LFG Contributions in SLA Research: The development of case in Russian L2

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1. Case in LFG

NORDLINGER (1998): The Constructive Case

- "In nonconfigurational languages inflectional morphology takes on much of the functional load of phrase structure in more configurational languages like English, determining grammatical functions and constituency relations"
- "Case marking enables nonconfigurationality by directly constructing all of the information about grammatical functions"

1. Case in LFG

KING (1995): Case assignment in Russian

There are 4 types of case assignment in Russian:

- Semantic
- Configurational
- Lexical
- Grammatical Functions

Semantic case assignment

A particular case is associated with a particular semantic role

e.g., INST for <instrument>

Ona	napisala	pís'mo	karandašom.
she	wrote	letter	pencil-INST

'She wrote the letter with a pencil.'

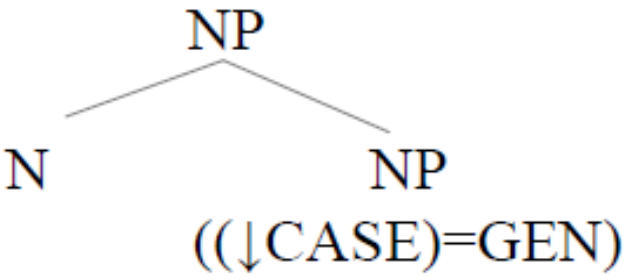
Configurational case assignment

Any noun appearing in a certain phrase structure position (i.e., in the c-structure) is assigned a specific case

e.g., GEN in NP

NP ⟶ N (NP)
((↓CASE) = GEN)

[kniga]$_N$ [Ivana]$_{NP}$
book Ivan-GEN
'Ivan's book'



Lexical case assignment

Lexical case is assigned as a lexical requirement by certain prepositions or verbs

e.g., by PREP

a. *u* 'at/near' PREP $< \theta >$
($\uparrow$OBJ CASE) = GEN

b. u [okna]$_{OBJ}$
at window-GEN
'at the window'

e.g., by V

a. *ždat'* 'wait' V <SUBJ, OBJ>
($\uparrow$OBJ CASE) = GEN

b. *Marija ždët [otveta]$_{OBJ}$*
Marija waits answer-$_{GEN}$

Grammatical Functions assignment

Nouns are assigned case in accordance to their Grammatical Functions

e.g., NOM to SUBJ

$(\uparrow \text{TNS}) \longrightarrow [(\uparrow \text{SUBJ CASE}) = \text{NOM}]$

Prišel [vrač]$_{SUBJ}$.
arrived doctor-NOM
'A/the doctor arrived.'

e.g., ACC to OBJ

$((\uparrow \text{OBJ CASE}) = \text{ACC})$

Inna videla [sobaku]$_{OBJ}$.
Inna saw dog-ACC
'Inna saw the dog.'

2. Processability Theory (PT)

- **Pienemann (1998)**
- **Pienemann, Di Biase & Kawaguchi (2005)**
- **Bettoni & Di Biase (in preparation)**

