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Magnetic Grammar.

When variation is built in the system

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Linguistic Variation

In Syntax

- variation in the **computational system** (like, in "macroparametric" approaches, Chomsky 1981 ff., Baker 1996, 2008, Huang 2005, and many others)

- variation in the **setup of features** ("microparametric" approaches, see the Borer-Chomsky conjecture in Baker 2008, or clusters of microparameters, Holmberg & Roberts 2008 and many others)

- **The computational system of language is unique, and what needs investigation is the locus of variation (for instance, interface conditions that are different in different languages)**

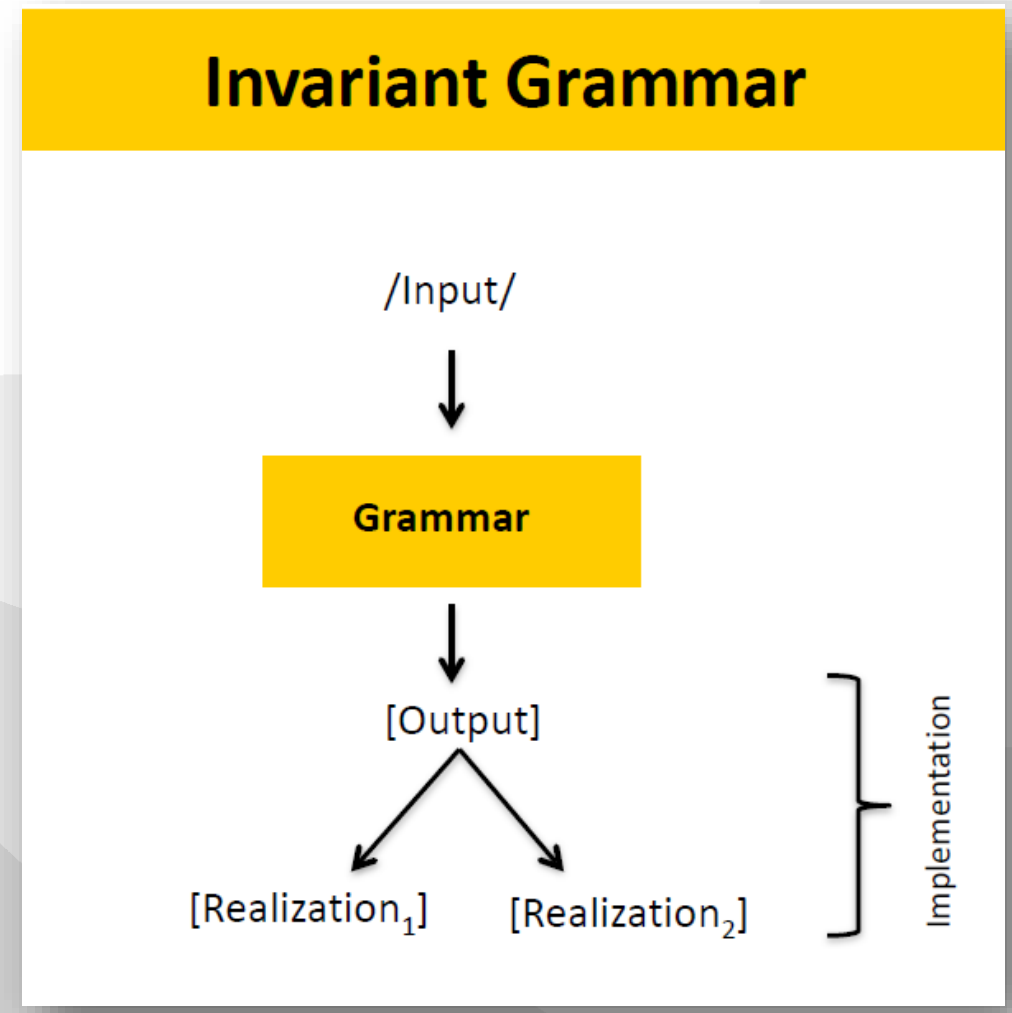
Linguistic Variation

In Phonology

Less worry about the locus of variation but more debate about **models of variation in the grammar:**

- **different rules systems** (Chomsky & Halle 1968)
- **parameter theory** (Hayes 1995)
- **constraint ranking** (Prince & Smolensky 2004)

