

Finiteness effects in adjunct islands

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Goal

- To use experimental syntax methodology to test the ‘peripheral’ phenomena of finiteness effects on adjunct islands to demonstrate:
 - Like other islands, adjunct islands are subject to finiteness manipulation
 - This is relevant only when extraction is involved
 - The importance of attending to such a small, but robust effect

Finiteness affects the acceptability of:

wh-island violations (Ross, 1967)

- (1) a. ?What are you wondering [whether **to buy** or not _] ?
b. *What are you wondering [whether **I should buy** or not _] ?

and subject islands (Kluender, 2004; Philips, 2006).

- (2) a ?? the niece who [**being able to bake** cookies for _]
gives me great pleasure
b. * the niece who [that **I can bake** cookies for _]
gives me great pleasure (adapted from Kluender, 2004)

But not adjunct islands?

- Adjunct islands have largely been taken to be uniformly unacceptable regardless of finiteness (e.g. Huang, 1982; Stepanov, 2007, however see Chomsky, 1982 and Cinque, 1990 for counterexamples)
- (3) a. *Who did Bill run [after **calling** _]?
b. *Who did Bill run [after **he called** _]?

Relevance

- **Grammatical literature**: the CED (Huang, 1982) has been recently argued against partially on the basis of subject and adjunct islands behaving differently with respect to finiteness manipulations (e.g. Stepanov, 2007).
- **Processing literature**: the apparent lack of influence of finiteness has led researchers to concede that processing explanations may not be suitable for adjunct islands (e.g. Kluender, 2004; Philips, 2006).

Can adjunct islands be modulated at all?

- If one assumes that relative clauses are a type of adjunct, then any modulation of a relative clause adjunct represents modulation of a type of adjunct.

(4a) That's the campaign [that I finally thought of
someone [**to** spearhead __]].

>

(4b) ? That's the campaign [that I finally thought of
someone [**who could** spearhead __]].

(From Kluender, 2004 (4b,c))

Can adjunct islands be modulated at all?

- Truswell (2007, 2008): Islands as event structure violations.
- If the predicate and adjunct can be understood as a single event, then extraction is permissible:

(5a) What did John arrive [whistling _] ?

(Truswell, 2007 (2a) following
Borgonovo and Neeleman, 2000)

(5b) What are you working so hard

[in order to achieve _] ? (Truswell, 2008 (6a))

Can finiteness modulate (non RC) adjuncts?

- Both sentences are unacceptable:
(3) a. *Who did Bill run [after calling _]?
 b. *Who did Bill run [after he called _]?
- **Experimental syntax**: fine gradations in acceptability can sometimes be demonstrated experimentally even if they are difficult to perceive for individual speakers (e.g. Featherston 2005, Myers 2009).

Road Map- Three experiments

- **Experiment 1)** Demonstrate influence of finiteness on judgments of extraction out of adjuncts
- **Experiment 2)** Examine if finiteness modulates *adjuncts* or *extraction out of adjuncts*
- **Experiment 3)** Compare finiteness effects in adjunct clauses with complement clauses

Does adjunct extraction vary with adjunct type?

- Associative *with*
 - ...with Jim
- *In order to* clause
 - ... in order to impress Jim
- Non-finite temporal clause
 - ... after calling Jim
- Finite temporal clause
 - ... after he called Jim
- *Because* clause
 - ... because he impressed Jim

Experiment One: Methods

- 208 University of California, San Diego students
- 19 excluded due to:
 - English not claimed as native language
 - English not claimed as main language
- N = 189
- 4 (verb type- Dowty/Vendler aspectual classes) x 5 (adjunct type) manipulation, with one example of each combination.
- 20 items, 40 fillers
- 7-point scale

Sample Materials

Acc-with: Who did Bob run a mile with _?

Ach-with: Who did Bob start the race with _?

Act-with: Who did Bob run with _?

State-with: Who was Bob a runner with _?

Acc-TempNonFIN: Who did Bob run a mile after calling _?

Ach-TempNonFIN: Who did Bob start the race after calling _?

Act-TempNonFIN: Who did Bob run after calling _?

State-TempNonFIN: Who was Bob a runner after calling _?

