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Production and Comprehension of Wh-questions in the Acquisition of French: Comparing L2 Children and Children with SLI

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Background

- Comprehension > production : classical explanation = production requires greater mental computation (Lobley, Baddeley and Gathercole 2005)
- Derivational Complexity Metric (DCM) (Jakubowicz 2005)
 - Merging α_i n times gives rise to a less complex derivation than merging α_i $(n + 1)$ times.
 - Internal Merge of α gives rise to a less complex derivation than Internal Merge of $\alpha + \beta$.
- Complexity and comprehension/production asymmetries
 - Low complexity \rightarrow no problem
 - Excessive complexity \rightarrow no (clear) distinction
 - ***Intermediate complexity \rightarrow asymmetries will surface***

Background

Manipulation of production/comprehension asymmetries

- Varying the degree of syntactic complexity
 - Subj vs. Obj relatives, processing and working memory (Deevy & Leonard 2004; Adani 2008; Friedmann et al. 2009)
- Varying the processing capacity of subjects
 - Reduced in young children, aphasia, atypical development (Rizzi 2002; Grillo 2008; Jakubowicz 2005, to appear; Kohnert et al., in press)

Our study

- SLI – L2 comparison for French (Paradis and Crago 2000; Grüter 2005)
- Wh-questions in French and the DCM
 - Expectations:
 - Preference for less complex strategies in production
 - Comprehension effects only for most complex constructions

Background

1. Tu vas où ?

you go where

In situ

2. Où tu vas ?

where you go

Plain Fronting

3. Où est-ce que tu vas ?

where ESK you go

Fronting + ESK

4. Où vas-tu ?

where go you

Fronting + Clitic Inversion (I-to-C)

5. Où va [le prince] ?

where goes the prince

Fronting + Stylistic Inversion

Method: Participants

19 British immigrant children
living in France
L1 English-L2 French)

	<i>M (SD)</i>	Range
Age	9;9 (1;9)	6;8 – 12;7
1st Exposure to French	6;10 (1;8)	4;3 – 9;10
Length of Exposure to French	2;10 (1;0)	0;11 – 4;6

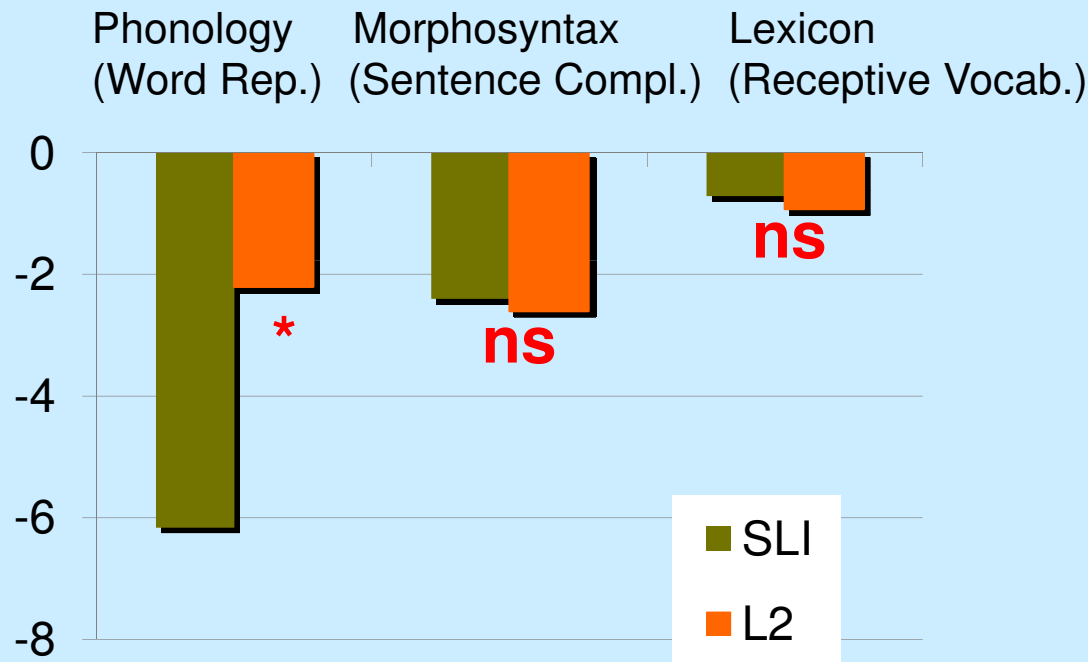
13 monolingual
French-speaking children
with **SLI**

	<i>M (SD)</i>	Range
Age	9;4 (2;3)	6;6 – 12;11

17 **TD** 4-year-olds
12 **TD** 6-year-olds
12 **Adults** (*M* = 22)

Method: Participants

Standardized Scores for French



Standardized Scores for English (L1)

M Global Score CELF-4: $-.69$
(*SD* 1.3)

9 children < -1 SD
4 of which ≤ -1.5 SD

Method: Materials

Elicited Production Task

Experimenter: Le lapin pousse quelqu'un, mais on ne voit pas **qui**. Demande-lui.

(The rabbit is pushing someone, but we can't see who. Ask him.)