aims to integrate the previous two components and explore further possibilities

SLA Theories

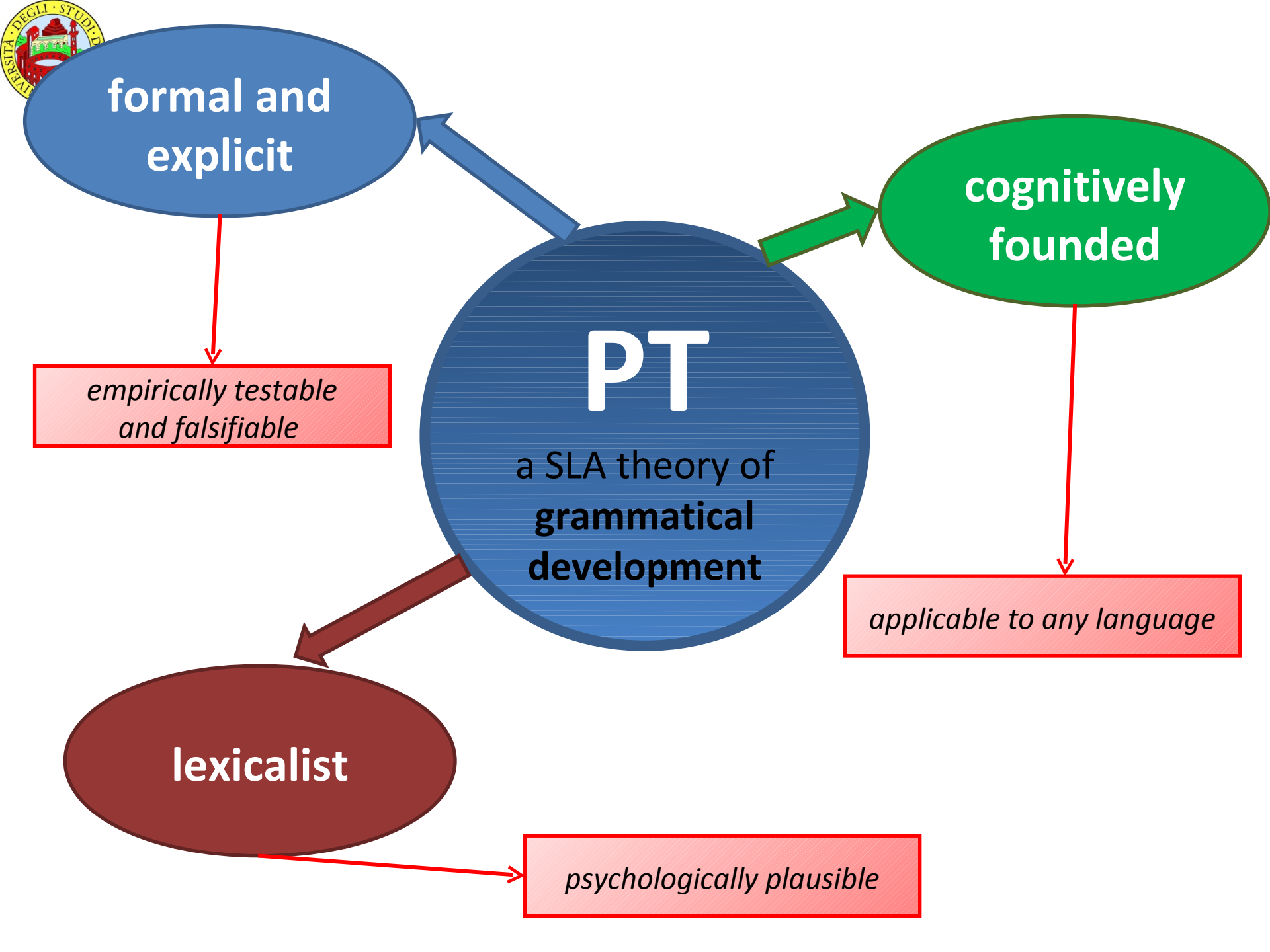
property theories

mental representation of grammatical **knowledge**

transition theories

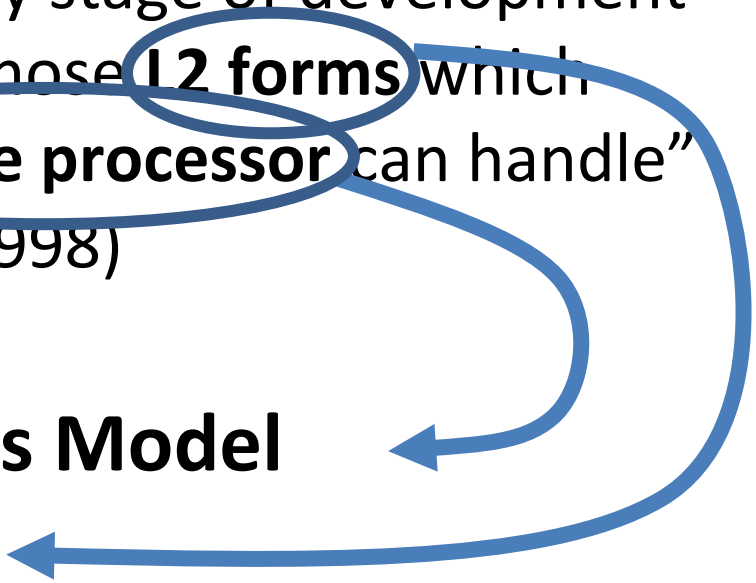
development of grammatical **production**

PT


formal and explicit
empirically testable and falsifiable
cognitively founded
applicable to any language
PT
a SLA theory of grammatical development
lexicalist
psychologically plausible

Language acquisition is
a sequence of
stages

"The underlying logic is that at any stage of development learners can produce only those **L2 forms** which the current state of their **language processor** can handle"
(Pienemann 1998)



language production **Levelt's Model**

linguistic knowledge **LFG**

2.1 Morphological Development

Levelt's Model provides PT with the sequence in which grammatical procedures are activated in language production

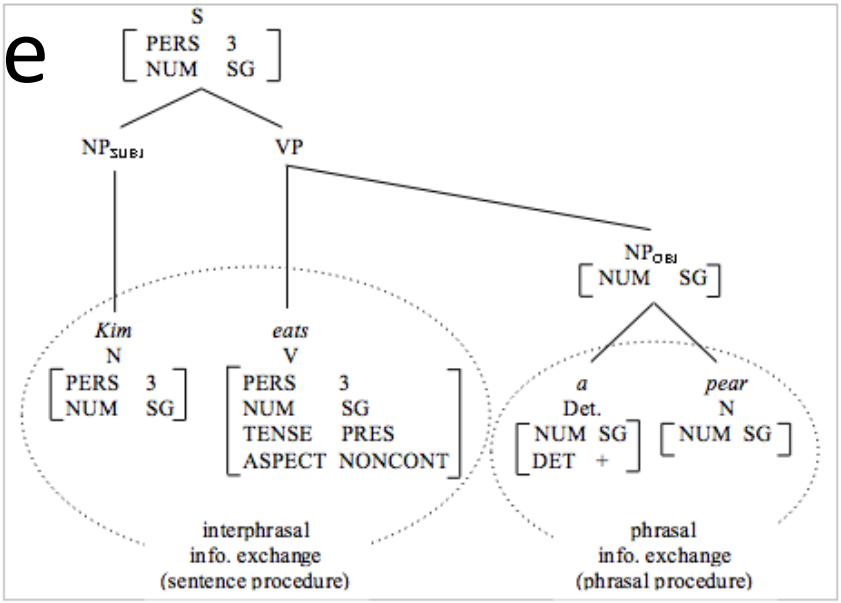
this sequence is reflected in the sequence in which grammatical structures are learned

Levelt's Model

Grammatical encoding unfolds in the following sequence:

1. the **lemma**
2. the **category** procedure
3. the **phrasal** procedure
4. the **sentence** procedure

An illustration of processing hierarchy for Kim eats a pear*: phrasal and interphrasal procedures*