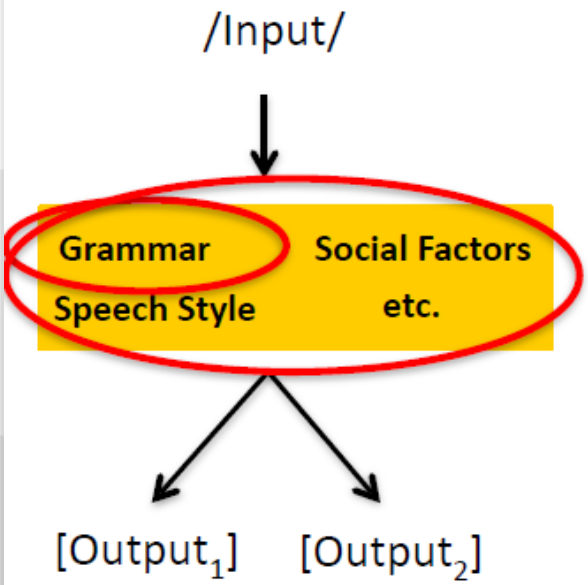
Coetzee (2017)/Crecchio workshop



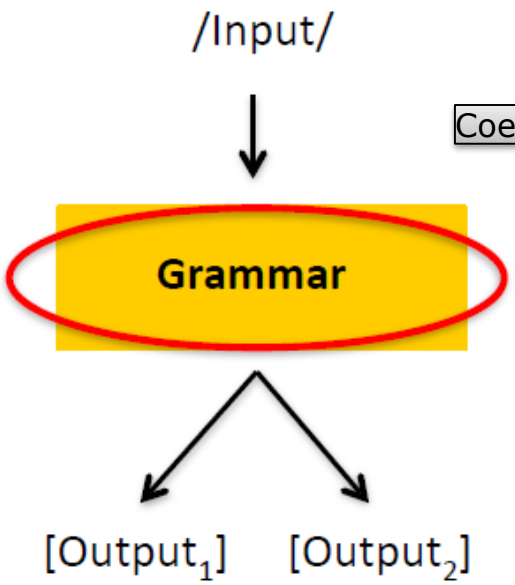
Coetzee (2017:12)

Coetzee (2017) Crecchio workshop

Variable Grammar: Two models



(Labov 1969, Cedergren & Sankoff 1974, Sonderegger 2012, etc.)

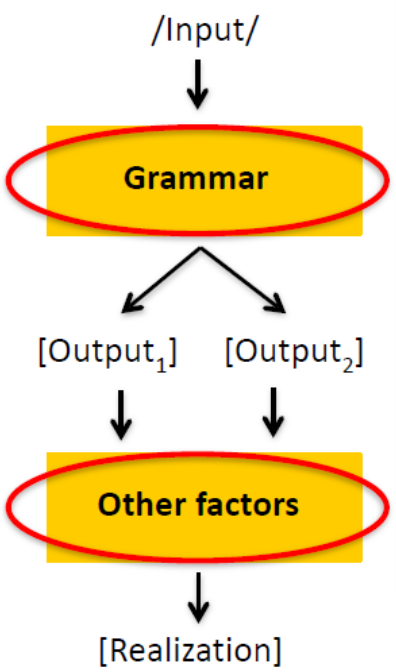


(Anttila 1997, Boersma & Hayes 2001, Reynolds 1994, etc.)

Coetzee (2017:13)

Coetzee (2006, 2017) AND Adger (2015)

Grammar Defined Variable Space



variants.

(Coetzee 2006, 2009ab; Coetzee & Kawahara 2013; Boersma & Hayes 2001)

In the Combinatorial Variability model, the grammar (**G**) produces a *Pool of Variants*, PoV, where each variant is a distinct feature complex, with the same semantic interpretation, and with potentially different phonological forms.

(36) $\mathbf{G} \rightarrow \{ v_1, \ldots v_i \ldots v_n \}$ (=PoV)

I assume a distinction between knowledge of language and use of language (Chomsky 1965), so that **G** is embedded in a performance model. One can conceive of the systems of use **U** as a choice function on the pool of variants, given a context of utterance **C**:

(37) $\mathbf{U}(\text{PoV}, \text{C}) = v_i \in \text{PoV}$

(Adger 2015:14)

Why phonology is different.
Is it?

