

# A constrained syntax in a creative mind

---

Enoch O. Aboh  
University of Amsterdam

- Humans are the only species with more than seven thousand languages, even birds don't reach that number. This diversity defines us, but in research we often focus on standardisation. I want to make people aware of the differences.

**F. Ameka** (Leiden University)



There is no other animal on the planet, as far as we know, which has such myriad variants of form and meaning at every level in its communication system.  
(Levinson 2012: 397)

All individuals of all social species, with one exception, can communicate effectively using their evolved communicative displays and possibly signals with all other individuals of their species [...] The one exception is, of course, humans. (Tomasello 2008: 299)

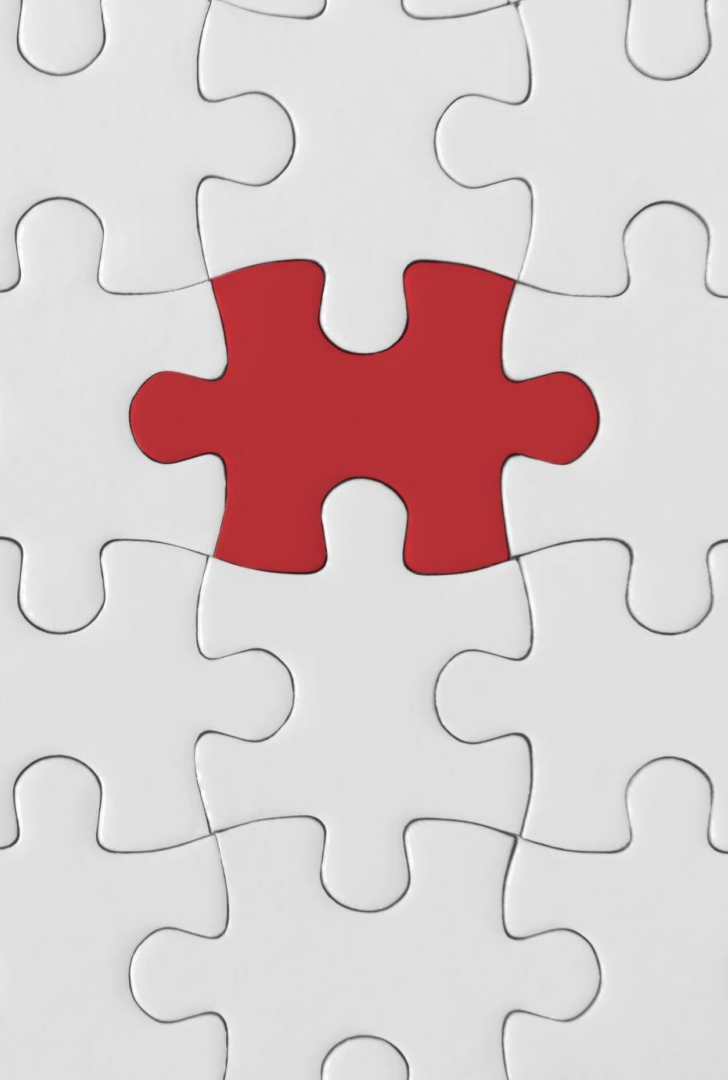


Humans appear  
super (language)  
creators.





Our linguistic creativity, however, seems very restricted given what our mind affords.



# The puzzle

---

- Given this perceived wide range of variation:

**Why just**

**7000**

**languages?**

AVRAM NOAM  
CHOMSKY



## The Martian metaphor

---

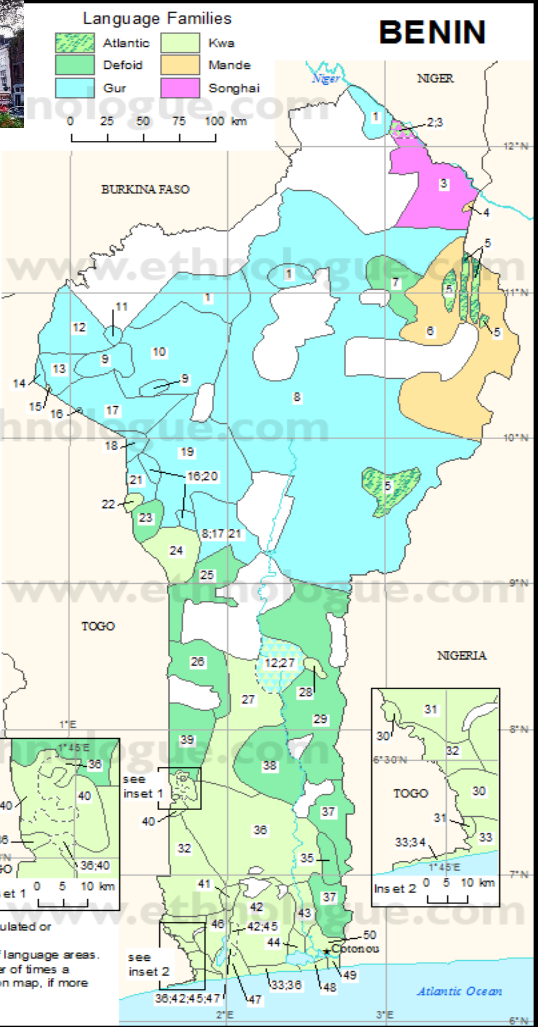
We have very strong reasons to believe that all possible human languages are very similar; a Martian scientist observing humans might conclude that **there is just a single language, with minor variants. The reason is that the particular aspect of human nature that underlies the growth of language allows very restricted options.** Is this limiting? Of course. Is it liberating? Also of course. It is these very restrictions that make it possible for a rich and intricate system of expression of thought to develop in similar ways on the basis of very rudimentary, scattered, and varied experience.