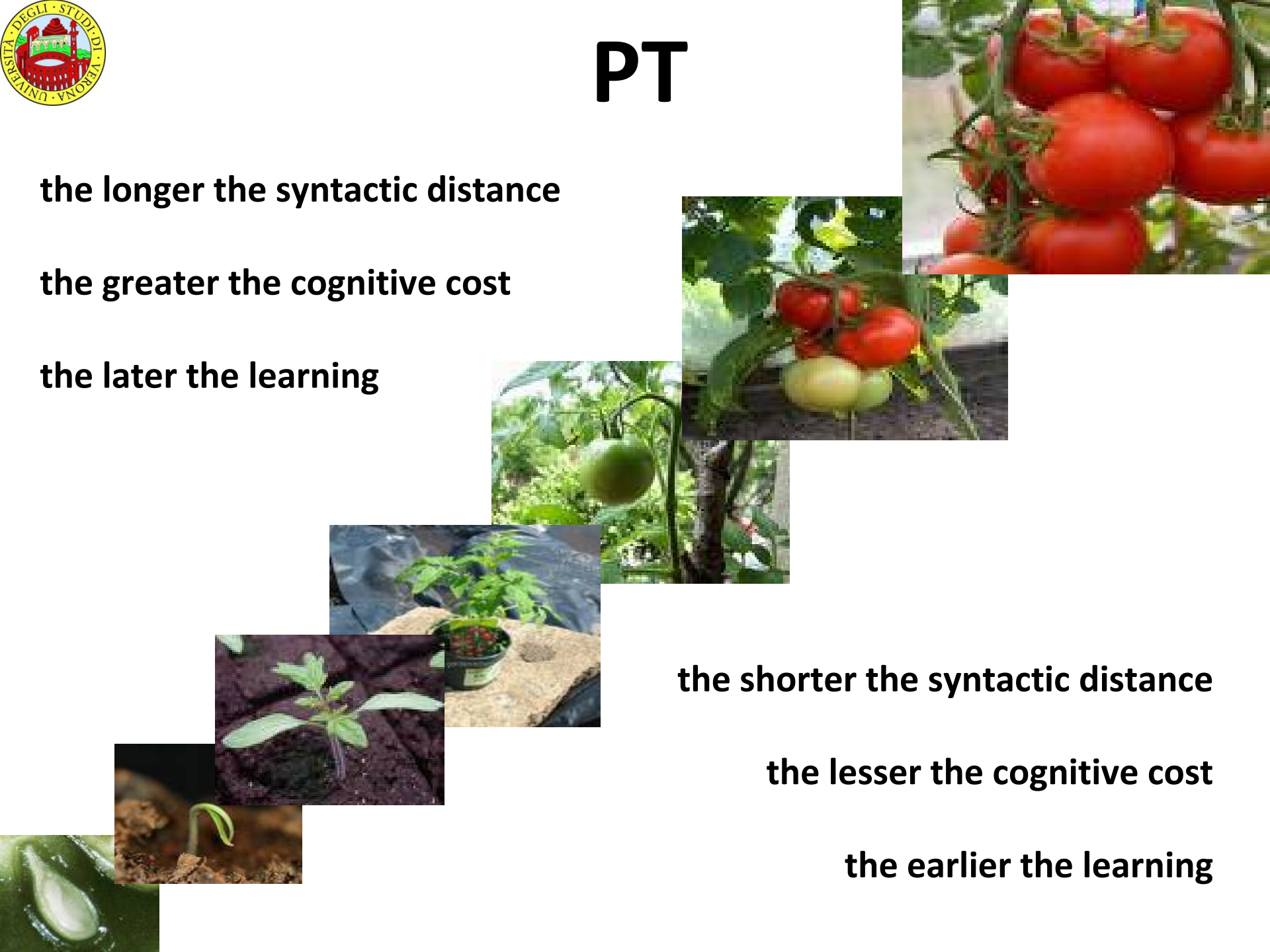


PT

the longer the syntactic distance

the greater the cognitive cost

the later the learning



the shorter the syntactic distance

the lesser the cognitive cost

the earlier the learning

PT: Morphological Development

Greater syntactic distance between the elements requiring **feature unification**

STAGE	t1	t2	t3	t4	t5
SENTENCE PROCEDURE	–	–	–	interphrasal information exchange	+
PHRASAL PROCEDURE	–	–	phrasal information exchange	+	+
CATEGORY PROCEDURE	–	lexical form variation	+	+	+
WORD/LEMMA ACCESS	invariant forms & formulas	+	+	+	+

PT: Morphological Development

Developmental stages for Russian morphology (Artoni & Magnani)

STAGE	MORPHOLOGICAL OUTCOME	STRUCTURE	EXAMPLE
SENTENCE PROCEDURE	INTERPHRASAL MORPHOLOGY	agreement at clause level:	
		$TOP_{OBJ\text{-}ACC}$ & V	*knigu čitaet mama* *[book-ACC reads mum-NOM]*
		NP_{SUBJ} & predicate	*pirogi byli vkusnye [cakes were tasty]*
PHRASAL PROCEDURE	VP MORPHOLOGY	case agreem. in VP V & N	*čitaju knigu [(I) read book-ACC]*
		number agreem. in VP: copula & adjective	*byli vkusnye [(they) were tasty]*
	NP MORPHOLOGY	agreement in NP	*eti knigi [these books]*
CATEGORY PROCEDURE	LEXICAL MORPHOLOGY	person marking on V	*rabotat' vs rabotaju [work vs I work]*
		past marking on V	*rabotat'* vs *rabotal [work* vs *worked]*
		case marking on N	*kniga* vs *knigu [book-NOM* vs *book-ACC]*
		plural marking on N	*kniga* vs *knigi [book* vs *books]*
WORD/LEMMA ACCESS	INVARIANT FORMS	single words;	*net urok [no lesson]*
		formulas	*menja zovut Mark [my name is Mark]*