Do Syntax and Phonology work with completely different tools, in a completely different way?

Sets of operations that are module-specific
Sets of tools that are module-specific
Lexical entries that are module-specific

Biolinguistics: what is special about language; what can't be found in other cognitive systems
But what about similarities across modules? (Nevins 2012)

What Syntax and Phonology (might) have in common

- **Constituent structure / linear order?**
- **Locality/Cyclicity (Domains)**
- **Features**

Towards a uniform Theory of Variation

The locus of variation is **FEATURES**

- Phonology: [uvular]
- Syntax: [feminine]

Too simplistic!
You need to learn **how features can be combined**

Features can be combined
...in a language-specific way

PROPOSAL

Linguistic representations have **two types of primitives**:

- **Syntactic and phonological items** (of the X, XP, Feature sort in syntax, and of the feature, segment, syllable, foot sort in phonology)
- **FORCES** operating on those primitives

Forces

ATTRACTION (⊃): The tendency for elements to get embedded in the same domain

REPULSION (*): the (conflicting) tendency for elements to get outside of each others domain

Forces

F	**G**
⊃ H	**⊃ F**
*** G**	*** H**

where F, G and H are features, ⊃ indicates ATTRACTION (in 1, feature F attracts feature H, feature G attracts feature F); * indicates REPULSION (in 1, feature F repels feature G; feature G repels feature H).

Forces

These forces are seen as properties of the primitives themselves

Example:
A hypothetical language only has a labial nasal m and no other nasals, although it has other labials (say, p and b), and that the relevant features are [Nasal] and [Labial].

(1)
[Nasal ⊃ labial]
[Labial]
[Coronal*Labial]
[Voice *Nasal]

[t, d, p, b, m]

What the child has to learn

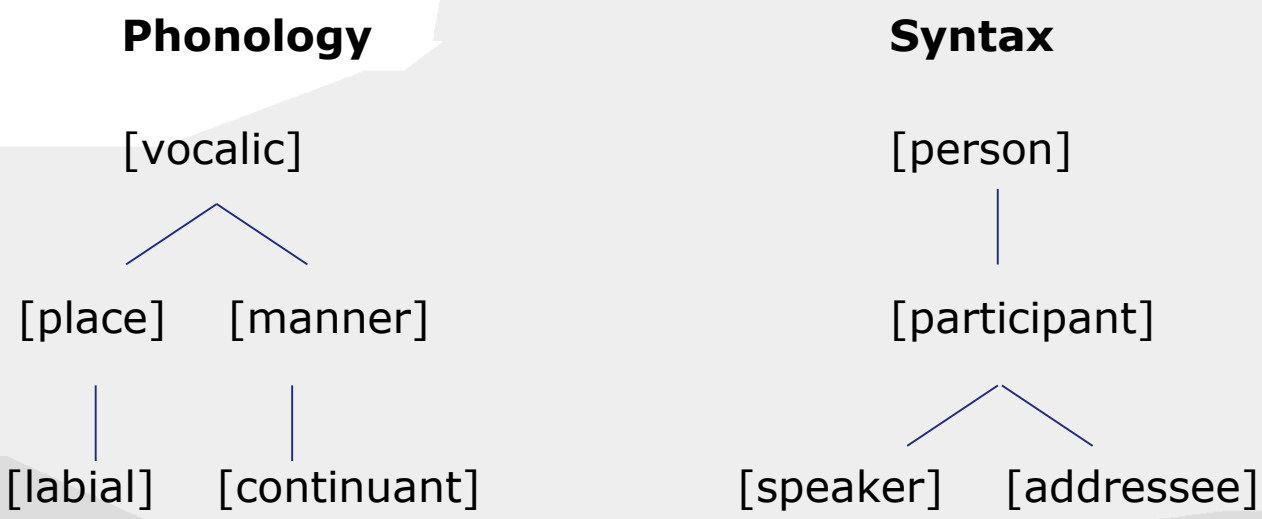
The grammar of a language

The grammar of a language consists of:

a. a set of primitives of the shape [F; ⊃ G, *H,…], with F, G and H labels of e.g. features, labels of nodes, etc.