54 Wh-Question Items

12 Subject-who *Qui*

12 Object-who *Qui*

12 Object-what *Quoi/que*

(18 Adjunct wh-questions)

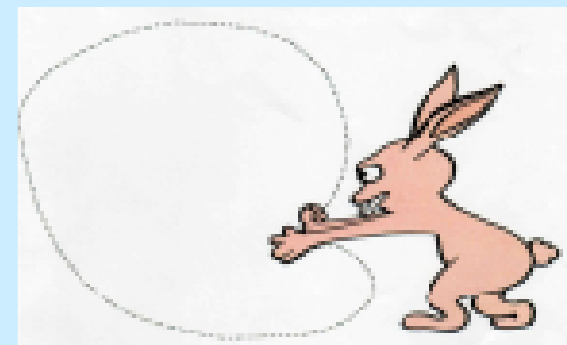
Possible Expected Answers:

Tu pousses **qui** ? **In situ**

Qui tu pousses ? **Plain Fronting**

Qui est-ce que tu pousses ? **Fronting + ESK**

Qui pousses-tu ? **Fronting + Clitic Inversion**



Method: Materials

Comprehension Task

Experimenter: Voilà un roi, une princesse et une sorcière. Dis-moi: Qui est-ce qui filme le roi?

Here is a king, a princess and a witch.

Tell me: Who is filming the king?