2.2 Syntactic development

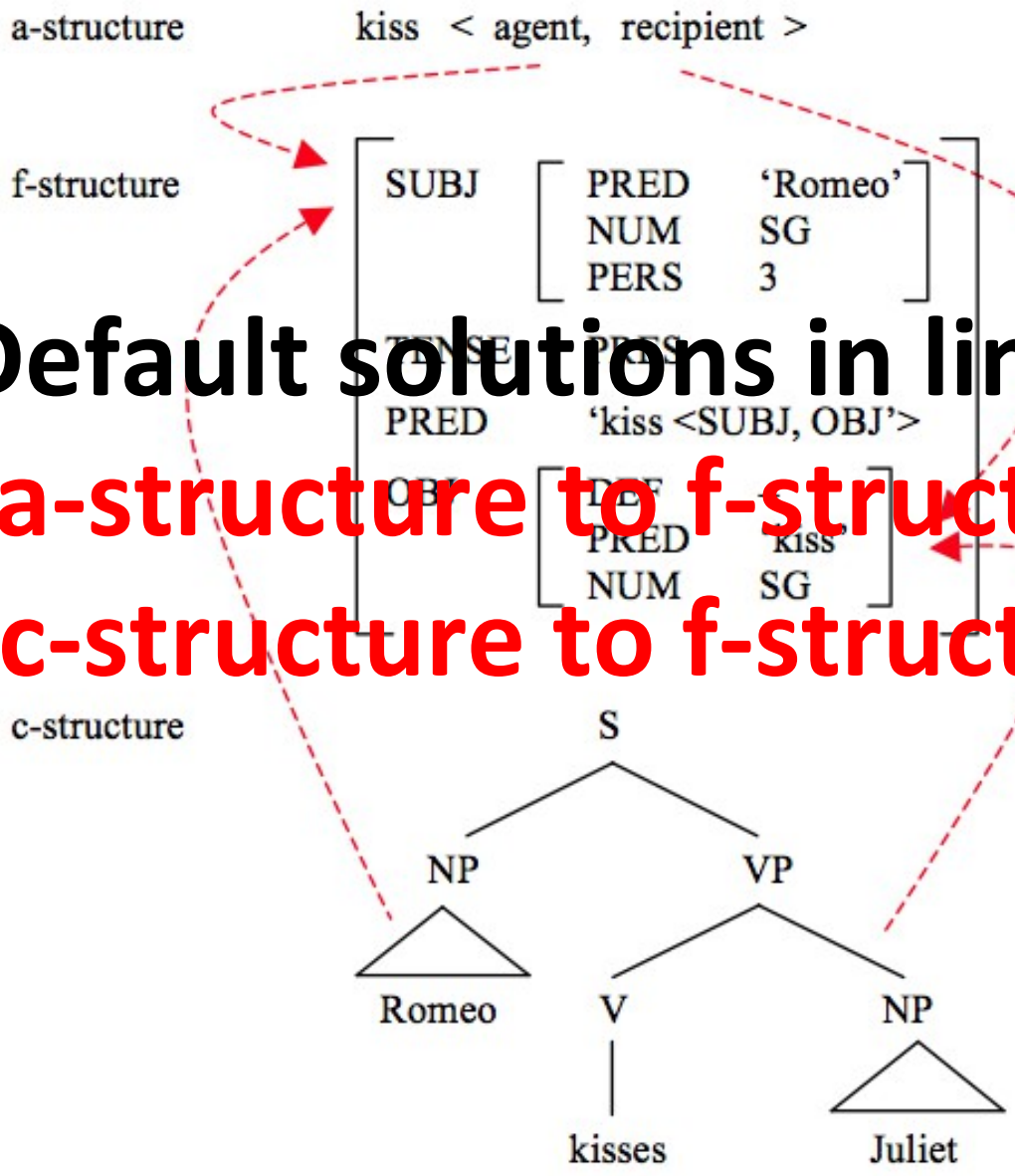
LFG provides PT with a clear distinction between the levels of linguistic representation and their mappings

PT focuses on

- **the way *a-structure* and *c-structure* map onto *f-structure***
- **the way learners build up their f-structure**

c-structure, a-structure and f-structure of the sentence

Romeo kisses Juliet



Default solutions in linking

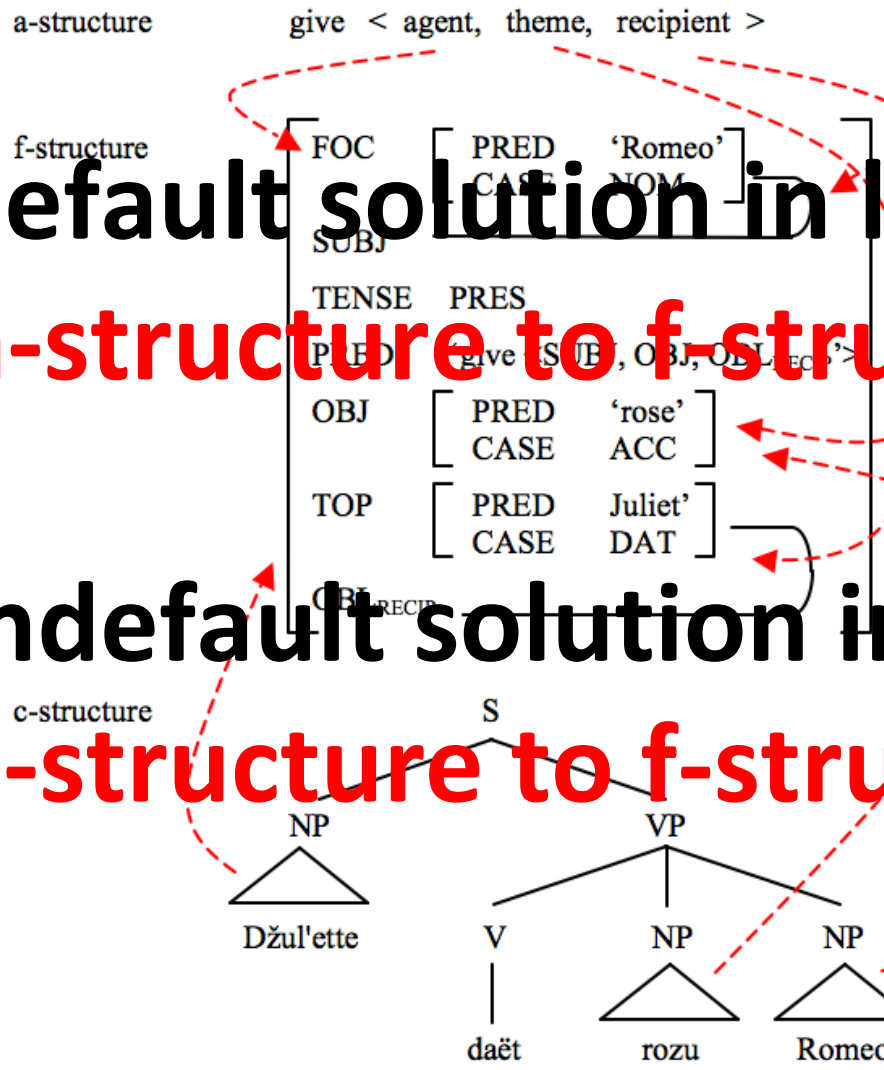
a-structure to f-structure

c-structure to f-structure

c-structure, a-structure and f-structure of the sentence

Džul'ette daët rozu Romeo

[to Juliet gives a rose Romeo]