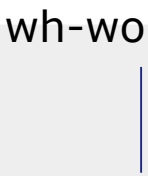
b. a universal combinatorial system

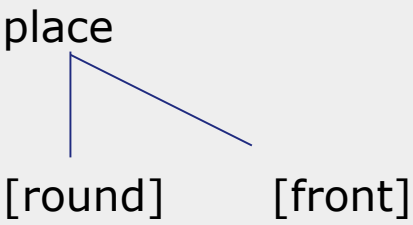
Feature hierarchy



Attraction, repulsion, hierarchy

Attraction and repulsion can target any node which exhibits the feature





wh- in situ	C ⊃ wh-	front harmony	vocalic ⊃ front
wh movement	C ⊃ wh- word	place harmony	vocalic ⊃ place

(see Van Craenenbroeck's 2006 foot-driven mvt, and others)

Feature strenght in syntax

Early Minimalism was all about feature strength

Features were disentangled from their hosts, and could be attracted

Strong features: overt movement
Weak features: covert movement

V-movement: strong V feature (etc)

Feature strength in syntax

Pros:

Possibility to account for the co-occurrence of agreement and movement

Cons:
Ad hoc stipulation of the strength/weakness

(is this really a problem, if we want to account for (micro)variation?)

Attraction

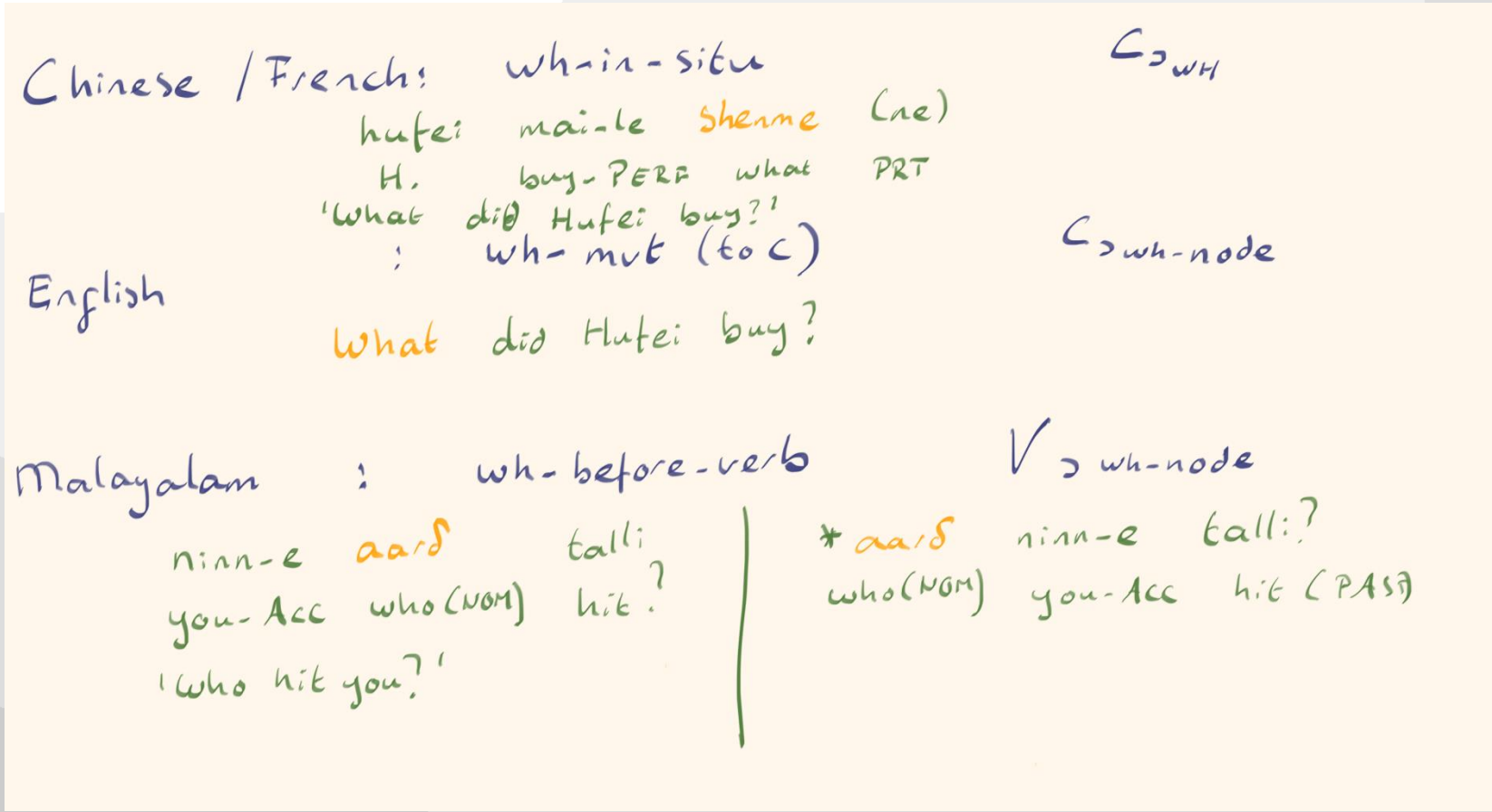
Syntax: Verb movement, wh-movement, agreement...