72 Wh-*qui* 'who' Question Items

12 Wh-Subject in situ / Plain fronting

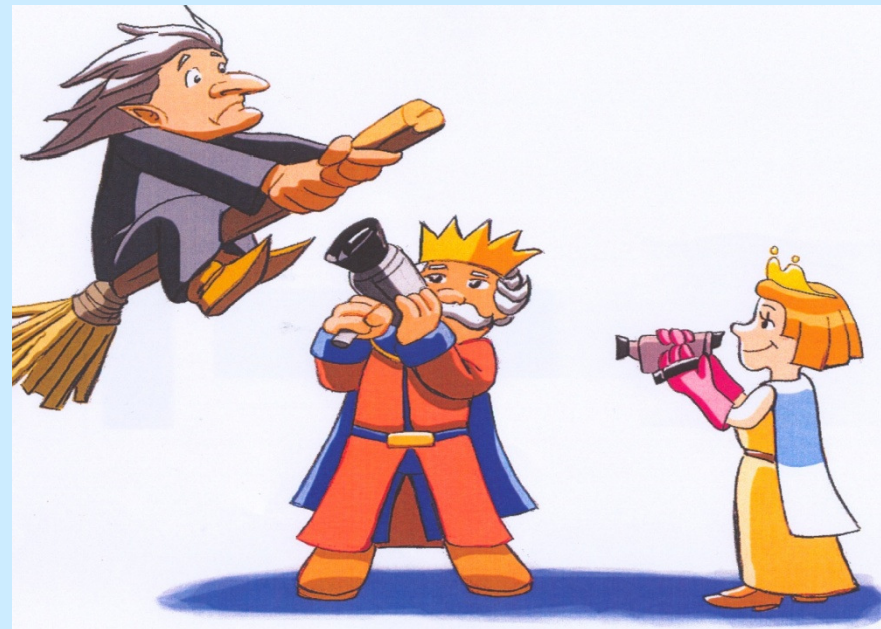
12 Wh-Subject with *est-ce que*

12 Wh-Object in situ

12 Wh-Object with Plain Fronting

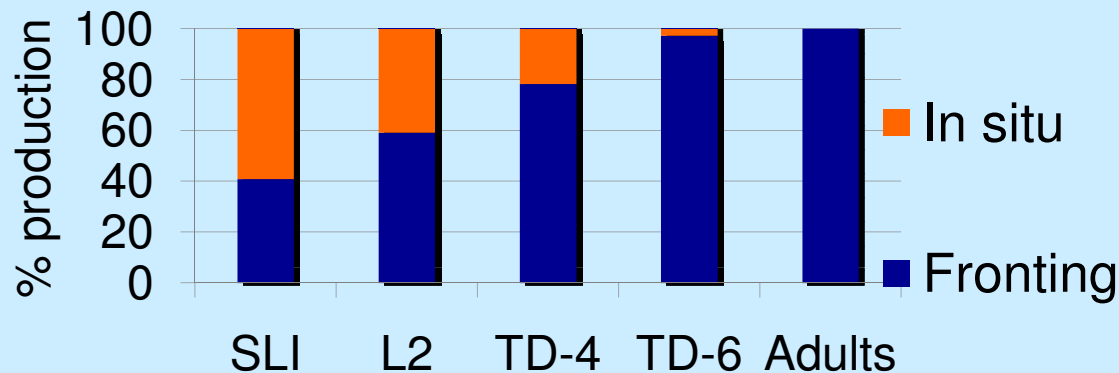
12 Wh-Object with *est-ce que*

12 Wh-Object with Fronting & Stylistic Inversion



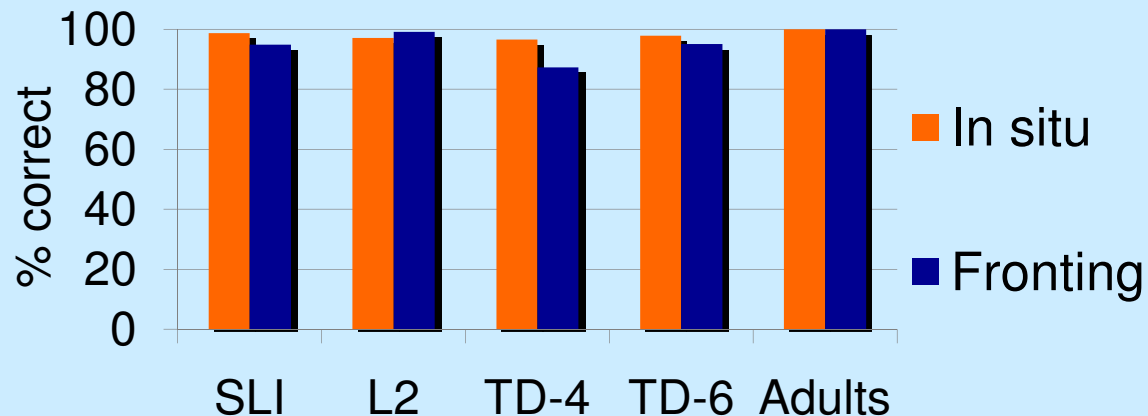
Results – Wh fronting vs. in situ

Production



- Wh-fronting:
SLI < L2 < TD-4 < TD-6
- Wh-fronting vs. in situ:
 - SLI & L2:
in situ = fronting
 - TD4/6 & adults:
fronting > in situ

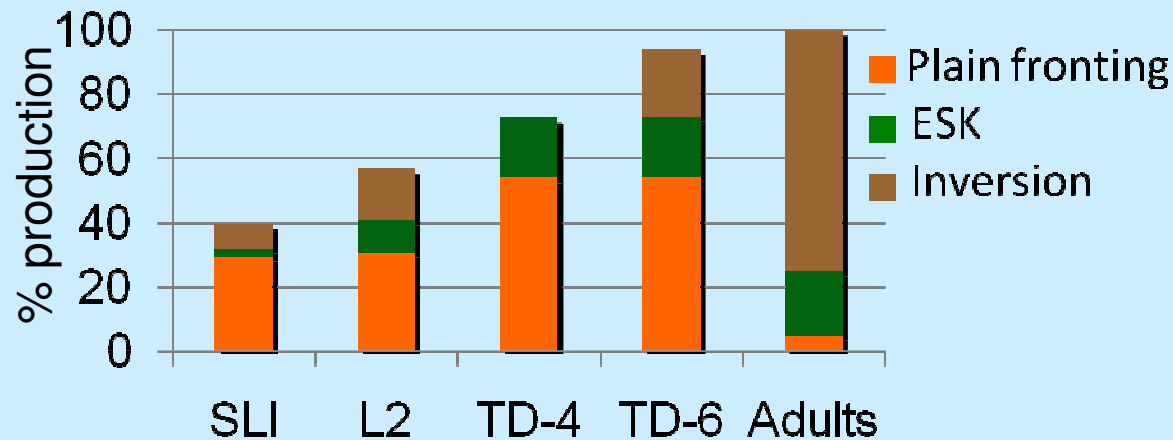
Comprehension



- Wh-fronting:
SLI=L2=TD-4=TD6
- High performance for both wh-fronting and wh in situ

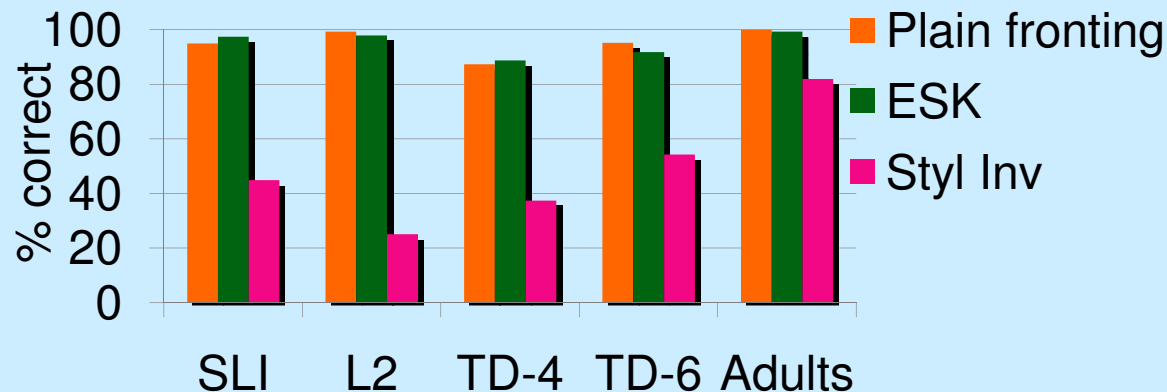
Results – Fronting strategies (in object questions)

Production



- Fronting strategies:
- Plain fronting preferred
SLI/L2 < TD-4/6
- ESK:
SLI < L2 < TD-4/6
- Inversion:
TD-4 < L2 < SLI < TD-6

Comprehension



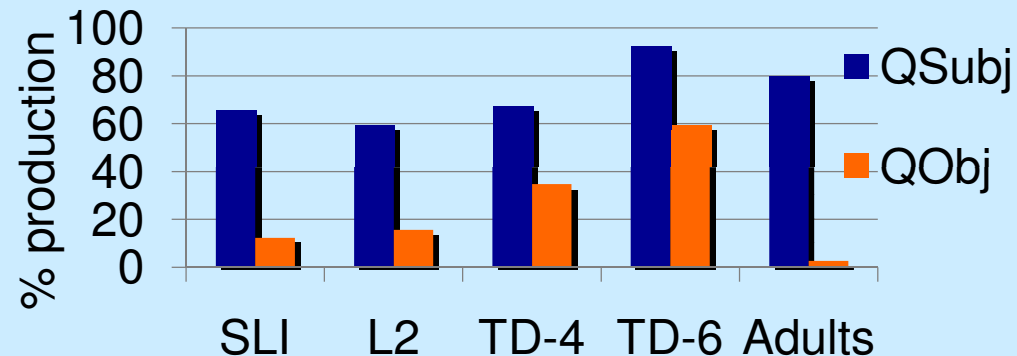
- Plain fronting & ESK: high performance; SLI and L2 similar to TD groups
- Low performance on fronting + styl. inversion in all groups (adults: 82%)

Results – Subj./Obj.: Plain fronting

QSubj: *Qui (__) pousse le lapin?*
'Who is pushing the rabbit?'

