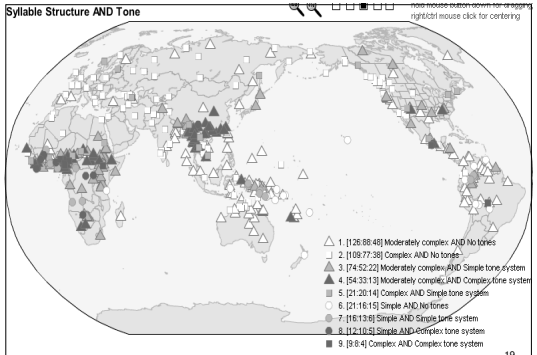

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Correlating phonological complexity

- syllable complexity and mean # of consonants: positive correlation
- syllable complexity and tone complexity: negative correlation

(Maddieson 2006)

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Syllable complexity in analytic languages

- South east Asia (Thai, Vietnamese)
- Thai: VO, Moderately complex syllable

  Coda: /p, t, k, ʔ, m, n, ŋ, w, y/
- Vietnamese: VO, Moderately complex syllable $(C_1)(w)V(G)(C_2)+T$

  C_2: labial, coronal, & velar stops /p, t, k/ and nasals /m, n, ŋ/

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Summing up

- OV languages tend to have simple (or moderately complex) syllable structure.
- Exceptions can be attributed to the neglect of phonological simplification.
- VO languages tend to have complex syllable structure or (moderately) complex tone.

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Why do OV languages have simple syllable structure?

- Head parameter: head-final [O<u>V</u>]
  head-initial [<u>V</u>O] (Chomsky 1981)
- Movement: SV<u>O</u> -> S<u>O</u>V (Kayne 1994)
  SO<u>V</u> -> S<u>V</u>O (Fukui and Takano 1998)
- Incorporation, polysynthesis (Baker 1988, 2001)
- Branching and stress in compounds and phrases (Cinque 1993)

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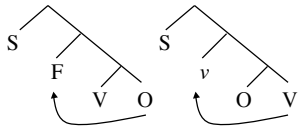
Syntax of OV and VO

- Movement: S V <u>O</u> -> S <u>O</u> V (Kayne 1994)
  S O <u>V</u> -> S <u>V</u> O (Fukui and Takano 1998)



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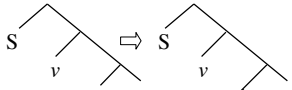
Proposal: O-to-V movement

- Movement: S V O -> S O V (Kayne 1994)
  S V O -> S O-V (Proposal)



Movement driven by an interface condition at PF (NO-PAUSE)

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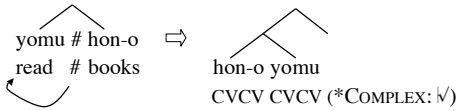
Movement driven or canceled by phonological constraints

(8) NO-PAUSE
A sentence must *not* have pause.



(NO-PAUSE: *)
CVCV CVCV (*COMPLEX: √)
* books read
CVCC CVC (*COMPLEX: **)

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	*COMPLEX	NO-PAUSE
a. yomu # hon-o CVCV # CVCV		*!
b. ☞ hon-o yomu CVCV CVCV		
a. ☞ read # books CVC # CVCC		*
b. books read CVCC CVC	*!	

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Consequences

- Agglutinative
  yom-ase-ta made them read
  oyog-eru can swim
- PP: P N (VO) -> N-P (O-V)
  ni # Komaba -> Komaba-ni
  to # Boston -> *Bost*o*n-to

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Left-branching structure as compound

- Head parameter: head-final vs. head-initial
- OV <-> N Postp:
  [[[Kita-no] kuni-no] kurashi]
  north-P country-P life
  'life in countries in the north'
- VO <-> Prep N

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Left-right asymmetry
Voicing in Japanese: *rendaku*

(11) a. [nise [tanuki shiru]] -> [nise [tanuki jiru]]
b. [[nise tanuki] shiru] -> [[nise danuki] jiru]