Chomsky, N. (2005) *Chomsky on Anarchism*. Edinburgh: AK Press.

**Right answer,  
wrong perspective**

Linguistic theory is  
concerned primarily with  
**an ideal speaker-listener,  
in a completely  
homogeneous speech-  
community, who knows its  
language perfectly...**  
(Chomsky 1967: 3)

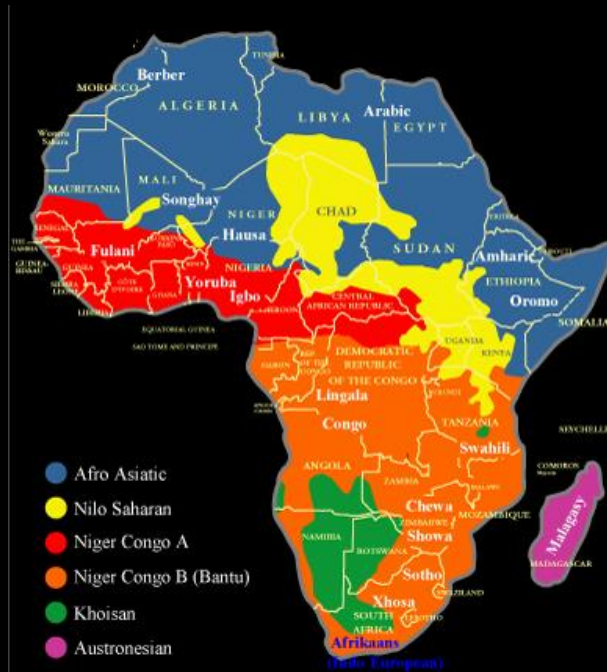




- Some **50 languages** involving **six language families: Atlantic, Defoid, Gur, Kwa, Mande, Songhai**, all belonging to Niger-Congo but very different typologically.
- **Education is all in French.**
- But **English** is introduced in secondary school (at age 10-12) as compulsory L2.
- **Spanish/German** introduced age 15-16.

# Languages of Africa

Heine and Nurse 2000, citing Grimes (ed.), 1996 suggested 2035 languages with Niger-Congo only harboring some 1436





# The perspective in this talk

---

The remarks by Ameka, Levinson, and Tomasello point to the fact that the **human language capacity evolved multilingual not monolingual**.

**Universal Multilingualism** represents speaker-learners' capacity to entertain **different linguistic features that cannot be stated in a single grammar** (cf. Roeper 2000, Aboh 2015, 2019, 2020).

## 👉 Basic Working Hypothesis 1

During acquisition, *speaker-leaners* are exposed to heterogeneous inputs from which they learn to master multiple linguistic sub-systems allowing communication in their communities (i.e., social networks).

## 👉 Basic Working Hypothesis 2

*Learning results partly from a basic cognitive process: recombination.*

**Recombination:** merges linguistic features selected from the inputs into new variants (i.e., hybrid linguistic objects).

(cf. Aboh 2009, 2015, 2019, 2020)

👉 Reminds us of Dana Lardiere's *Feature Reassembly Approach* for L2A, but differs crucially in that it applies to both L1A and L2A and generates hybrid grammars.