Acc-TempFIN: Who did Bob run a mile after he called _?

Ach-TempFIN: Who did Bob start the race after he called _?

Act-TempFIN: Who did Bob run after he called _?

State-TempFIN: Who was Bob a runner after he called _?

Results

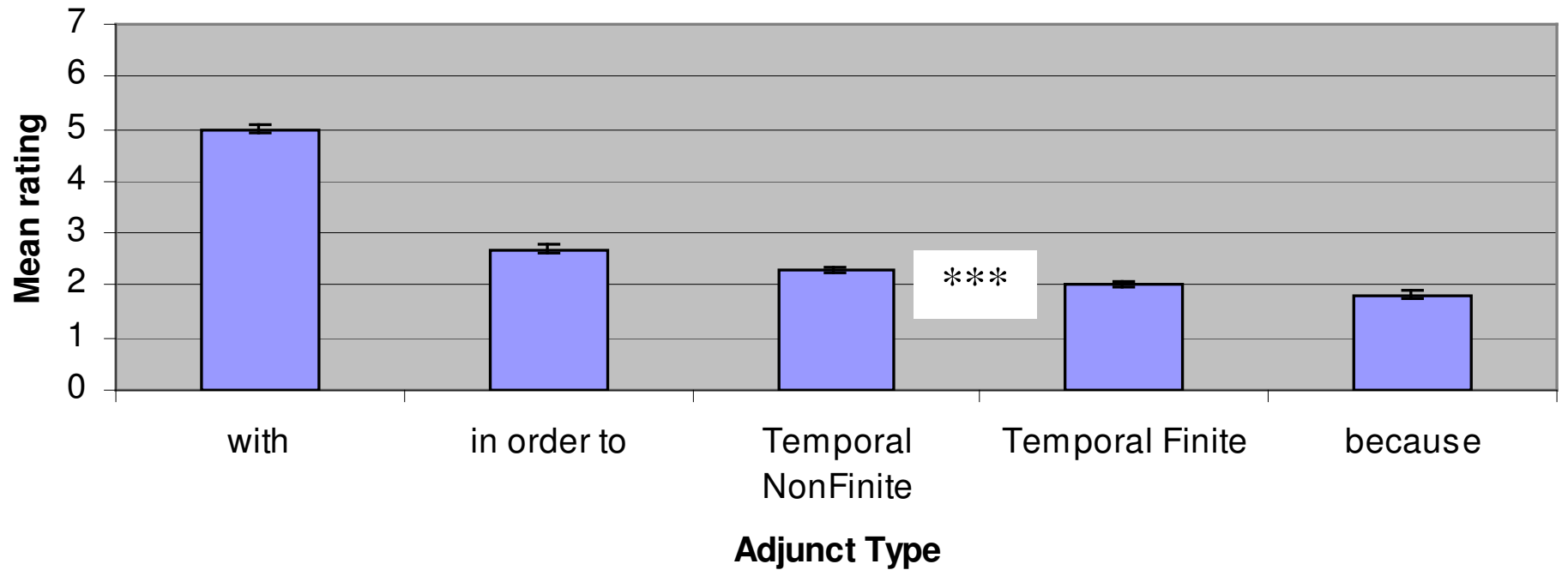
- Main effect of Adjunct type ($p < .001$):

Adj type:	'with _'	'in order to _'	Temporal Non-FIN	Temporal FIN	'because _'
Mean Rating	4.99 (2.02)	2.71 (1.75)	2.28 (1.48)	2.01 (1.22)	1.85 (1.12)

with > in order to > Temporal Non-FIN > Temporal FIN > because

Extraction out of a *with* adjunct is basically accepted. Others are strongly degraded in comparison, but a gradient is still detectable.

Acceptability of extracting out of adjuncts



Finiteness effect present across verb types

Accomplishment

Acc-TempNonFIN: Who did Bob run a mile after calling _?

2.68 > 2.28

Acc-TempFIN: Who did Bob run a mile after he called _?

Achievement

Ach-TempNonFIN: Who did Bob start the race after calling _?

2.21 > 1.87

Ach-TempFIN: Who did Bob start the race after he called _?

Activity

Act-TempNonFIN: Who did Bob run after calling _?