(12) Right Branch Condition
Rendaku applies only when a potential *rendaku* segment is in a right branch constituent.
(Otsu 1980, cf. LBC by Haraguchi 2001)

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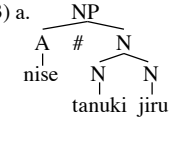
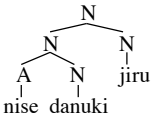
Right-branching as phrase
Left-branching as compound

(13) a. 

b. 

nise # tanuki + jiru
[nise [tanuki jiru]]

nise + danuki + jiru
[[nise danuki] jiru]

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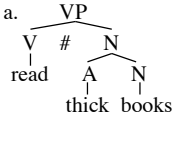
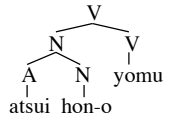
Right-branching as phrase
Left-branching as compound

(14) a. 

b. 

read # thick + books
read [thick books]]
CVC # CVC + CVCC

atsui + hon-o + yomu
[[atsui hon-o] yomu]
VCV + CVCV + CVCV

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*COMPLEX-ONSET in Complement/ NO-CODA in Head

- *COMPLEX-ONSET in Complement

(15) them -> 'em beat'em VO HC

- NO-CODA in Head

(16) of -> o' a cup [o' tea] PN HC

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Branching and phrase/compound

(17) In a configuration $[_C$ A B $_C]$:
  a. NSR: If C is a phrasal category, B is strong.
  b. CSR: if C is a lexical category, B is strong iff it branches.
  (Liberman and Prince 1977, cf. Cinque 1993:273)

(18) Right-branching node is a phrase-like with a strong boundary.
  Left-branching node is a compound-like with a weak boundary.

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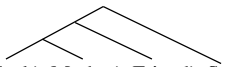
Complement-to-Head movement in VO languages

(19) a. therein <- in there (in that place)
  N - P P N
  b. proof-reading <- read proof
  N - V V N
  c. 
  Wadeck's Mother's Friend's Son (movie title)

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Conclusion

- OV languages tend to have simple syllable structure.
- OV languages allow Complement-to-Head movement to derive pause-less structure without consonant cluster.