Default solution in linking

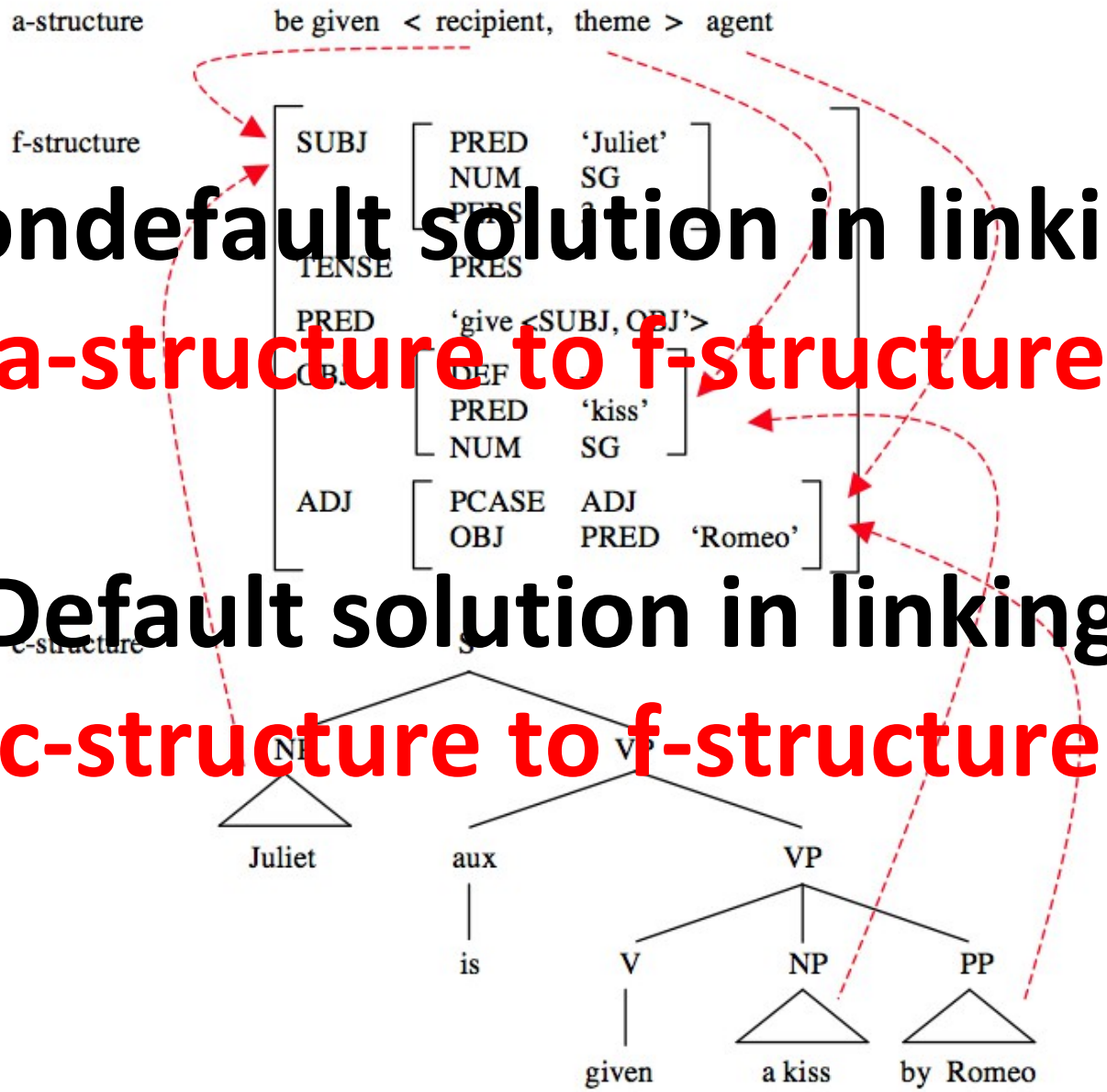
a-structure to f-structure

Nondefault solution in linking

c-structure to f-structure

a-structure, f-structure and c-structure of the sentence

Juliet is given a kiss by Romeo



Nondefault solution in linking

a-structure to f-structure

Default solution in linking

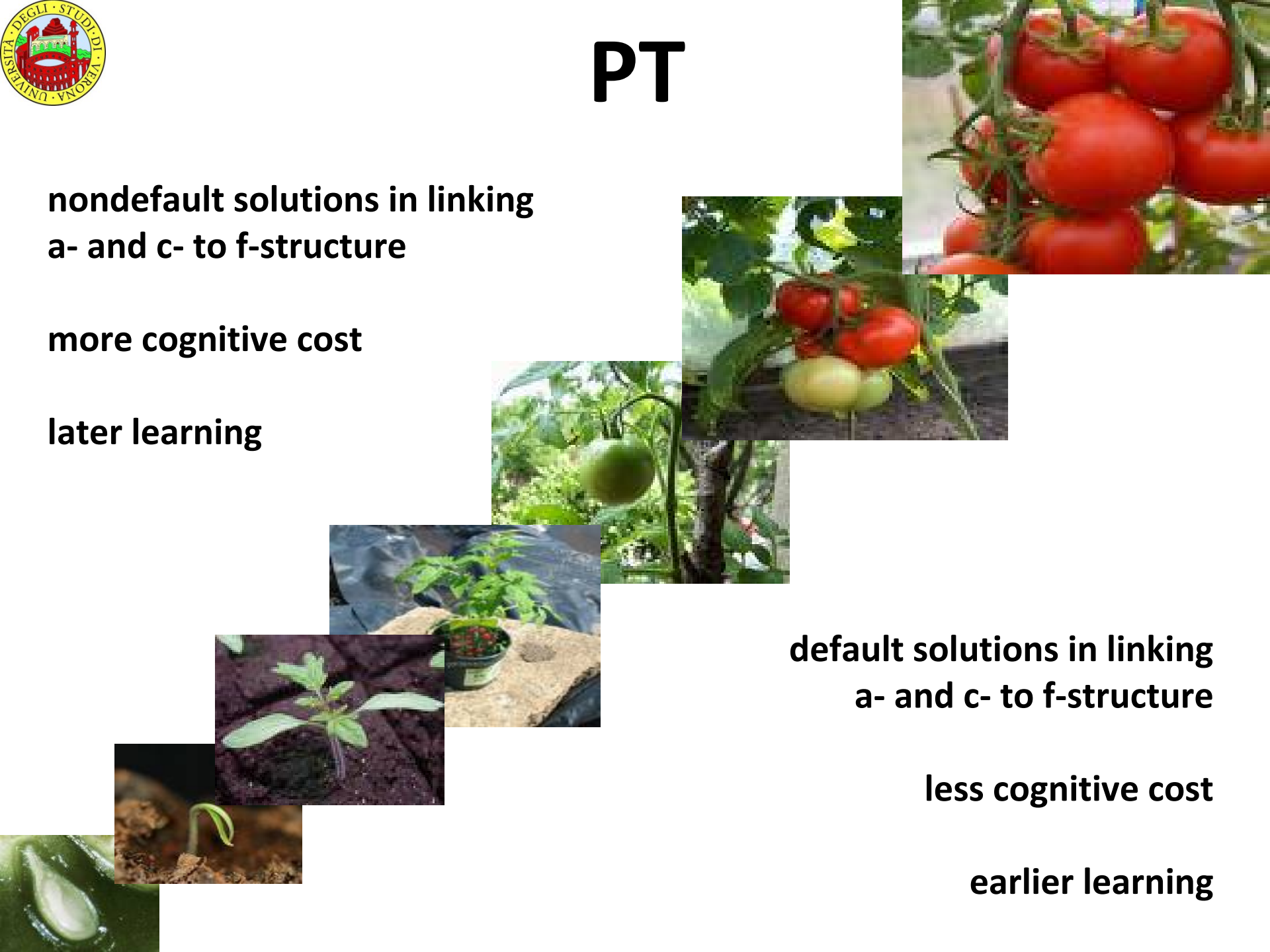
c-structure to f-structure

PT

nondefault solutions in linking a- and c- to f-structure

more cognitive cost

later learning



default solutions in linking a- and c- to f-structure

less cognitive cost

earlier learning

2.2 Syntactic development

Discourse Functions Hypothesis

mapping c-structure on to f-structure

Lexical Mapping Hypothesis

mapping a-structure on to f-structure

The DF Hypothesis

Freer word orders motivated by **discourse-pragmatic options**

STAGE	STRUCTURES
NONCANONICAL WORD ORDER	TOP_{XP} marked orders FOC_{XP} marked orders
XP_{DF} CANONICAL WORD ORDER	TOP_{XP} SVO / SOV / ... FOC_{WH-} SVO / SOV / ...
CANONICAL WORD ORDER	SVO / SOV / ...
single words; formulas	

The DF Hypothesis

Developmental stages for Russian syntax based on the Discourse Functions (Topic) Hypothesis – Declarative sentences

STAGE	STRUCTURE	EXAMPLE
NONCANONICAL WORD ORDER	TOP_{OBJ} V SUBJ	*knigu čitaet mama [book-ACC reads mum-NOM]*
XP_{DF} CANONICAL WORD ORDER	TOP_{ADJ} SVO	*na kartinke devočka est kašu [in picture girl-NOM eats soup-ACC]*
CANONICAL WORD ORDER	SVO	*Devočka est kašu [girl eats soup]*
single words; formulas		*privet [hello]* *menja zovut Mark [ny name is Mark]*

3. Case in PT

The two schedules for
morphological and syntactic development
crucially **interface**
in the development of case

3.1 Russian

- Highly nonconfigurational language
- Dependent-marking language
- Canonical word order = SVO
