Islands Without Islands

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(1)  

a. Which book did John complain that he lost?

b. * Which book did John complain *because* he lost?

c. * Which book did John complain *after* losing?

Questions

- Why do some phrases block extraction?
- Can they be given a theory-neutral characterization?

A Bold Idea

- There are no (strong) island constraints in the grammar.
- Island effects are an inevitable consequence of optionality.
(1)  a. Which book did John complain that he lost?
    b. * Which book did John complain because he lost?
    c. * Which book did John complain after losing?

Questions

- Why do some phrases block extraction?
- Can they be given a theory-neutral characterization?

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- There are no (strong) island constraints in the grammar.
- Island effects are an inevitable consequence of optionality.
Outline

1. Three Strong Islands
   - Adjuncts
   - Coordination
   - Relative Clauses

2. The Math: Optionality and Grammaticality Inferences
   - Ojuncts: Formalizing Optionality
   - Optionality Closure

3. Deriving Island Effects

4. Empirical Challenges
   - Not all Constructions Satisfy Optionality
   - Optional Non-Islands?

5. Conclusion & Outlook
Adjuncts

- extraction usually blocked

(2) a. Which book did John complain that he lost \( t \)?
   b. * Which book did John complain because he lost \( t \)?
   c. * Which book did John complain after losing \( t \)?

- gaps licensed

(3) Which book did John burn \( t \) after reading \( e \)?

- usually optional

(4) (Obviously) I will (easily) ace this ((very) challenging) exam (because I (really) am that smart).
Coordination

- extraction usually blocked
  
  (5)  
  a. Ed brewed beer and Greg drank it.  
  b. * Which beer did Ed brew \textit{t} and Greg drink \textit{it}?  
  c. * Which wine did Ed brew beer and Greg drink \textit{t}?  

- across-the-board extraction possible
  
  (6)  
  a. Which wine did Ed brew \textit{t} and Greg drink \textit{t}?  

- mostly optional (modulo morphological/semantic agreement)
  
  (7)  
  a. Ed brewed beer and Greg drank it.  
  b. Ed brewed beer.  

  (8)  
  a. Ed and Greg are brewing beer.  
  b. * Ed are brewing beer.  

  (9)  
  a. Ed and Greg met.  
  b. * Ed met.
Relative Clauses

- usually block extraction
  
  (10) * Which politician does John dislike the reporter that/who interviewed $t$?

- gaps only if created by movement
  
  (11) a. Which politician does John dislike $t$ that the reporter interviewed $e$?
     
  b. * Which politician did John tell the reporter that/who interviewed $e$ that Mark dislikes $t$?

- usually optional
  
  (12) a. the man that John works with that I admire
     
  b. the man that John works with
     
  c. the man that I admire
     
  d. the man
As a rule of thumb, adjuncts, coordinations and relative clauses
1 block extraction,
2 allow for gaps,
3 are optional.

The Big Question
Could (1) and (2) be related to optionality?
Outline

1 Three Strong Islands
   • Adjuncts
   • Coordination
   • Relative Clauses

2 The Math: Optionality and Grammaticality Inferences
   • Ojuncts: Formalizing Optionality
   • Optionality Closure

3 Deriving Island Effects

4 Empirical Challenges
   • Not all Constructions Satisfy Optionality
   • Optional Non-Islands?

5 Conclusion & Outlook
The notion of an ojunct provides an abstract characterization of optional phrase markers.

**Intuitive Definition (Ojunct)**

A phrase marker is an ojunct iff it can be removed from every well-formed tree without affecting grammaticality.

Under most Minimalist conceptions of movement, ojuncts are necessarily islands:

**Theorem (Islandhood)**

No ojunct can be extracted from if the extraction step involves checking a dependency at the target site.
The notion of an **ojunct** provides an abstract characterization of optional phrase markers.

### Intuitive Definition (Ojunct)

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### Theorem (Islandhood)

*No ojunct can be extracted from if the extraction step involves checking a dependency at the target site.*
Footed Trees

Definition (Footed Tree)

A footed tree is a tree that contains exactly one instance of the placeholder symbol □.

Example

```
VP
 □ yesterday

DP
 Ed
   □

DP
 D'
   □
   and
   □
   and
   Greg
```
Footed trees are combined with other trees via *tree substitution*.