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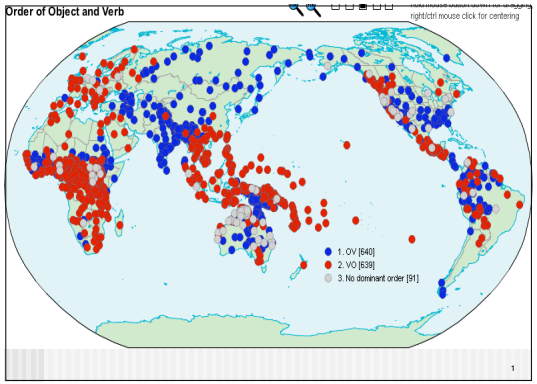
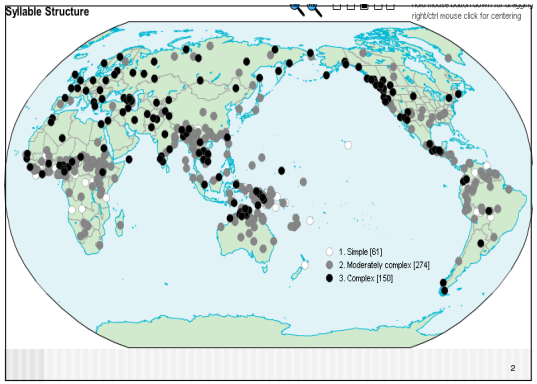
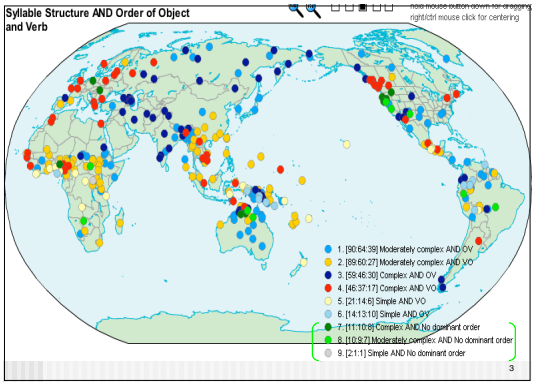
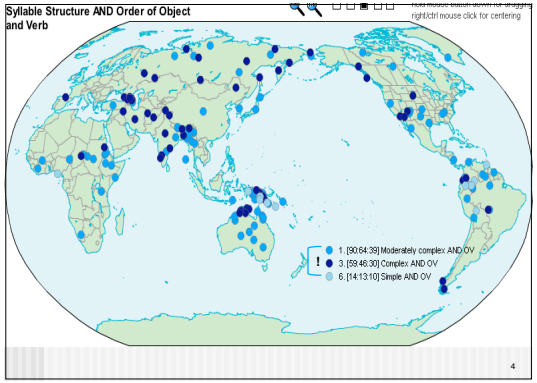
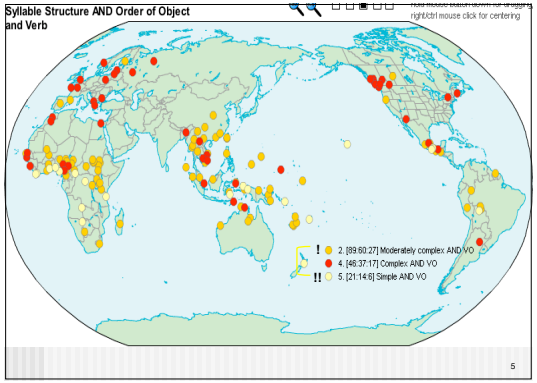
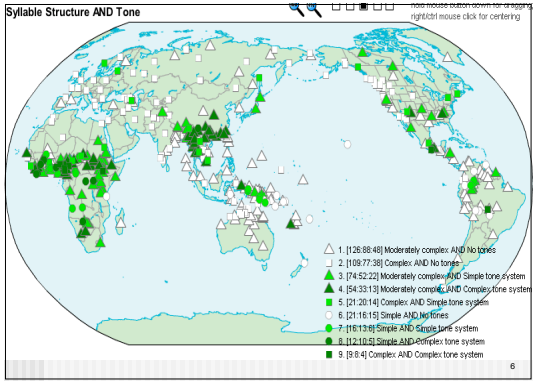

Order of Object and Verb
right/ctrl mouse click for centering
1. OV [640]
2. VO [639]
3. No dominant order [91]
1


Syllable Structure
right/ctrl mouse click for centering
1. Simple [61]
2. Moderately complex [274]
3. Complex [150]
2


Syllable Structure AND Order of Object and Verb
right/ctrl mouse click for centering
1. [90:64:39] Moderately complex AND OV
2. [89:60:27] Moderately complex AND VO
3. [59:46:30] Complex AND OV
4. [46:37:17] Complex AND VO
5. [21:14:6] Simple AND VO
6. [14:13:10] Simple AND OV
7. [11:10:8] Complex AND No dominant order
8. [10:9:7] Moderately complex AND No dominant order
9. [2:1:1] Simple AND No dominant order
3


Syllable Structure AND Order of Object and Verb
right/ctrl mouse click for centering
!
1. [90:64:39] Moderately complex AND OV
3. [59:46:30] Complex AND OV
6. [14:13:10] Simple AND OV
4


Syllable Structure AND Order of Object and Verb
right/ctrl mouse click for centering
!
2. [89:60:27] Moderately complex AND VO
4. [46:37:17] Complex AND VO
!!
5. [21:14:6] Simple AND VO
5


Syllable Structure AND Tone
right/ctrl mouse click for centering
1. [126:88:48] Moderately complex AND No tones
2. [109:77:38] Complex AND No tones
3. [74:52:22] Moderately complex AND Simple tone system
4. [54:33:13] Moderately complex AND Complex tone system
5. [21:20:14] Complex AND Simple tone system
6. [21:16:15] Simple AND No tones
7. [16:13:6] Simple AND Simple tone system
8. [12:10:5] Simple AND Complex tone system
9. [9:8:4] Complex AND Complex tone system
6