2.41 > 2.12 (marginal, $p = 0.052$)

Act-TempFIN: Who did Bob run after he called _?

Does adjunct extraction vary with adjunct type?

YES!

- Associative *with*
 - ...with Jim
- *In order to* clause
 - ... in order to impress Jim
- Non-finite temporal clause
 - ... after calling Jim
- Finite temporal clause
 - ... after he called Jim
- *Because* clause
 - ... because he impressed Jim

Discussion

- Finiteness effect in Adjunct islands
 - CED
 - Processing
- Is this a non-finite preference for:
 - adjuncts in general or
 - extraction out of adjuncts?
- Why is there a non-finite preference?

Is extraction crucial?

- Is this a non-finite preference for:
 - adjuncts in general or
 - extraction out of adjuncts?
- **Experiment 2)** Comparing extraction out of adjuncts (*wh* questions) with no extraction (*y/n* questions)

Experiment Two: Methods

Adjunct Extraction

- 241 University of California, San Diego students
- Online experiment
- 21 excluded due to:
 - English not claimed as native language
 - English not claimed as main language
- $N = 220$
- 2 (question type) x 2 (finiteness). 6 examples of each.
- 24 items, 40 fillers
- 7-point scale

Sample Materials

wh-NonFIN:

Who did the carpenter restore the antique table after negotiating with _?

wh-FIN:

Who did the carpenter restore the antique table after he negotiated with _?

y/n-NonFIN:

Did the carpenter restore the antique table after negotiating with the buyer?

y/n-FIN:

Did the carpenter restore the antique table after he negotiated with the buyer?

Half were accomplishments (as above)

and half were achievements (ex: *crash the go-kart*).

- Examining *y/n* questions:
 - No significant effects ($p = 0.68$)

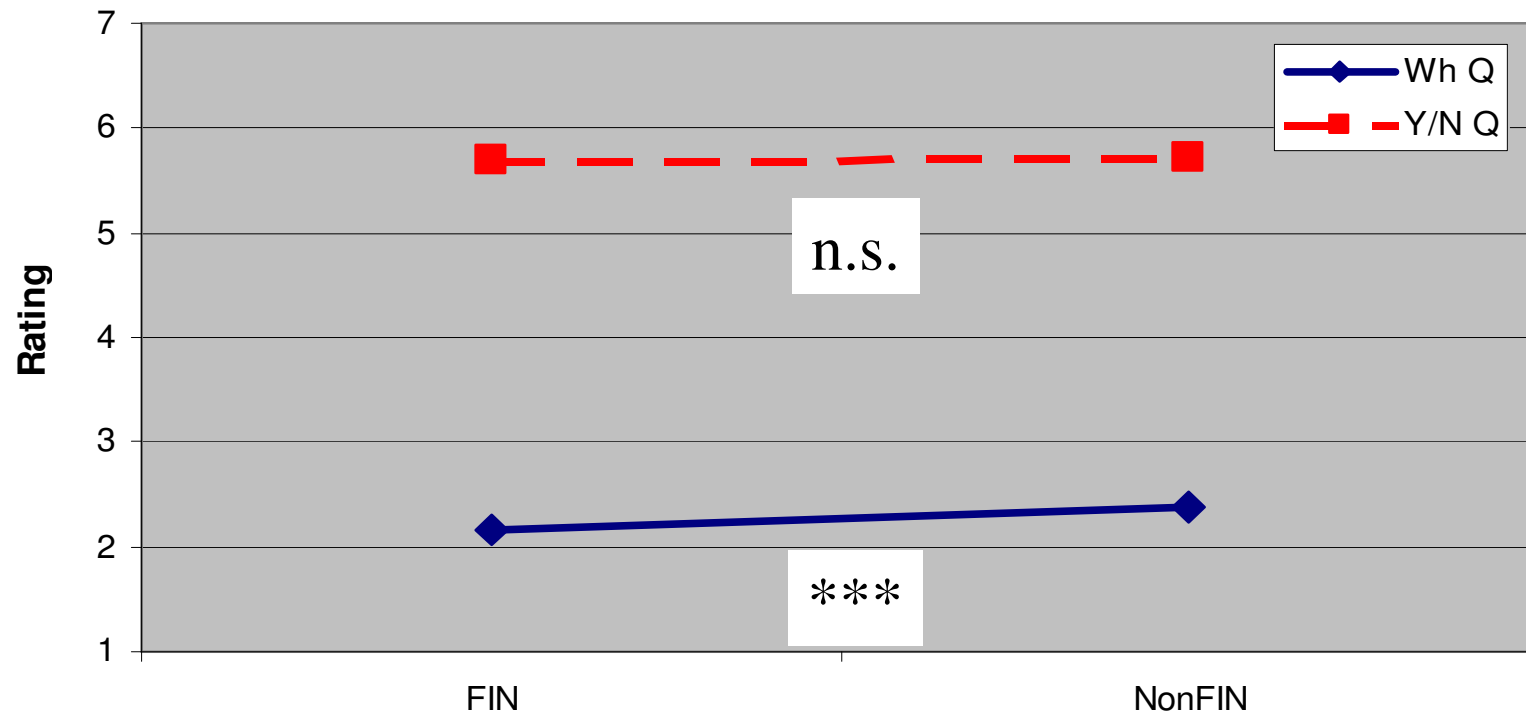
Finiteness	Mean Rating
Non-FIN	5.72 (1.07)
FIN	5.69 (1.09)