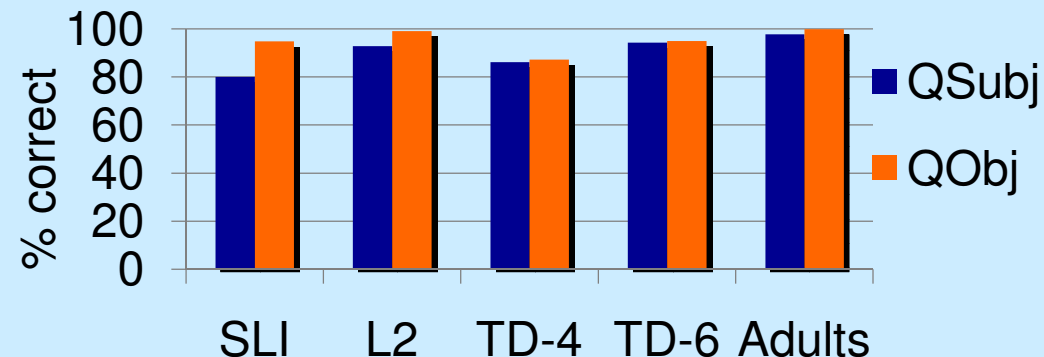
QObj: *Qui le lapin pousse __?*
'Who is the rabbit pushing?'

Production



- QSubj: High rate of wh- in 1st position (ambiguous: in situ or fronting)
- QObj: Infrequent fronting in SLI & L2

Comprehension



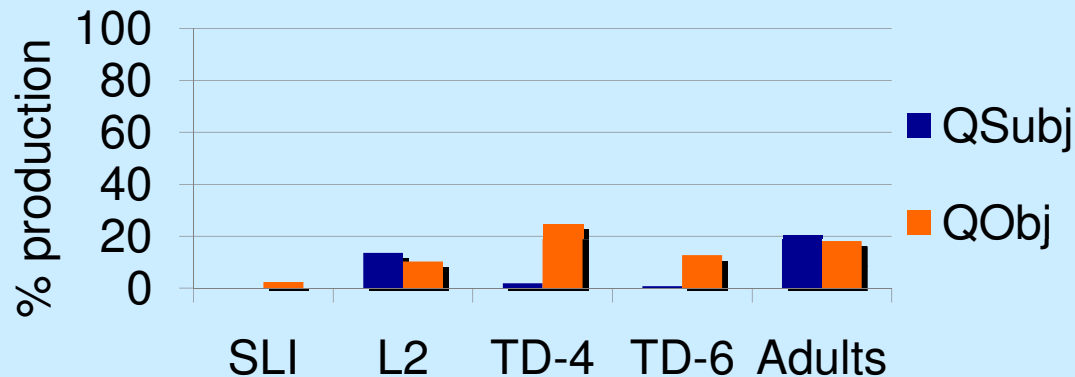
- High performance for both QSubj and QObj

Results – Subj./Obj.: Fronting +ESK

QSubj: *Qui est-ce qui__ pousse le lapin?* ‘Who is pushing the rabbit?’

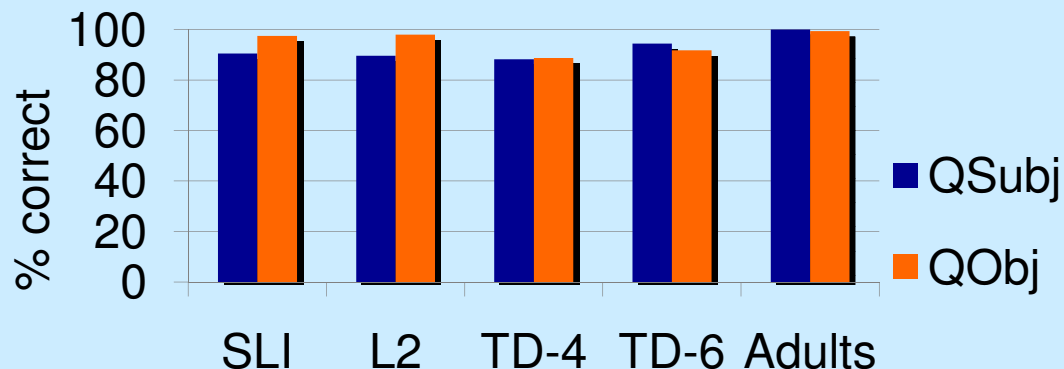
QObj: *Qui est-ce que le lapin pousse __?* ‘Who is the rabbit pushing?’

Production



Plain fronting + ESK not used much

Comprehension



High performance on Plain fronting + ESK in both QSubj. and QObj.