Phonology: harmony, assimilation...

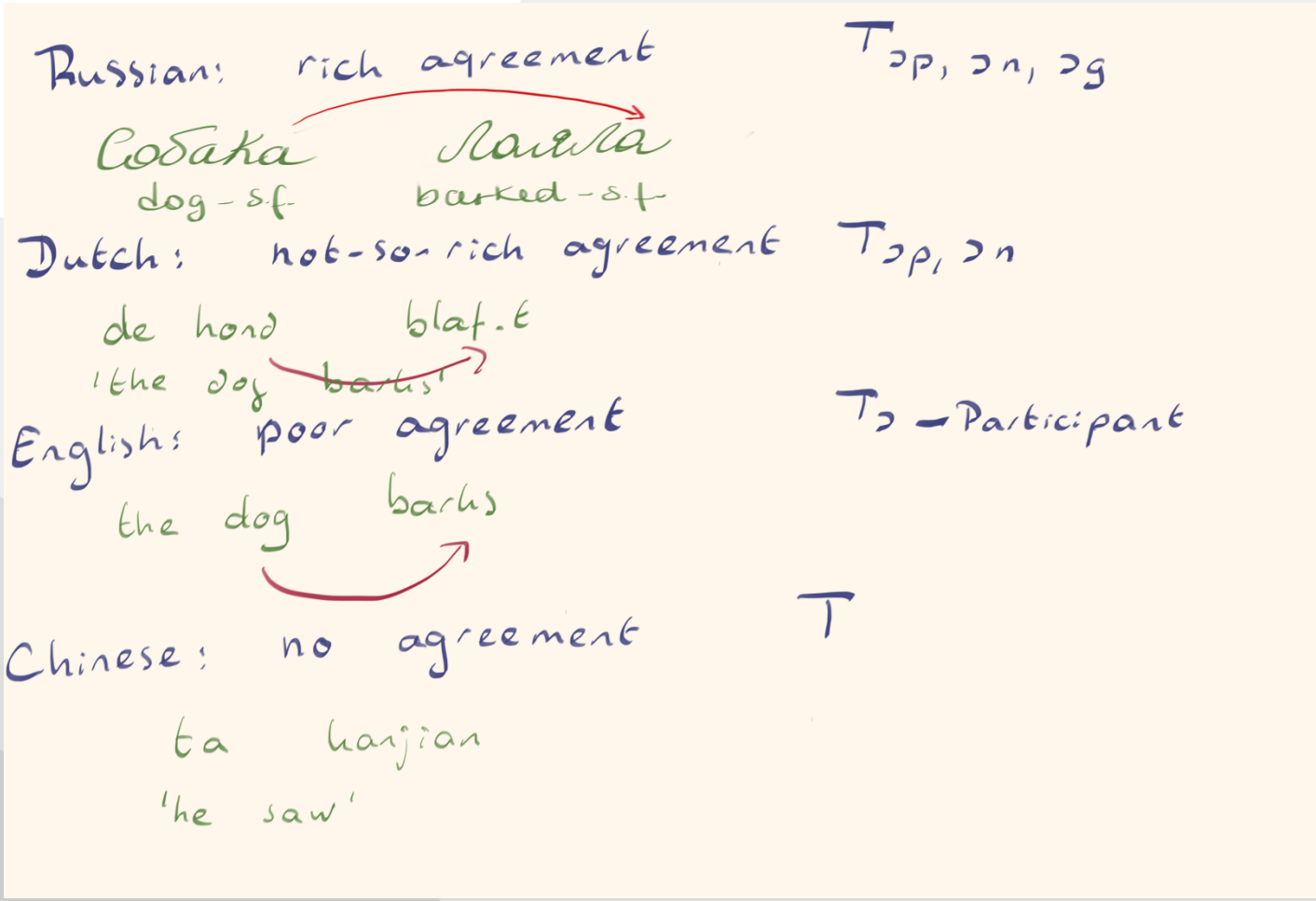
Verb movement and wh- movement

Romance:	V-to-T	**T ⊃ V**
Germanic:	V-to-C	**C ⊃ V**
English:	V in situ	---

Wh- movement


Chinese / French: wh-in-situ
C ⊃ WH
hufei mai-le shenme (ne)
H. buy-PERF what PRT
'What did Hufei buy?'
: wh- mvt (to C)
C ⊃ wh-node
English
What did Hufei buy?
Malayalam : wh-before-verb
V ⊃ wh-node
ninn-e aarə talli
you-Acc who(NOM) hit?
'Who hit you?'
*aarə ninn-e talli?
who(NOM) you-Acc hit (PAST)

Agreement


Russian: rich agreement
T_3p, 3n, 3g
Собака лаяла
dog-s.f. barked-s.f.
Dutch: not-so-rich agreement
T_3p, 3n
de hond blaf.t
'the dog barks'
English: poor agreement
T_3 – Participant
the dog barks
Chinese: no agreement
T
ta hanjian
'he saw'

More syntactic attraction

Scrambling

Negative concord

Clitic (doubling)

Attraction in phonology

Turkish vowel harmony

(53)		*nom sg.*	*gen.sg.*	*nom.pl.*	*gen.pl.*
1.	'rope'	ip	ipin	ipler	iplerin
2.	'girl'	kız	kızın	kızlar	kızların
3.	'face'	yüz	yüzün	yüzler	yüzlerin
4.	'stamp'	pul	pulun	pullar	pulların