- Examining *wh*-extraction:
 - Significant effect of finiteness ($p < 0.001$)

Finiteness	Mean Rating
Non-FIN	2.38 (1.03)
FIN	2.16 (0.97)

Non-FIN > FIN

Adjunct islands: Extraction x Finiteness



Effect is small, but statistically significant

- Examining *y/n* questions:
 - No significant effects ($p = 0.68$)

Finiteness	Mean Rating
Non-FIN	5.72 (1.07)
FIN	5.69 (1.09)

- Examining *wh*-extraction:
 - Significant effect of finiteness ($p < 0.001$)

Finiteness	Mean Rating
Non-FIN	2.38 (1.03)
FIN	2.16 (0.97)

Non-FIN > FIN

Is extraction crucial?

YES!

- There is no evidence for an overall preference for non-finite adjuncts
- Finiteness modulates acceptability of extraction out of an adjunct

Event structure and adjuncts

- Why is the finiteness effect present only in extraction situations?
- Does being non-finite make it easier to identify the adjunct with the verbal event (Truswell, 2007, 2008) ?
 - If so, a complement clause, which should already identify with the verbal event, shouldn't need this distinction.

Complement Clauses

Alternate predictions:

- If extraction out of non-finite clauses is generally preferred, then:
 - Adjunct results = complement clause results
 - (NonFIN > FIN in extraction only)
- If the preference for extracting out of non-finite adjunct clauses reflects a closer integration with the matrix clause then:
 - Adjunct results \neq complement clause results

Experiment Three: Methods

Complement Clause Extraction

- 241 University of California, San Diego students
- Online experiment
- 21 excluded due to:
 - English not claimed as native language
 - English not claimed as main language
- N = 220
- 2 (question type) x 2 (finiteness) x 2 (presence of *that*), 3 examples of each.
- 24 items, 40 fillers (One item removed from analysis- input error)
- 7-point scale

Sample Materials

wh-NonFIN:

What did the teacher report (*that) the students to know _?

wh-FIN:

What did the teacher report (that) the students knew _?

y/n-NonFIN:

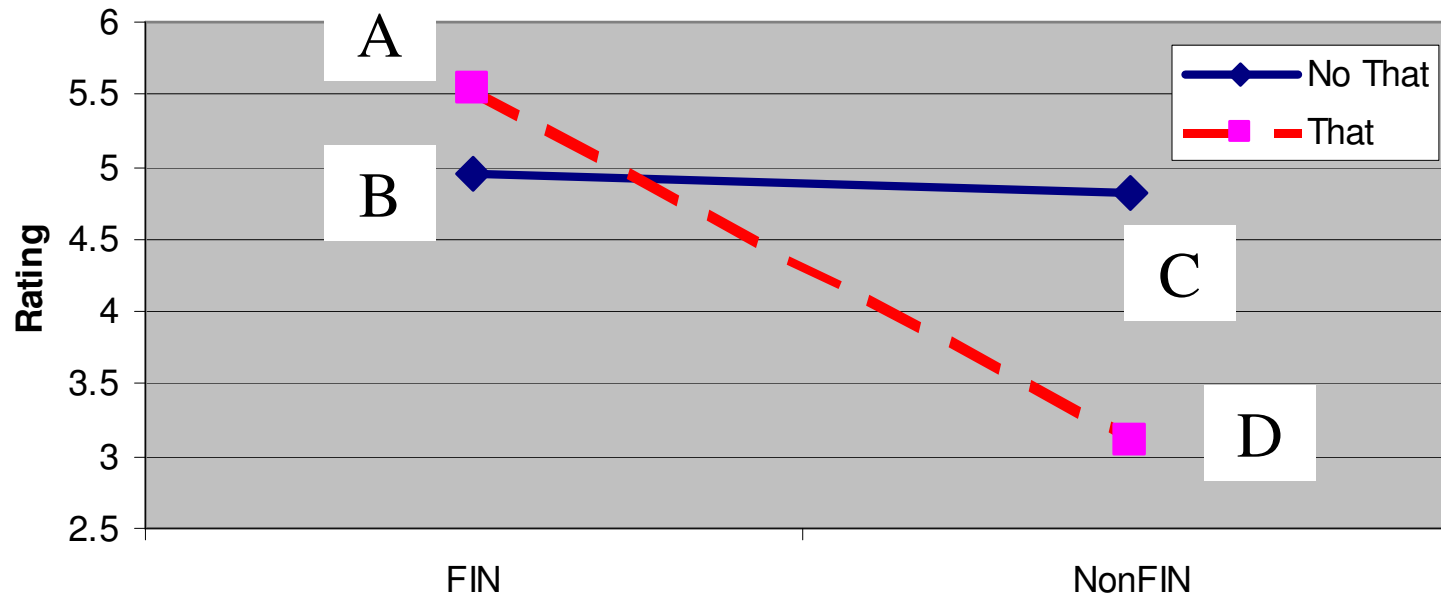
Did the teacher report (*that) the students to know algebra?

y/n-FIN:

Did the teacher report (that) the students knew algebra?

Unlike the adjunct materials, these complements have an additional referent in both the finite and non-finite conditions.

Clause Finiteness x Presence of that



- | | |
|---|---|
| C | D |
| ... report the students to know ... > ... report that the students to know ... | |
| A | B |
| ... report that the students knew ... > ... report the students knew ... | |
| B | C |
| ... report the students <u>knew</u> ... > ... report the students <u>to know</u> ... | |

Results

- Effect of Finiteness in *no-that* sentences
($p = .01$):

Finiteness	Mean Rating
FIN	4.96 (1.25)
Non-FIN	4.82 (1.23)