Discussion

Wh-fronting versus wh-in situ

- Wh-fronting involves greater computational complexity than wh-in situ (DCM)

- **BUT** this surfaces only in choice of strategy in production, precisely in both populations in which limited processing is hypothesized (SLI and L2)

- In comprehension, in general, wh-in situ and fronted wh are equally well understood



Mental computation involved in language comprehension is less than in production

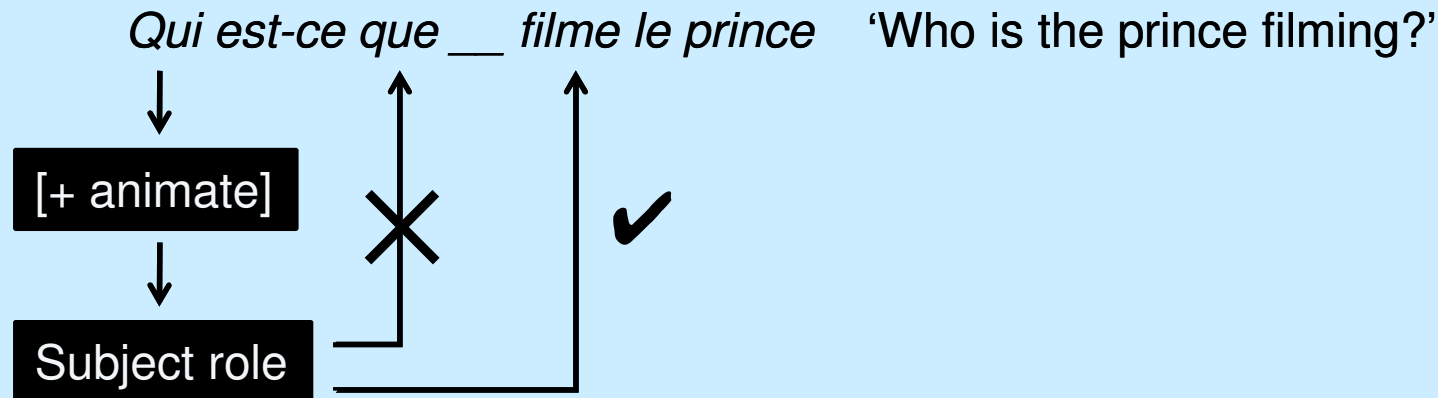
Discussion

- In subjects with even more limited processing capacities, asymmetry between wh-fronting and wh-in situ can be found in comprehension:

van der Meulen (2004):

- French-speaking Broca's aphasics
- Comprehension of object questions: in situ > fronting

Discussion – Styl. Inversion



- Frauenfelder et al. (1980): Reversible (1-2) and nonreversible (3-4) relatives

(1) Le *savant* [qui connaît le docteur] **travaille** dans une université moderne
'The scientist who knows the doctor works in a modern university.'

(2) Le *savant* [que connaît le docteur] **travaille** dans une université moderne
'The scientist who the doctor knows works in a modern university.'

(3) L'*éditeur* [qui publie la revue] **demande** beaucoup de rigueur dans les articles
'The editor who publishes the journal requires much precision in the articles.'

(4) Les *articles* [que publie la revue] **demandent** une lecture attentive
'The articles that the journal publishes require attentive reading.'

Discussion

Same effects in SLI kids and L2 kids

- In production strategies:
 - High rates of wh-in situ
 - Very little inversion
- In comprehension:
 - Equally high performance for both wh-in situ and wh-fronting (with or without ESK)
 - Significantly lower performance on wh-fronting with stylistic inversion

Merci !

Our lab



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- Centre Charlotte Blouin, Angers