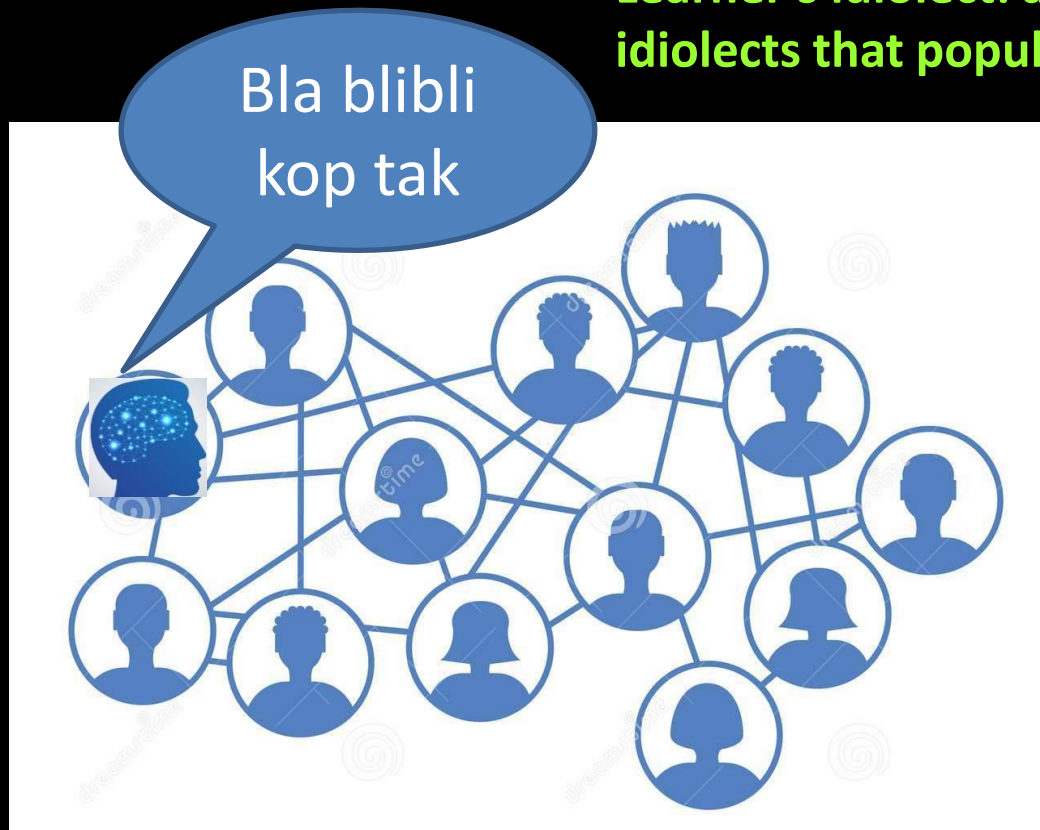
---

## Recombination

- Probes over relevant linguistic features and merges them into new bundles forming new linguistic objects.
- It's an instance of general MERGE applied to linguistic features (phonology, morphology, syntax, semantics).

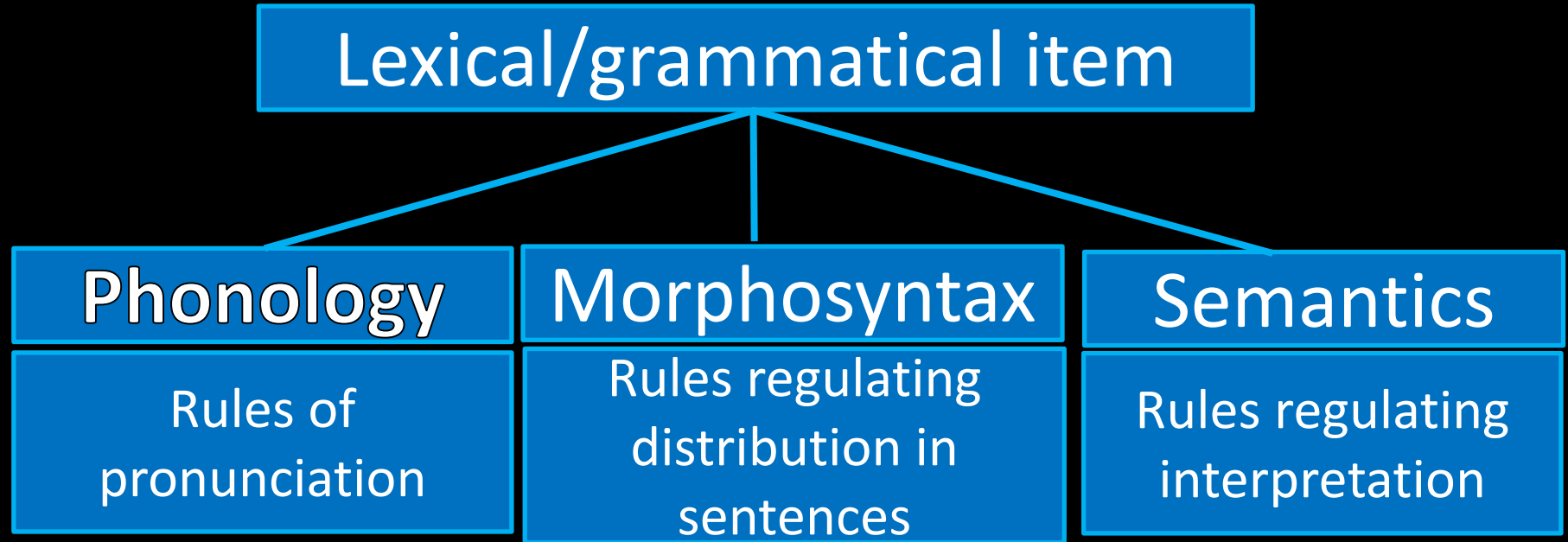
# Acquisition emerges from **contact of idiolects**

Learner's idiolect: a recombined version of idiolects that populated the inputs



Total set of linguistic features generated by individual idiolects that the learning device is exposed to via utterances: **the feature pool that triggers acquisition.**

- 👉 **Recombination** enables acquisition of the lexicon which drives syntax (cf. Borer 2005a, b).