(What) did the teacher

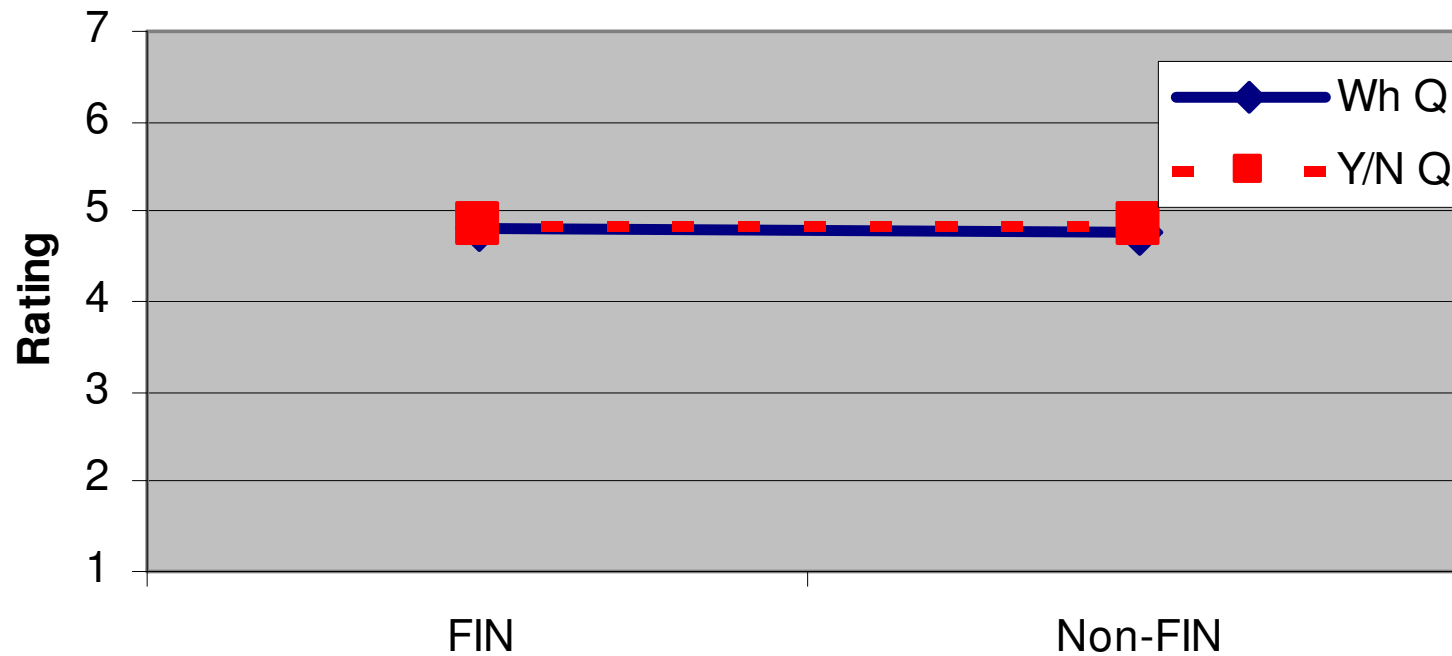
... report the students knew ... > ... report the students to know ...

Contra the findings for adjunct extraction:

Finite clauses are preferred over
non-finite clauses in complement clauses.

These results are collapsed over extraction

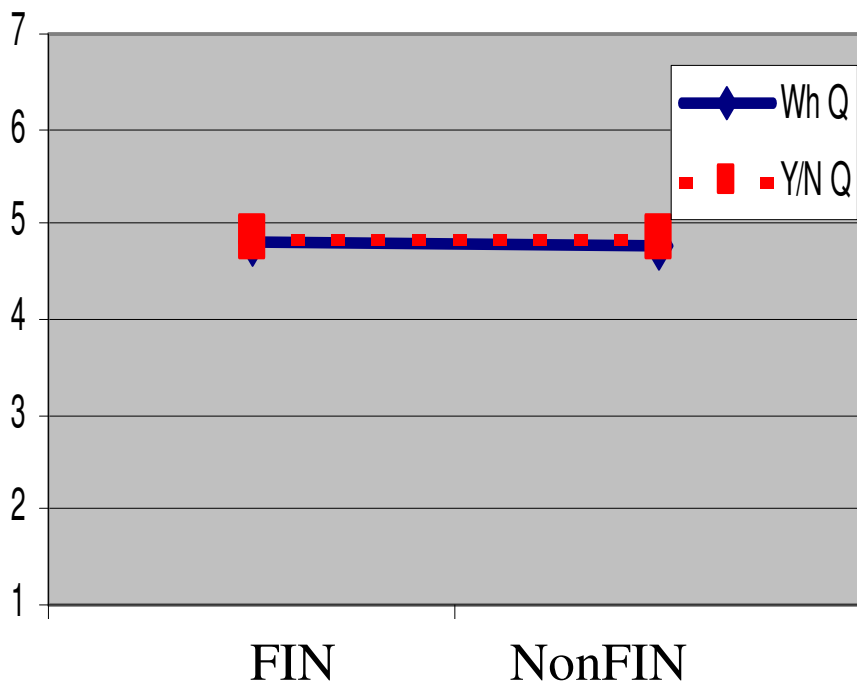
Clause Finiteness x Question Types (no that sentences)



FIN > Non-FIN ($p = .01$)