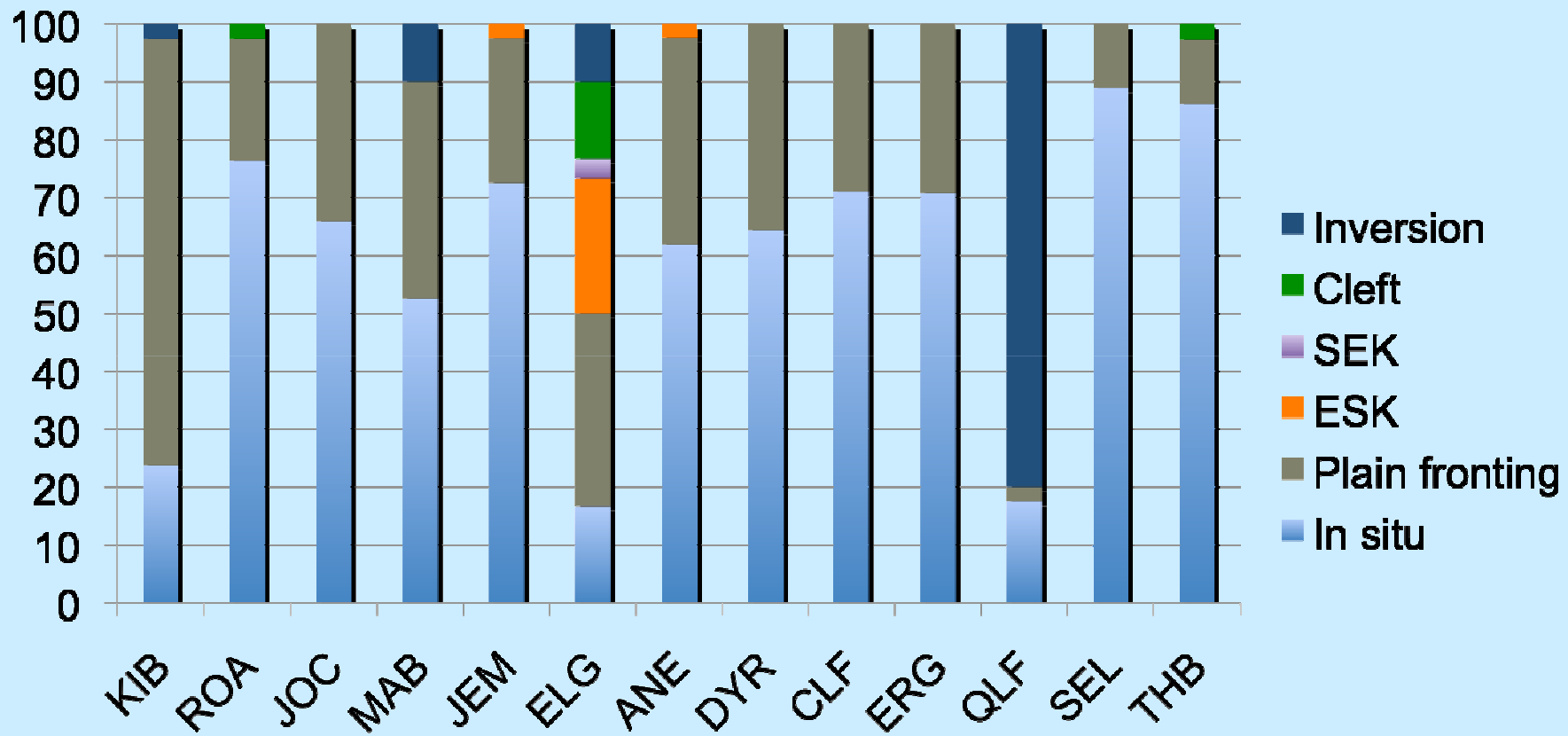
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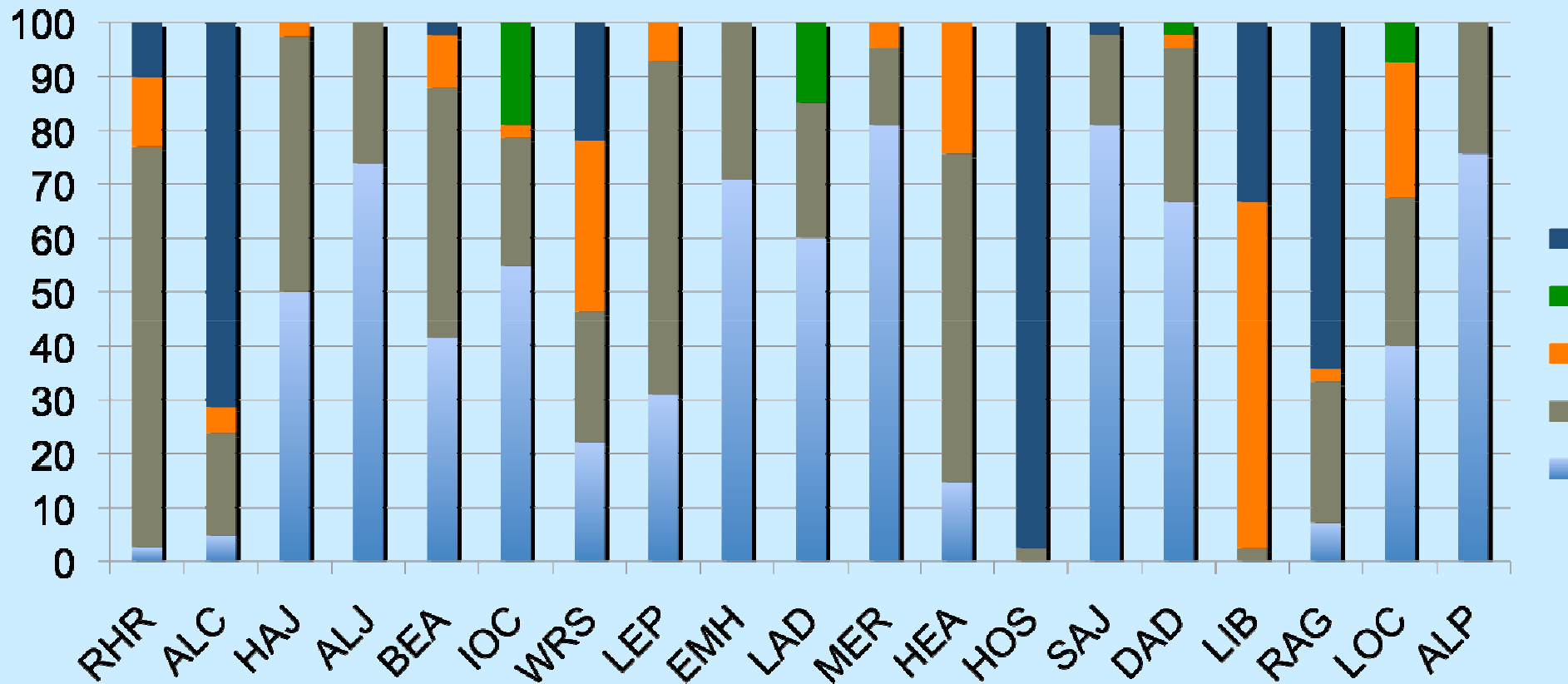