5.	'hand'	el	elin	eller	ellerin
6.	'stalk'	sap	sapın	saplar	sapların
7.	'village'	köy	köyün	köyler	köylerin
8.	'end'	son	sonun	sonlar	sonların

Jensen (2004:139)

Turkish Vowel Harmony	Front		Back	
	Unrounded	Rounded	Unrounded	Rounded
Vowel	e /e/ i /i/	ü /y/ ö /ø/	a /a/ ı /ɯ/	u /u/ o /o/
Simple system	e		a	
Complex system	i	ü	ı	u

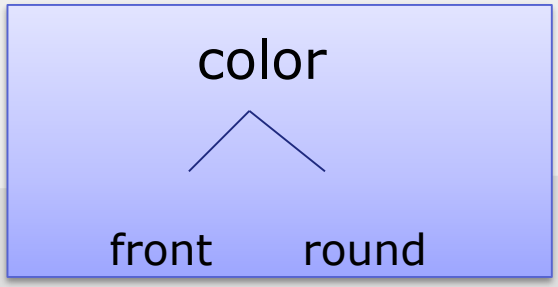
Turkish vowel harmony

Turkish

vocalic ⊃ color, ⊃ front, ⊃ round

low * round

Dutch vocalic



Static attraction

Phonology also provides static evidence for attraction

In some languages the only nasal is /m/

nasal ⊃**labial**

Repulsion in syntax

A feature repels some other feature

In Italian, negation repels imperative

Neg * inf

(1) dam-mi la penna
give-me the pen

(2) *non dammi la penna
(3) Non dar-mi la penna
not give.inf-me the pen

More repulsion in syntax

PCC (3 Dat *1,2 acc)

OCP in syntax (*le lo, *si si, *gli lo)

Also some mysterious forbidden clitic clusters can be accounted for in this system, like those found in some Italian dialect

Pescarini (2011: 12)