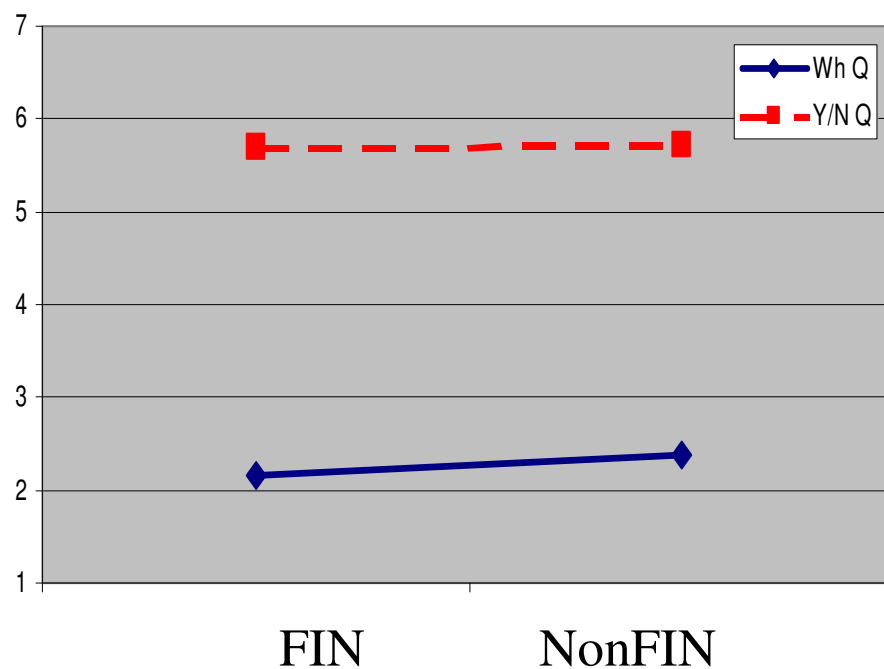
No effect of extraction

Complement Clauses



No extraction penalized
FIN > Non-FIN

Adjunct Clauses



All extraction penalized
Non-FIN > FIN only in extraction

Complement Clauses

Alternate predictions:

- If extraction out of non-finite clauses is generally preferred, then:
 - Adjunct results = complement clause results
 - (NonFIN > FIN in extraction only)
- If the preference for extracting out of non-finite adjunct clauses reflects a closer integration with the matrix clause then:
 - Adjunct results \neq complement clause results

Summary

- Adjunct islands are modulated by finiteness.
 - Any distinctions between subject and adjunct islands, whether grammatical or processing, cannot rely on the alleged lack of finiteness effects in adjunct islands.
- Finiteness only modulates attempts at extracting out of adjuncts and is not a general preference.
- Complement clauses do not pattern like adjunct clauses with respect to finiteness effects.
 - non-finite adjuncts may be more easily associated with the matrix verb's event structure.

Discussion

- Why is there a non-finite preference for extracting out of adjuncts (and other islands, but not complements?)

Additional referent in finite adjunct clauses

wh-NonFIN Adjunct:

Who did the carpenter restore the antique table after negotiating with _?

wh-FIN Adjunct :

Who did the carpenter restore the antique table after he negotiated with _?

wh-NonFIN Complement:

What did the teacher report the students to know _?

wh-FIN Complement :

What did the teacher report the students knew _?

Discussion

- Is the finiteness effect due to:
 - An additional referent being present in one case (causing difficulties in associating with the matrix predicate)?
 - Additional (overt) DP in the syntactic structure
 - Additional semantic and discourse referent
 - Additional processing burden
 - The verb being tensed or tenseless?
 - No clear evidence for this in the current study

Further Studies

- Need to further examine the reason(s) for the finiteness effect
 - Compare extraction from complements and adjuncts that are more similar to each other
 - Manipulate the type of additional DP
 - Who did the carpenter restore the antique table after he negotiated with _?
 - Who did the carpenter restore the antique table after the boss negotiated with _?

Thank You

- Thanks to:
 - Experimental Syntax Lab, UCSD
 - <http://grammar.ucsd.edu/syntaxlab/>
 - Language and Brain Lab, UCSD
 - <http://grammar.ucsd.edu/brainlab/>