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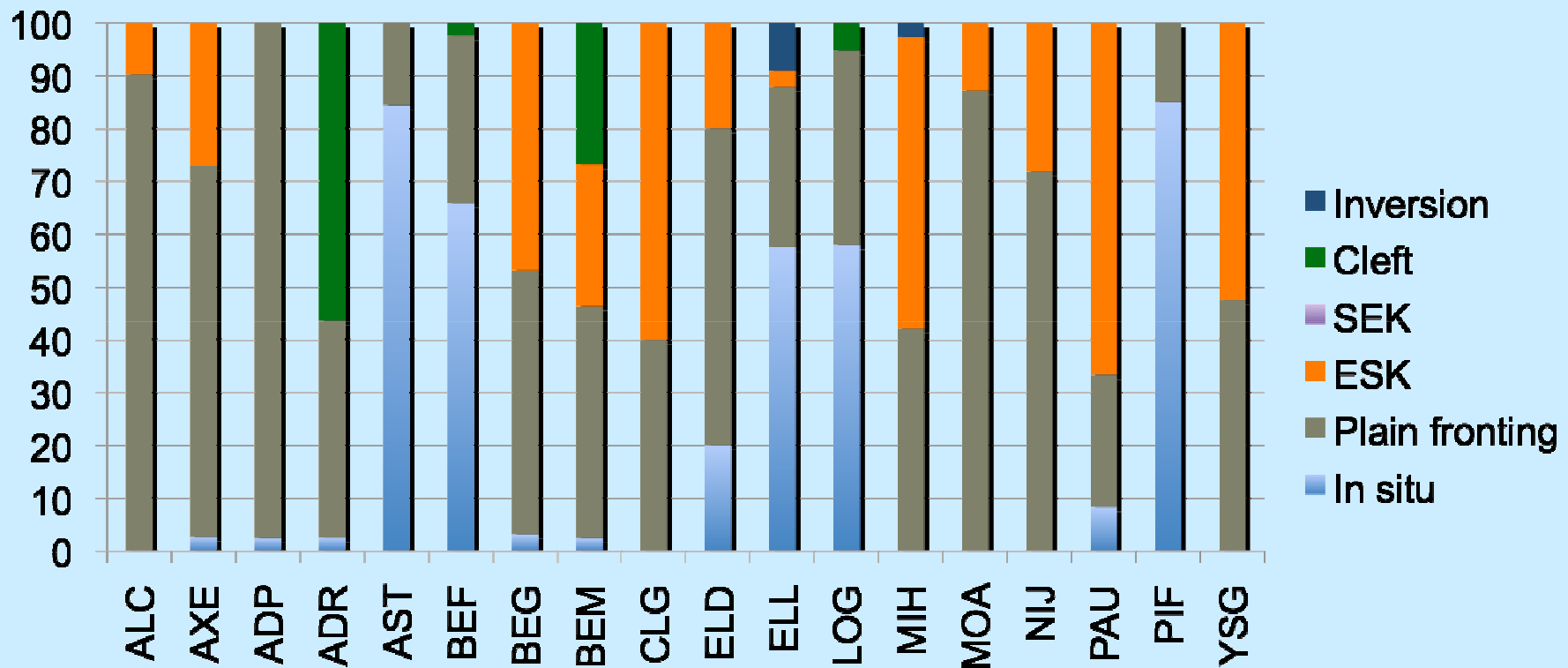