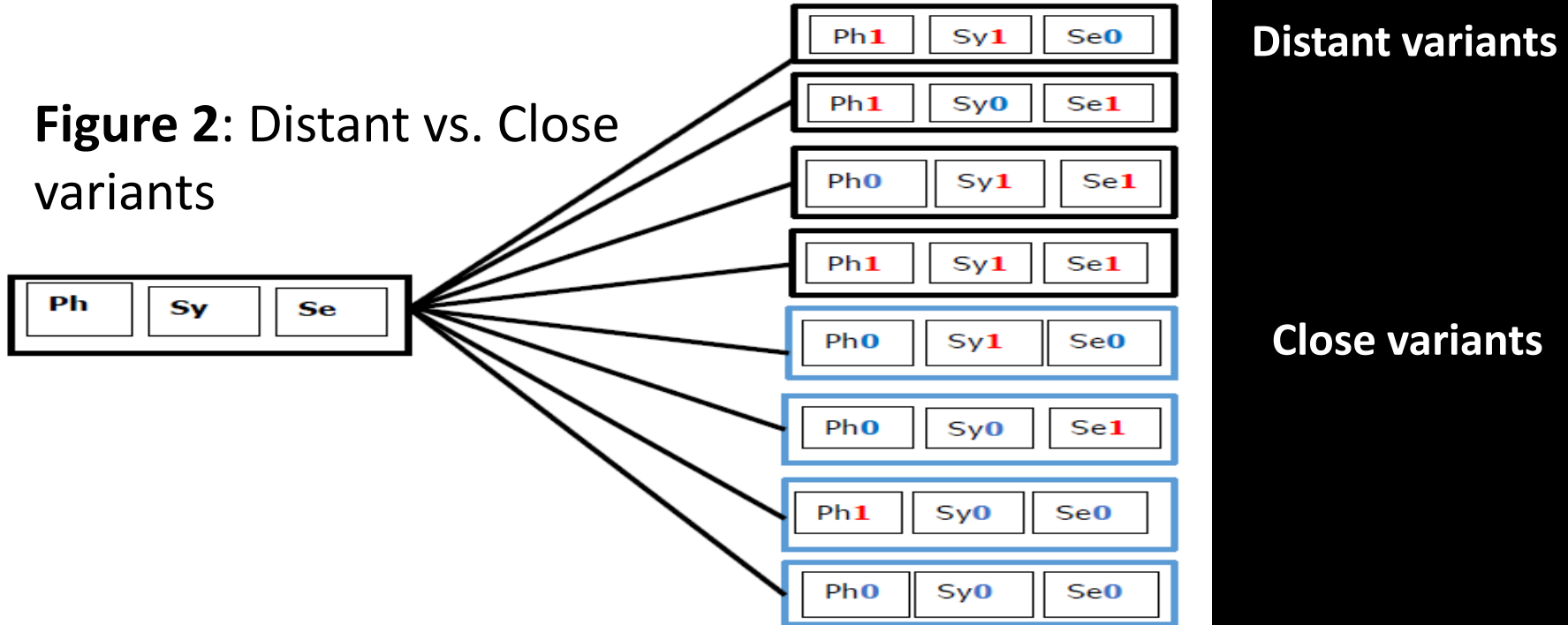




- During acquisition, any component(s) of the triplet can be affected differently.

➔ **For every lexical item to be learned 8 varying combinations are possible.**

**Figure 2:** Distant vs. Close variants



**Though close variants might be favored, all variants have a chance to spread within a community given appropriate circumstances.**

# Recombination, Acquisition, and change

- **Acquisition**: Every speaker-learner develops a mental grammar of her own that is slightly distant from that of other members of her speech community (i.e., a social network).
- The **cumulative effect** of increasingly varying individual mental grammars leads to E-language change.
- Therefore, **I- and E-languages change constantly**.



The impressive 7000 languages apparently *result from properties of recombination applying to phonology, syntax, morphology, and semantics.*

- Recombination allows a wide range of cross-linguistic variation readily observable in morpho-phonology.
- ☛ **Not everything seems allowed though:** The child S-learner must have a discovery procedure that imposes certain restrictions on the computation, by filtering out unlearnable linguistic objects.
- ☛ **There is some limit on the 7000 languages!** (cf. Lightfoot 2020).

# Principles and Parameters/Minimalism

## The restrictions result from:

- a small set of principles and how they apply to languages of the worlds (i.e., the parameters cf., *Principles and Parameters*)
- a unique structural building procedure (e.g., MERGE) and how it interfaces with other language modules (cf., *Minimalism*).

**Structural change leading to typological variation can affect any syntactic domain:**

(1) [CP/DP [InflP [PredicatePhrase ]]]

# Problem

If structural change arises from any of the three basic layers (PredP, i.e., V/N, Infl, C/D), then:

→ Why are there so few structural language types described in typological books?

Apparently, **structural variation is extremely restricted!**

Question: **Which syntactic layers are responsible for the observed limited variation?**

## In what follows, I argue that:

- Not all syntactic domains allow for structural variation.
- **Left peripheral properties** are unstable and seem to allow some structural variation.
  - ➔ Left peripheries being Phases, **variation is a Phase-level property.**



# Clause structure and the stability within vP and Infl

## Stability within vP: The Thematic Hierarchy

**General consensus across different approaches:** distinct classes of verbs (with their related valency properties), correlate with precedence relations in thematic roles, i.e., ***Thematic Hierarchy*** (e.g., Dik 1978, Givón 1984, Levin 1993, Levin and Rappaport 1995).

Various formulations of this hierarchy exist (e.g., Rappaport and Levin 2007: 2).

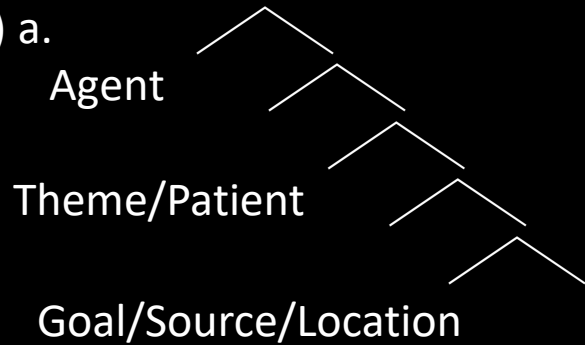
(2)

- a. Agt > Th/Pat > G/S/L (Baker 1997)
- b. Agt > Exp > Th (Belletti & Rizzi 1988)
- c. Agt > Ben > Rec/Exp > Inst > Th/Pat > L  
(Bresnan & Kanerva 1989)
- d. Agt > Pat > Rec > Ben > Inst > L > Temp (Dik 1978)
- e. Agt > Exp > Inst > Pat > G/S/L > Time (Fillmore 1971)
- f. Agt > Dat/Ben > Pat > L > Inst/Assoc > Mann (Givón 1984)
- g. Act > Pat/Ben > Th > G/S/L > Ben (Jackendoff 1990)
- h. Agt > Eff > Exp > L > Th > Pat (Van Valin 1990)

(2a) can be regarded as a rough characterization of how arguments map onto thematic roles cross-linguistically.