**Definition (Tree Substitution)**

For $s$ a tree and $t$ a footed tree, $s +_n t$ is the tree obtained by inserting $t$ above node $n$ in $s$ such that $□$ in $t$ is replaced by $n$.

**Example**

```
TP
  +_VP
   VP
     □ yesterday
   Sue
     met
```

```
TP
  VP
     Sue
     met
```

```
TP
  VP
     yesterday
     met
     Sue
```
Definition (Optionality)

Given a grammar $G$, a footed tree $t$ is **optional** wrt $G$ iff it holds for every tree of the form $s +_{n} t$ that $s +_{n} t$ is generated by $G$ only if $s$ is generated by $G$.

Definition (Ojunct)

A phrase marker is an **ojunct** of grammar $G$ iff it is the result of removing $\square$ from a footed tree that is optional wrt $G$. 
Ojunct Extension

What does optionality tell us about grammars with ojuncts? What is the general shape of the generated language?

**Definition (Adjunct Extensions)**

Let $s$ and $t$ be trees. Then $t$ is an ojunct extension of $s$ for grammar $G$ ($s <_G t$) iff $t$ is the result of inserting one or more ojuncts of $G$ in $s$.

**Example**

- Obviously I will ace this exam $<_G$
  - Obviously I will easily ace this exam
- I will ace this exam $<_G$
  - Obviously I will easily ace this exam
- Obviously I will ace this exam $<_G$
  - I will easily ace this exam
- I will ace this exam $<_G$
  - I will easily ace this exam
- exam will this I ace $<_G$
  - easily exam will this I ace
Ojunct Extension

What does optionality tell us about grammars with ojuncts? What is the general shape of the generated language?

Definition (Adjunct Extensions)
Let \( s \) and \( t \) be trees. Then \( t \) is an **ojunct extension** of \( s \) for grammar \( G \) \((s \prec_G t)\) iff \( t \) is the result of inserting one or more ojuncts of \( G \) in \( s \).

Example
- **Obviously** I will ace this exam \( \prec_G \)
  - Obviously I will easily ace this exam
- I will ace this exam \( \prec_G \)
  - Obviously I will easily ace this exam
- **Obviously** I will ace this exam \( \not\prec_G \)
  - I will easily ace this exam
- I will ace this exam \( \not\prec_G \)
  - I will easily ace this test
- exam will this I ace \( \prec_G \)
  - easily exam will this I ace
What does optionality tell us about grammars with ojuncts? What is the general shape of the **generated language**?

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**Example**

- **Obviously** I will ace this exam $\prec_G$

  **Obviously** I will **easily** ace this exam

- I will ace this exam $\prec_G$

  **Obviously** I will **easily** ace this exam

- **Obviously** I will ace this exam $\not\prec_G$

  **I will easily** ace this exam

- I will ace this exam $\not\prec_G$

  **I will easily** ace this test

- Exam will this I ace $\prec_G$

  **Easily** exam will this I ace
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Example
- **Obviously** I will ace this exam $<_G$ Obviously I will easily ace this exam
- I will ace this exam $<_G$ Obviously I will easily ace this exam
- Obviously I will ace this exam $<_G$ I will easily ace this exam
- I will ace this exam $<_G$ I will easily ace this exam
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- exam will this I ace $<_G$ easily exam will this I ace
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Example

- **Obviously** I will ace this exam $\prec_G$
  - *Obviously* I will easily ace this exam
- I will ace this exam $\prec_G$ **Obviously** I will easily ace this exam
- **Obviously** I will ace this exam $\not\prec_G$ I will easily ace this exam
- I will ace this exam $\not\prec_G$ I will easily ace this test
Ojunct Extension

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Example

- *Obviously* I will ace this exam $<_G$ Obviously I will easily ace this exam
- I will ace this exam $<_G$ Obviously I will easily ace this exam
- *Obviously* I will ace this exam $<_G$ I will easily ace this exam
- I will ace this exam $<_G$ I will easily ace this exam
- *I will ace this exam $<_G$ I will easily ace this exam* 
- exam will this I ace $<_G$ easily exam will this I ace
Theorem (Optionality Closure)

If \( t \) is an ojunct extension of \( s \) for \( G \) and \( G \) generates \( t \), then \( G \) generates \( s \).