- 6 cases morphologically marked
- Case syncretism

The Russian case system

	Singular				
	Masculine		Neuter	Feminine	
	Animate	Inanimate		1st class	2nd class
Nominative	-Ø	-Ø	-o/-e	-a/-ja	-'Ø
Genitive	-a/-ja	-a/-ja	-a/-ja	-y/-i	-i
Dative	-u/-ju	-u/-ju	-u/-ju	-e	-i
Accusative	-a/-ja	-Ø	-o/-e	-u/-ju	-'Ø
Instrumental	-om/-em	-om/-em	-om/-em	-oj/-ej	-'ju
Prepositive	-e	-e	-e	-e	-i
	Plural				
	Masculine		Neuter	Feminine	
	Animate	Inanimate		Animate	Inanimate
Nominative	-y/-i	-y/-i	-a/-ja	-y/-i	-y/-i
Genitive	-ov/-ev/-ej	-ov/-ev/-ej	-Ø/-ej	-Ø/-ej	-Ø/-ej
Dative	-am/-jam	-am/-jam	-am/-jam	-am/-jam	-am/-jam
Accusative	-ov/-ev/-ej	-y/-i	-a/-ja	-Ø/-ej	-y/-i
Instrumental	-ami/-jami	-ami/-jami	-ami/-jami	-ami/-jami	-ami/-jami
Prepositive	-ax/-jax	-ax/-jax	-ax/-jax	-ax/-jax	-ah/-jax

Notes
Suffixes separated by a slash represent allomorphes
The apostrophe denotes palatalization of a preceding consonant
The symbol Ø denotes null morphemes
When the stress does not fall on the last syllable, *-o* and *-a* are pronounced both /ə/

3.2 Developmental hypothesis for Russian case

	STAGE	STRUCTURE	MORPHO-SYNTACTIC OUTCOME	EXAMPLE
Syntax	NONCANONICAL WORD ORDER	OVS, OSV, etc.		
			OBJ_{ACC} V $SUBJ_{NOM}$	*knigu čitaet mama* [book-ACC reads mum-NOM]
Morphology	SENTENCE PROCEDURE	TOP_{OBJ} V-agreement NP_{SUBJ} V-agreement		
Syntax	XP_{DF} CANONICAL WORD ORDER	TOP_{DF} SVO	ADJ $SUBJ_{NOM}$ V $OBJ_{ACC/GEN/INST}$	*sejčas Maša xočet vody* [now Maša-NOM wants water-GEN]
Morphology	PHRASAL PROCEDURE	agreement in VP agreement in NP agreement in PP	N N_{GEN}	*kniga Olega [Oleg's book]* *[by lake-GEN]*
Syntax	CANONICAL WORD ORDER	SVO	N_{NOM} V N_{ACC}	*devočka est kašu* [girl-NOM eat soup-ACC]
Morphology	CATEGORY PROCEDURE	case marking on N e.g., NOM vs ACC/INST		
	s i n g l e w o r d s a n d f o r m u l a s			