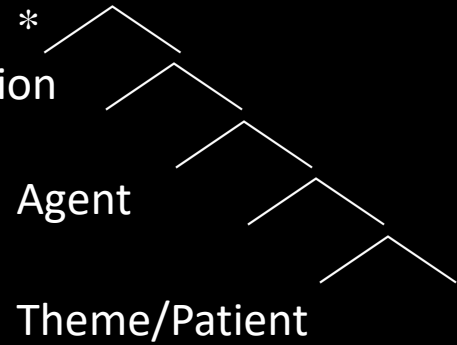
**The human mind exhibits a bias: (3a) vs**

(3) a.



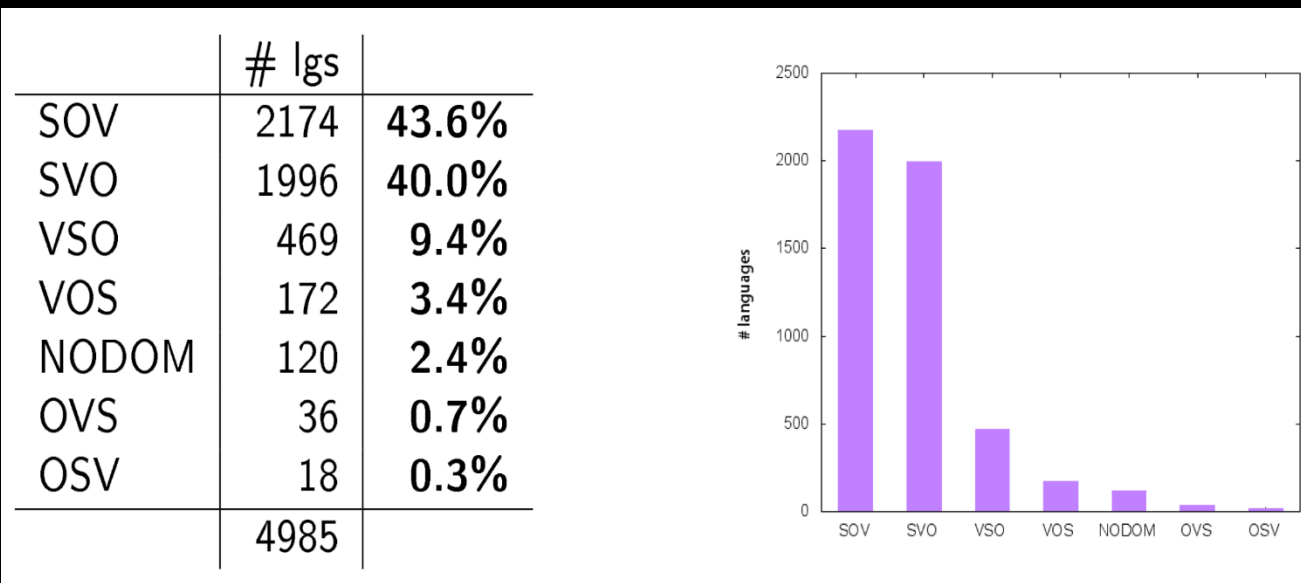
**(3) b.**

Goal/Source/Location



**Conclusion: vP**, the layer where arguments are mapped onto thematic roles and subsequently grammatical functions is very stable cross-linguistically.

# Distribution basic word orders



Under Kayne (1994) and the vP-internal subject hypothesis **SVO is basic and all other orders are derived.**

(Source: Harald Hammarström, 2014)

# Stability within Infl

Unlike the predicate layer (e.g., vP), Infl has always been assumed to be the locus of much cross-linguistic variation, in relation to case, apparent adverb positioning, and crucially verb inflection and verb movement.

- **Pollock (1989): V-to-Infl movement parameter and the 'rich inflection' hypothesis** (e.g., Rohrbacher 1994, Vikner 1997, Ackema 2001, Koenenman and Zeijlstra 2015, but see Reintges 2020 for a critique).

- 👉 Infl turns out to be expression of **“a single language with minor variants”**.
- 👉 **V-movement and word order correlations do not square with typological observations about the TMA** (cf. Bickerton 1981, 1988, Muysken 1981, Foley and Van Valin 1984, Baker 1985, Bybee 1985, Hengeveld 1989, Cinque 1999).
  - 👉 **The morphological type of a language does not play any role in the structural make-up of INFL.**

**Infl** involves a rigid hierarchy cross-linguistically: (4a) Hidasta (Siouan, Hengeveld 2006: 53), Ute (Uto-Aztecan, Cinque 1999:56) in (4b), and Saramaccan (Veenstra 1996: 20) in (4c).

- (4) a. Wíra i apaari ki stao ski  
tree it grow INCHOATIVE REMOTE.PAST EVID  
'The tree **must have begun** to grow a long time ago.'
- b. Tukua-tuka-na-puga-vaaci.  
meat-eat-HAB-PAST-EVID (hear say)  
'(She) used to eat meat (so I hear).'
- c. A bi o sa ta wooko.  
3SG PAST MOOD MOOD ASP work  
'He **could have been able** to work.'