		Spanish	Italian	Vicentino
a.	Dat Acc	*se lo*[5]	*glielo*	*ghe lo*
b.	Acc Dat	*	*	*
c.	Dat Imp	*	*gli si*	*ghe se*
d.	Imp Dat	*se le*	*	*se ghe*
e.	Dat Refl	*	*gli si*	*ghe se*
f.	Refl Dat	*se le*	*	*se ghe*
g.	Acc Imp	*	*lo si*	*lo se*
h.	Imp Acc	*se lo*	*	*se lo*
i.	Acc Refl	*	*	*
j.	Refl Acc	*se lo*	*se lo*	*se lo*
k.	Imp Dat Acc	*	*	*se ghe lo*
l.	Dat Acc Imp	*	*glielo si*	*ghe lo se*

Repulsion in Syntax

More cases: Van Craenenbroeck (2006:53-54)

WH < CHE

Me domando **chi** **che** Nane ga visto al marcà.
me I.ask who that Nane has seen at.the market
'I wonder who Nane saw at the market.' (Venetian)

CHE ≮ WH

*Me domando **che** **chi** Nane ga visto al marcà.
me I.ask that who Nane has seen at.the market

CHE < CLLD

Me dispiase **che** **a** **Marco** i ghe gal
me is.sorry that to Marco they to.him ha
'I am sorry that they said so to Marco.' (V

CLLD ≮ CHE

*Me dispiase **a** **Marco** **che** i ghe gabia ditto cussi.
me is.sorry to Marco that they to.him have.SUBJ told so

Repulsion in Syntax

More cases: Van Craenenbroeck (2006:55)

WH <CHE CHE<CLLD

~~WH < CLLD~~

WH ≮ CLLD

*Me dom... chi el premio Nobel che i ghe lo podarìa dar

me I.asl

WH ≮ C

*Me don

me I.asl

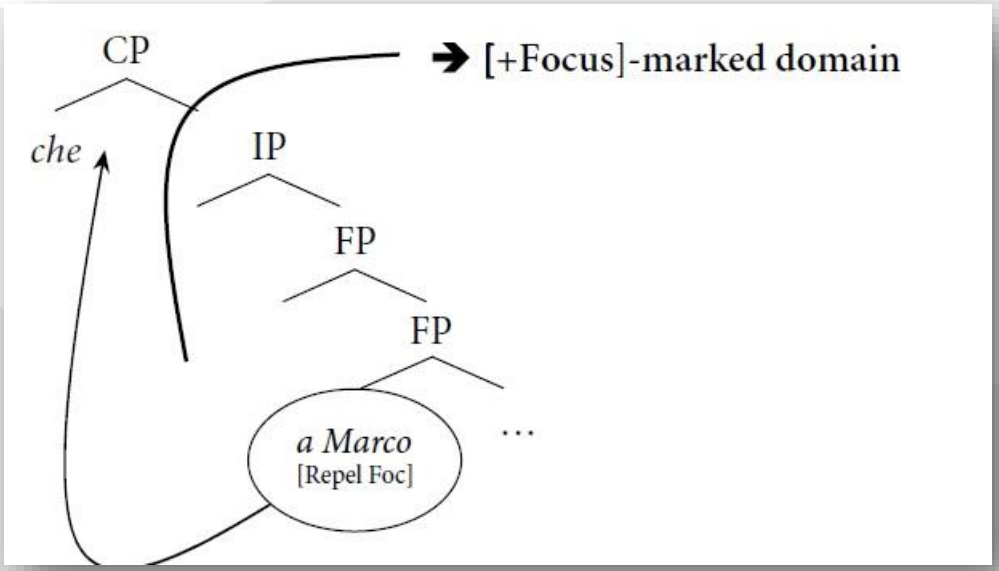
INTENDED: 'I wonder to whom they could give the Nobel Prize.' (Venetian)

CLLD < WH

Me domando el premio Nobel a chi che i ghe lo podarìa dar.
me I.ask the prize Nobel to who that they to.him it could give
'I wonder to whom they could give the Nobel Prize.' (Venetian)

Repulsion in Syntax

Van Craenenbroeck's proposal:
CLLD items are marked as Repel Focus



Repulsion in Phonology

Dutch does not have voiced velars

velar *voice

(Van 't Veer: acquisional patterns work with features)—

OCP in phonology (Leben 1973)

H*H

(two high tones are not allowed to be adjacent in Chichewa, for instance)