Grammatical Functions assignment

lexical case assignment

configurational case assignment

semantic case assignment

4. Testing the hypothesis

4.1 Methodology

- Cross-sectional study
- 5 learners at different proficiency levels
- Conversations with the researcher
- 5 elicitation tasks

4.2 Analysis

PT stages		A	B	C	D	E
noncanonical word order & sentence procedure	OBJ$_{ACC}$ V	-4	-4	-5	+4	+3 -1
phrasal procedure	N N$_{GEN}$	-1	+1 -1	+9 -1	+5	+5
	V OBJ$_{GEN/INST}$	-2	+1 -1	+2	+2	+2
	P N$_{ACC/GEN/...}$	+8 -25	+14 -12	+18 -5	+39 -13	+17 -2
canonical word order & category procedure	ADJ$_{INST}$	-1	/	/	/	+2
	V N$_{ACC}$	+4 -14	+6 -5	+12 -2	+8 -8	+11 -2
	N$_{NOM}$ V	+30	+41	+55	+64	+34

4.2 Analysis

King's case assignments	PT stages		A	B	C	D	E
Grammatical functions	noncanonical word order & sentence procedure	OBJ$_{ACC}$ V	-4	-4	-5	+4	+3 -1
configurational	phrasal procedure	N N$_{GEN}$	-1	+1 -1	+9 -1	+5	+5
lexical		V OBJ$_{GEN/INST}$	-2	+1 -1	+2	+2	+2
		P N$_{ACC/GEN/...}$	+8 -25	+14 -12	+18 -5	+39 -13	+17 -2
semantic	canonical word order & category procedure	ADJ$_{INST}$	-1	/	/	/	+2
		V N$_{ACC}$	+4 -14	+6 -5	+12 -2	+8 -8	+11 -2
		N$_{NOM}$ V	+30	+41	+55	+64	+34

Conclusion

Data show that different kinds of case assignment correspond to different stages of development

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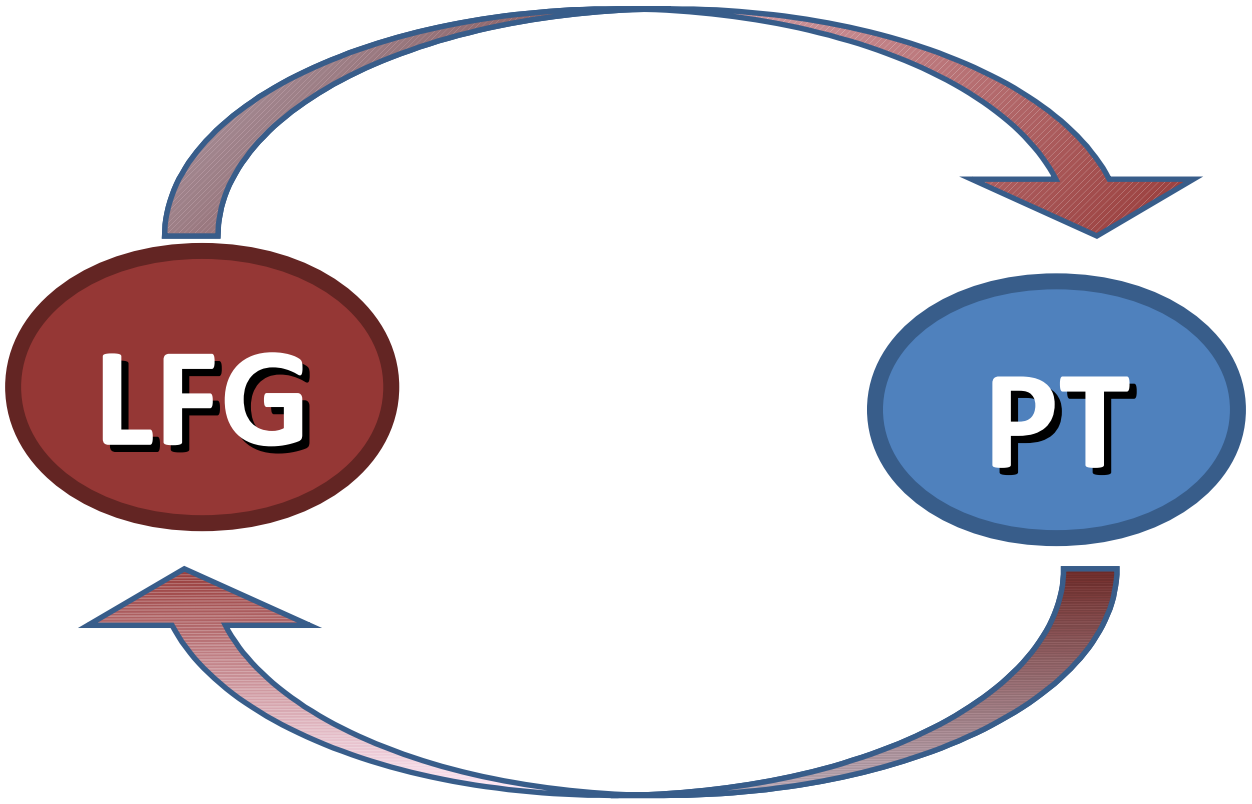
Data show that different kinds of case assignment correspond to different stages of development