Despite their different morphologies, Hidatsa (4a) and Ute (4b) display similar ordering (Verb-Aspect-Tense-Mood), that is, the mirror image of English in the translation of (4a) which in turn is comparable to the order in the Saramaccan example (4c).

**TMA sequencing in Hidatsa, Ute, English, and Saramaccan suggests a unique underlying structure constrained by semantic hierarchy** (cf. Hengeveld 1989, Cinque 1999).



(5) Hengeveld (2006: 53)

5 4 3 2 1 stem 1 2 3 4 5

1. qualitative aspect / agentive modality

2. tense / realis-irrealis / quantitative aspect / negation

3. evidentiality

4. illocution

5. mitigation-reinforcement

→ **Baker's (1985: 375) mirror principle: Morphological derivations must directly reflect syntactic derivations (and vice versa).**

(6) *The universal hierarchy of clausal functional projections (a second approximation)*

[*frankly* Mood<sub>speech act</sub> [*fortunately* Mood<sub>evaluative</sub> [*allegedly* Mood<sub>evidential</sub> [*probably* Mod<sub>epistemic</sub> [*once* T(Past) [*then* T(Future) [*perhaps* Mood<sub>irrealis</sub> [*necessarily* Mod<sub>necessity</sub> [*possibly* Mod<sub>possibility</sub> [*usually* Asp<sub>habitual</sub> [*again* Asp<sub>repetitive(I)</sub> [*often* Asp<sub>frequentative(I)</sub> [*intentionally* Mod<sub>volitional</sub> [*quickly* Asp<sub>celerative(I)</sub> [*already* T(Anterior) [*no longer* Asp<sub>terminative</sub> [*still* Asp<sub>continuative</sub> [*always* Asp<sub>perfect(?)</sub> [*just* Asp<sub>retrospective</sub> [*soon* Asp<sub>proximative</sub> [*briefly* Asp<sub>durative</sub> [*characteristically* Asp<sub>generic/progressive</sub> [*almost* Asp<sub>prospective</sub> [*completely* Asp<sub>SgCompletive(I)</sub> [*tutto* AspP1<sub>Completive</sub> [*well* Voice [*fast/early* Asp<sub>celerative(II)</sub> [*again* Asp<sub>repetitive(II)</sub> [*often* Asp<sub>frequentative(II)</sub> [*completely* Asp<sub>SgCompletive(II)</sub>····

**(Cinque (1999: 106))**

**---MODALITY>TENSE>MODALITY>ASPECT---**

# How old is the human bias toward TMA?

- Data from Old Egyptian suggest it's at least 2000-years old!

(7) **s–n–fh–fh–n**

‘has completely released’,

Tense-inflected causativized pluractional verb: **From left to right a causative prefix s–, the non-productive prefix n–, the lexical verb stem fh ‘to release’, the pluractional reduplicant –fh, and the Perfect tense suffix –n** (cf. Reintges 2020: 76, 77)

(8)

Highly agglutinated verb forms

s-n-fh-fh-n                      Gbb    ʕr-t(j)=f

CAUS-PFX-release-PLUR-PERF    Geb    jaw-F.DU=POSS.3M.SG

hr Dḥwt(j)-nḥt    tn

on    Thoḥ-nakht        DEM.F.SG

“(The god) Geb has completely released his two jaws on this Thoḥ-nakht (the deceased) (here).” (Coffin Texts VI 102b/B3Bo)

Reintges (2020: 77) further establishes the order in (9).

(9) Fixed affix order in internally complex inflected verb forms

Derivational Prefixes **s-** > **h-** > **n-** > Stem > Reduplicant >  
TMA morphemes > Morphological Passive **-tj**

Causative and passive morphemes represent the outmost layers as prefixes and suffixes, while reduplicants appear closer to the stem than TMA morphemes.

# Interim conclusion

- **vP is very stable cross-linguistically** (cf. argument structure and mapping of thematic roles).
- **The morphology of INFL changes a lot but its underlying structure (i.e., scope relations) remains the same (TMA).** (Very old and new languages all abide by the TMA- structure).

- 👉 The language instinct is biased toward a specific TMA sequencing. *This knowledge is innate*, hence the *typological astonishing uniformity* (cf. see work of Bolan 2006, and de Lissler 2015 on acquisition).
- 👉 The limits on human language is to be found in the TMA domain.

## → Fast acquisition of INFL.



**Wexler (1998: 43)** observes children's capacity to acquire inflectional morphology and concludes: "they are little inflection machines".



## ➔ **Logical conclusion**

If INFL (TMA) and vP are immune to change, then typological structural change must come from the Left Peripheries?

# The origin of structural variation

## On vulnerable Left Periphery and linguistic change

C (i.e., complementizer system) is hard to acquire both for L1 and L2 speaker-learners. As such it is subject to reanalyses and therefore represents a point of change in individual mental grammars.

# The case of Modern English

- **Common assumption:** lost of rich INFL morphology  
→ loss of V-movement → loss of V2 → word order change OV to VO.
- Kroch, Taylor, Ringe (2000) suggest a different scenario.

## Competition between two types of V2 structures:

**CP-V2**, (e.g., German, Dutch, and modern Mainland Scandinavian).

**Limited to complement of bridge verbs** (e.g., *think*, *say*, *believe* in embedded clauses that have the structure of matrix clauses, allow null C or an additional C).