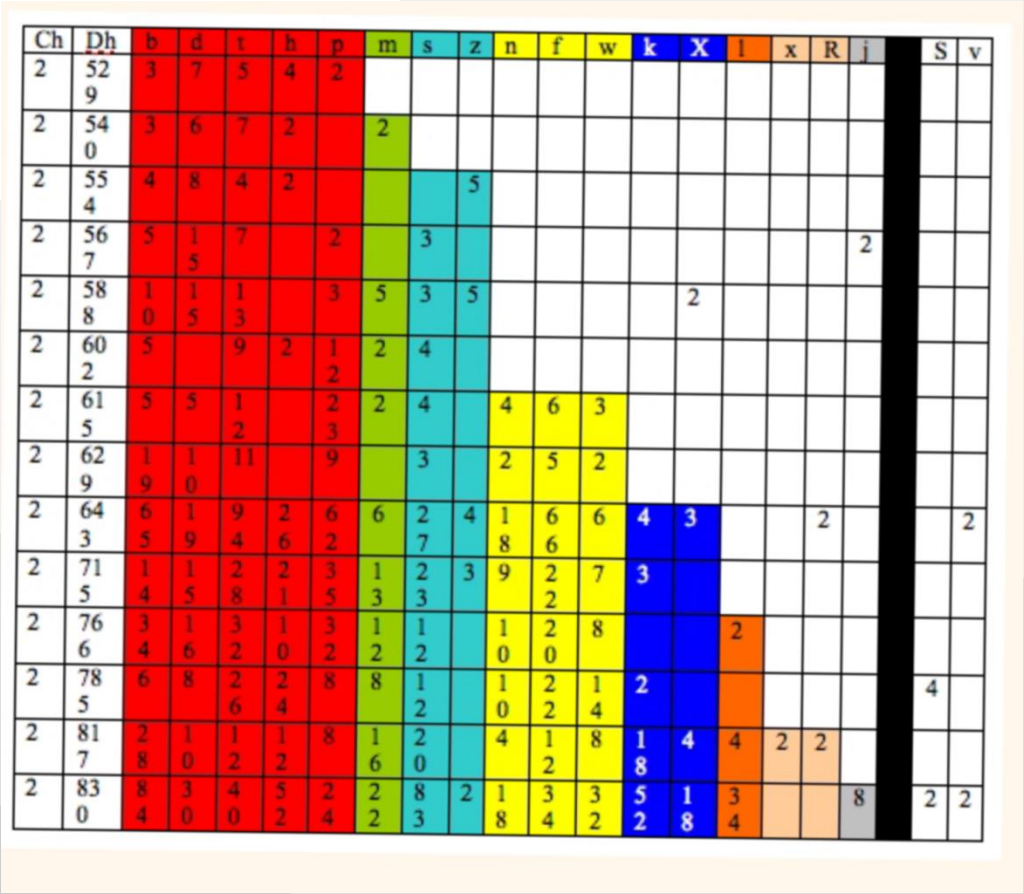
Feature interaction

Not all features interact

No interaction between phonological and syntactic features

This might be a help for learners

Learning the inventory of your language



Ch	Dh	b	d	t	h	p	m	s	z	n	f	w	k	X	l	x	R	j		S	v
2	529	3	7	5	4	2															
2	540	3	6	7	2		2														
2	554	4	8	4	2				5												
2	567	5	15	7		2		3										2			
2	588	10	15	13		3	5	3	5					2							
2	602	5		9	2	12	2	4													
2	615	5	5	12		23	2	4		4	6	3									
2	629	19	10	11		9		3		2	5	2									
2	643	65	19	94	26	62	6	27	4	18	66	6	4	3			2				2
2	715	14	15	28	21	35	13	23	3	9	22	7	3								
2	766	34	16	32	10	32	12	12		10	20	8			2						
2	785	6	8	26	24	8	8	12		10	22	14	2							4	
2	817	28	10	12	12	8	16	20		4	12	8	18	4	4	2	2				
2	830	84	30	40	52	24	22	83	2	18	34	32	52	18	34			8		2	2

Learning the inventory of your language

Voice, Labial, Coronal

Nasal ⊃ labial

Continuant ⊃ coronal

Nasal, Continuant

When a learner already has acquired features F,G and turns to acquire H, s/he postulates

H ⊃F, H*F
H ⊃G, H*G

Later, properties can be removed

Conclusions

Common tools/block for syntax and phonology

What differs is the interface material, not the setup of the features

This is more of a program than a model