The following sequence is confirmed and supported by acquisitional data

Semantic **>** ***Configurational/Lexical*** **>** ***Grammatical***

Conclusion



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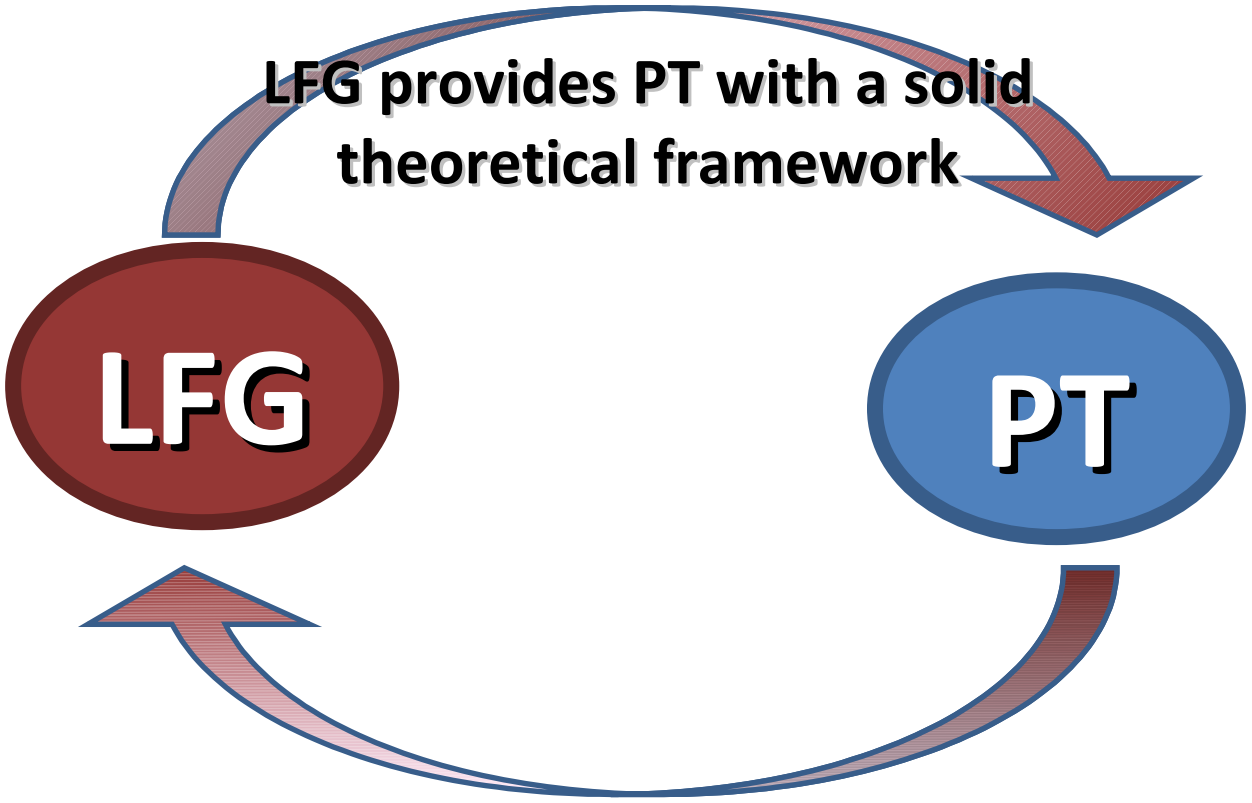
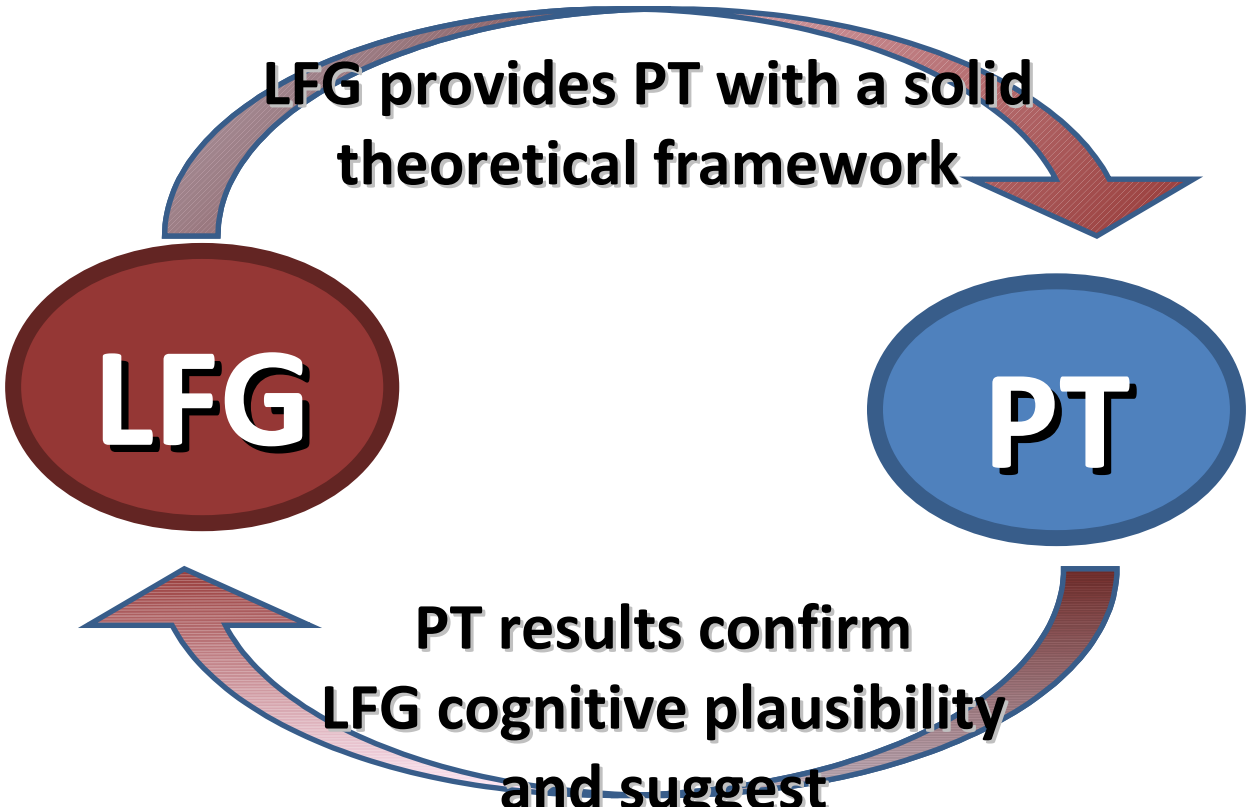


Conclusion


LFG provides PT with a solid theoretical framework
LFG
PT
PT results confirm LFG cognitive plausibility and suggest how LFG can be applied to SLA research

THANK YOU!

KÖSZÖNÖM A FIGYELMET!