SLI group: Individual strategies (non-subject questions)

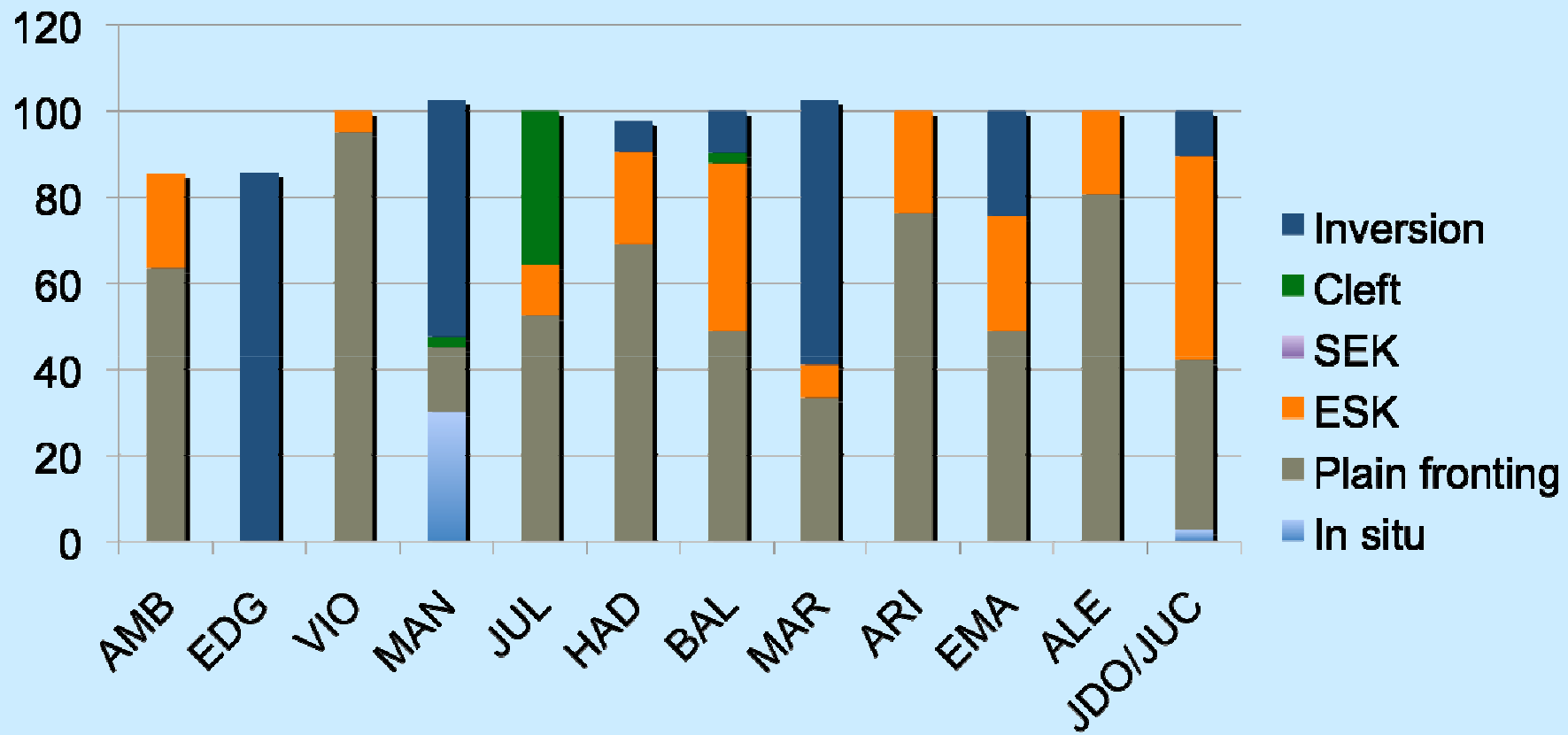
Production



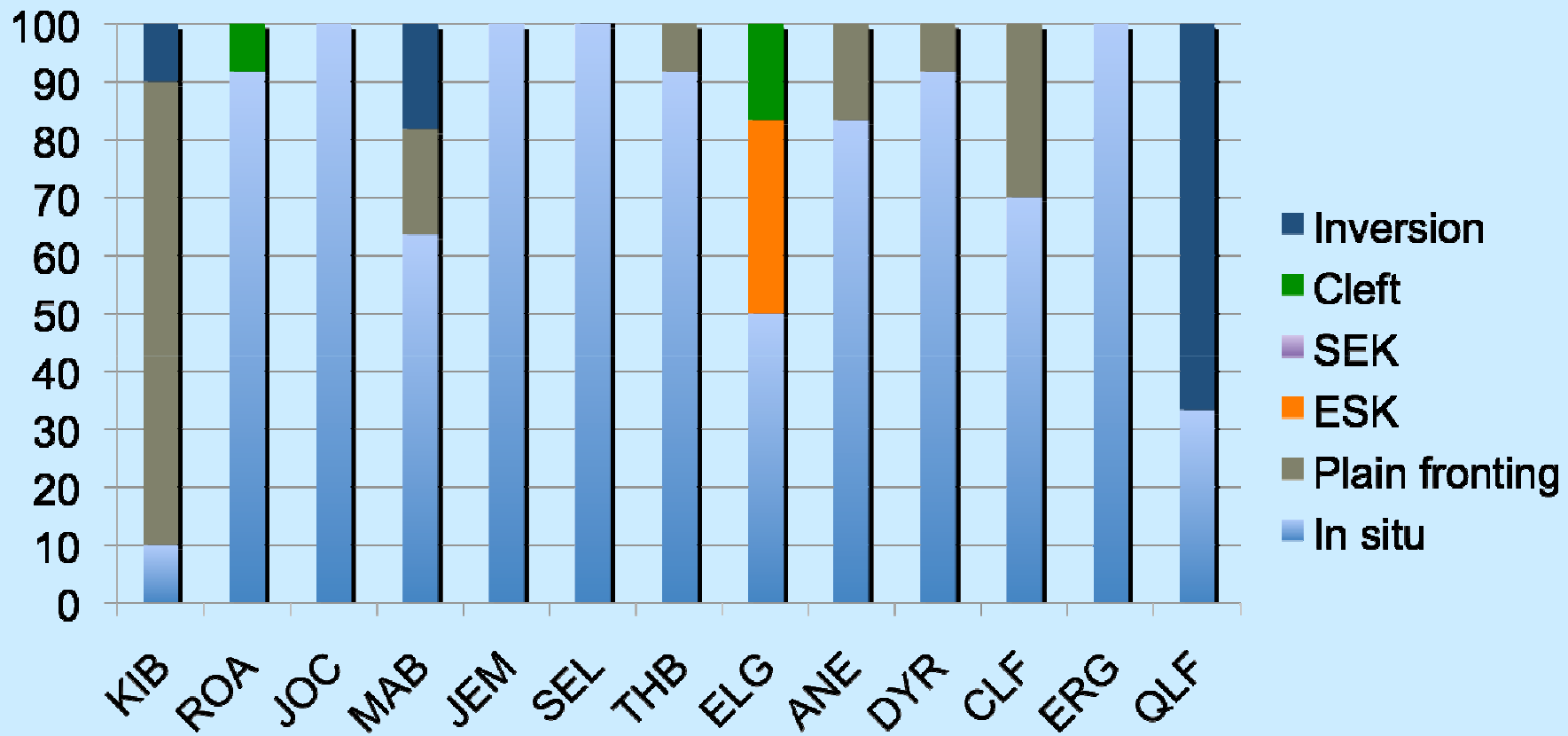
L2 group: Individual strategies (non-subject questions)



TD-4 group: Individual strategies (non-subject questions)



TD-6 group: Individual strategies (non-subject questions)



SLI group: Production: Individual strategies (QOa)