**IP-V2**, (e.g., Yiddish and Icelandic). Displays **V2 word order in a much wider range of subordinate clauses**.

**Southern dialect of Middle English** preserved **V2 syntax of Old English**, but **Northern dialect had V-movement syntax of a standard CP-V2** (similarly to the modern Mainland Scandinavian languages).

## Kroch, Taylor, Ringe (2000):

The transition from IP-V2 to CP-V2 in the North was probably an effect of imperfect learning by the Scandinavian immigrants of the English to which they were exposed. [...] This imperfectly learned English [...] led to the postulation by learners of C as the landing site for verbs in V2 sentences. [...] This second-language learning effect was passed on to the children of the immigrants, along with a number of true substratum effects [...], and so became an established feature of the northern dialect [...] We show that [...] that **the loss of V2 in modern English was probably the result of contact, mixture and grammar competition between them.**

# Interim conclusion

- Though the morphology is gone, English TMA is structurally similar to other Germanic languages (**and to all languages**).
- The loss of V2 in English, is not much a question of impoverishment of INFL **but rather the result of a competition between a CP-type V2 and an IP-type V2. The CP-type V2 was selected against.**

# A typological bird's eye view

- Slavic, West-Germanic, Romance, Niger Congo, Sinitic, Afro-Asiatic, all have a fixed TMA architecture, but ***differ drastically with regard to Information structure and C/D/L<sub>VP</sub>-level properties!*** (Keeping in mind that much word order variation within the clause and the noun phrase is tied to Information Structure, e.g., definiteness, specificity).

# First claim

- Languages seem to vary structurally **only with regard to their Left periphery (C/D/L<sub>VP</sub>)**, involved in licensing Information structural properties, rather than with regard to their Infl domain.
  - ➔ Also consider work on article language vs. languages without articles (e.g., P. Longobardi, G. Chierchia, Ž. Bošković)



# Simple contrast between English and Gungbe

- Both languages have a similar TMA

(10) Kòfí dọ ná wá

Kofi HAVE PREP come

‘Kofi **has to** come.’

# English Left Periphery

- V2-like properties, wh-movement, subject-Aux inversion, Locative inversion, Negative inversion

(11) Salima, Greta she will talk to tonight.

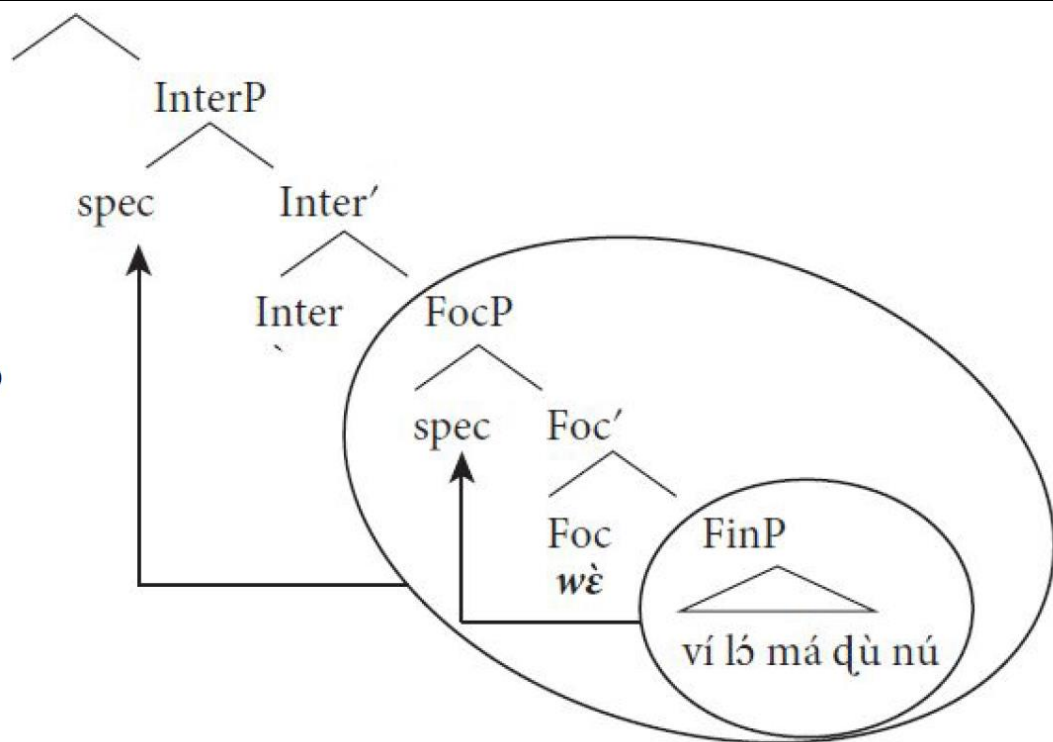
(12) \*/??I think that Salima, Greta she will talk to tonight

# Gungbe Left Periphery

- Topic and Focus Phrases with respective markers. Movement of topicalised and focused phrases (including wh-phrases).
- Embedded topic and focus phrases are ok and Generalized Pied-piping to the left periphery is fine.

Ví lɔ́ má ɖù nú wɛ̀? [Gungbe]  
 child DET NEG eat thing FOC.INTER

‘HAS THE CHILD NOT EATEN (YET)?’



Only some languages allow such a massive Generalized Pied-Piping, why? (cf. Collaboration with U. Shlonsky)

## Second claim

- Because C/D/ $L_{VP}$  relates to Information structure and represents a delicate point of acquisition, it allows more speaker-learner's reanalyses leading to more hybrid structures.

## Looking at Modern English again

- ⇒ **English developed a hybrid system** (cf. Aboh 2015): loss of CP-type V2, but residual V2 in interrogatives and some inverted negative constructions (Haegeman 1995, Rizzi 1996).
- ⇒ **Compared to West Germanic, English is a new language type:** Restructuring of the C-system with residual V2, but SVO makes it very West Germanic-like in basic neutral main clauses.
- ⇒ **A change in the left periphery led to a restructuring of the clause structure** (e.g., rigid SVO in English vs. SOV in with scrambling possibilities in West Germanic).

## Further prediction

- In acquisition (and in contact situation), C is more likely to be affected than Infl.
- Advanced (and probably atypical) learners will have **more difficulties acquiring structural properties of the left periphery than Infl.**

## A point of clarification

- The discussion focuses on structural properties rather than morphological properties (even though the two may be linked).
  - ➔ Morphology spells out structure and can co-vary with it.



# C/D is a challenge for L1 and L2 speaker-learners of different profiles

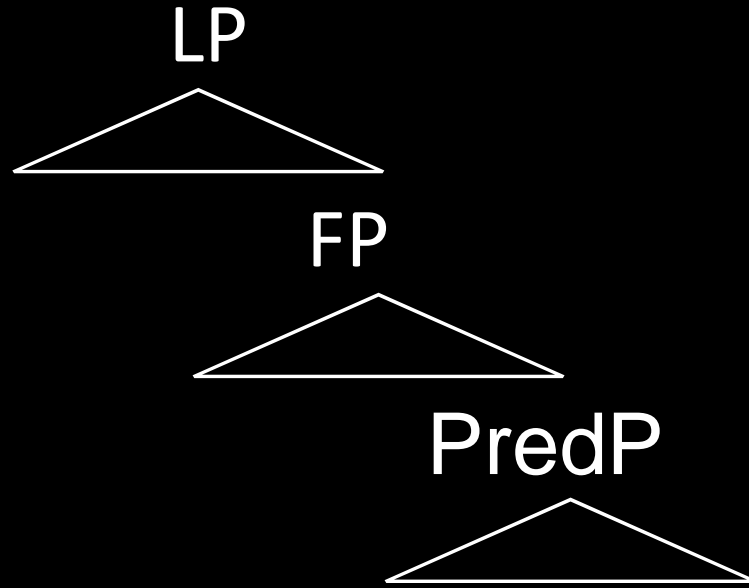
- E.g., Muller 1998, Hulk 2000, Hulk and Müller 2000, Müller and Hulk 2001, Haznedar & Schwartz 1998, Lardiere 2000, Prévost & White 2000, Goad & White 2004, Sorace 2005, Tsimpli and Sorace 2006, Sorace and Serratrice 2009, Ribbert and Kuiken 2010, Aboh 2015....

# Discussion and speculations

- The left periphery, i.e., the phase-level appears to be a point of typological variation.
- This is compatible with existing literature: Information Structure (IS), and its related word order patterns, determined by the left periphery, is the source of major cross-linguistic variations: Slavic vs. Romance/Germanic, Germanic vs. Romance, Kwa vs. Bantu, Kwa/Bantu vs. Slavic/Romance/Germanic.

Under Bowers (1993), we can assume (10) predicate phrase PredP, a functional layer FP (including TMA and modifiers), and an LP.

(10)



## The next question

- Why does the phase level L represent a point of typological variation?

# Some speculations to be further researched

- L has **three fundamental properties**: it is **a point of spell-out, a point of labeling** (according to Rizzi 2006, and much related work), **and an interface between the propositional content and the discourse.**

- This may lead to acquisition difficulties due to integration of these three aspects. **Speaker/signer-learners arguably postulate more competing alternatives for this layer.**

The competition between CP-V2 and IP-V2 in the development of Modern English is illustrative: both produce SVO patterns on the surface.

**Brain structure and processing:** Most current studies assume clause structure (10) to be processed by the same neural network. There is, however, no principled reason to assume this.

The asymmetry between the phasal domain LP, and the FP domain is in line with recent suggestions that syntactic processing involves several brain regions even though these networks may be specialized in linguistic computation (e.g., Vigliocco 2000, Blank et al. 2016 and references therein)..

☞ Accordingly, it may well be the case that *LP and FP\_PredP are not processed similarly, though the two levels need be integrated before spell-out.*

☞ As far as I know this kind of distinction is not made in current processing studies which rather take a linear perspective.



# Conclusion

The data discussed indicate that:

- Clause structure is remarkably stable when it comes to FP, the TMA domain.
- Limited structural cross-linguistic variation in human languages derives from LP, the left periphery, and phase level.

- LP is vulnerable during acquisition and contact, and allows more reanalyses leading to typological variation.
- LP is a spell out point as well as an interface level. These two properties arguably cause processing complexity.
- It is further speculated that LP and FP might be processed differently in the brain.

- **Recombination** produces variation through hybrid structures.
- **Recombination** allows more variants in C/D than in IP and vP.
- The **limits on recombination** and therefore on the **human language capacity** seem to **reconcile** the tension between **flexibility** required by **Universal Multilingualism**, and **Efficiency-and-Speed** of the learning algorithm.

***Thank you***