Example

I will easily ace this really exam

I will easily ace this exam

I will ace this really exam

I will ace this exam
Characterizing Ojunct Languages

**Theorem (Optionality Closure)**

If \( t \) is an ojunct extension of \( s \) for \( G \) and \( G \) generates \( t \), then \( G \) generates \( s \).

**Example**

I will *easily* ace this *really* exam

I will *easily* ace this exam

I will ace this *really* exam

I will ace this exam
Characterizing Ojunct Languages

Theorem (Optionality Closure)

If \( t \) is an ojunct extension of \( s \) for \( G \) and \( G \) generates \( t \), then \( G \) generates \( s \).

Example

I will \textbf{easily} ace this \textbf{really} exam

✓ I will \textbf{easily} ace this exam    I will ace this \textbf{really} exam

I will ace this exam
Characterizing Ojunct Languages

Theorem (Optionality Closure)

If \( t \) is an ojunct extension of \( s \) for \( G \) and \( G \) generates \( t \), then \( G \) generates \( s \).

Example

I will easily ace this really exam

✓
I will easily ace this exam          I will ace this really exam

I will ace this exam
Theorem (Optionality Closure)

*If* \( t \) *is an ojunct extension of* \( s \) *for* \( G \) *and* \( G \) *generates* \( t \), *then* \( G \) *generates* \( s \).

Example

I will *easily* ace this *really* exam

- I will *easily* ace this exam
- I will ace this *really* exam

- I will ace this exam
Characterizing Ojunct Languages

Theorem (Optionality Closure)

If $t$ is an ojunct extension of $s$ for $G$ and $G$ generates $t$, then $G$ generates $s$.

Example

I will easily ace this really exam

✓ I will easily ace this exam

* I will ace this really exam

✓ I will ace this exam
Characterizing Ojunct Languages

Theorem (Optionality Closure)

*If* \( t \) *is an ojunct extension of* \( s \) *for* \( G \) *and* \( G \) *generates* \( t \), then \( G \) *generates* \( s \).

Example

I will *easily* ace this *really* exam

✓ I will *easily* ace this exam * I will ace this *really* exam

✓ I will ace this exam

✓
Characterizing Ojunct Languages

Theorem (Optionality Closure)

If $t$ is an ojunct extension of $s$ for $G$ and $G$ generates $t$, then $G$ generates $s$.

Example

* I will *easily* ace this *really* exam

✓ I will *easily* ace this exam

✓ I will ace this exam

✓ I will ace this exam

* I will ace this *really* exam
Intuitive Definition (Ojunct)

A phrase marker is an **ojunct** iff it can be removed from every well-formed tree without affecting grammaticality.

Any grammar with ojuncts has the following inference patterns:
- \( \downarrow \) grammaticality is downward entailing with respect to \( <_G \),
- \( \uparrow \) ungrammaticality is upward entailing with respect to \( <_G \).
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4. Empirical Challenges
   - Not all Constructions Satisfy Optionality
   - Optional Non-Islands?

5. Conclusion & Outlook
Deriving the Adjunct Island Constraint

The AIC follows from **optionality closure and feature checking**.

![Diagram of AIC Violation]

1. Tree is an ojunct extension
2. Tree without ojunct violates feature calculus
3. Ungrammaticality is upward-entailing
The AIC follows from **optionality closure and feature checking**.

**AIC Violation**

1) Tree is an ojunct extension

```
CP
  C'
    did [+wh]
      TP
        John
          T'
            T
              VP
                VP
                  fall asleep
                PP
                  before
                    VP
                      reading
```

which book [-wh]
Deriving the Adjunct Island Constraint

The AIC follows from **optionality closure and feature checking**.

```
*  
CP
   
C'
   
did [+wh] TP
   
John T'
   
T VP
   
fall asleep
```

**AIC Violation**

1) Tree is an ojunct extension
2) Tree without ojunct violates feature calculus
Deriving the Adjunct Island Constraint

The AIC follows from **optionality closure and feature checking**.

* CP
  * C′
    * did [+wh]
      * TP
        * John
          * T′
            * T
              * VP
                * VP
                  * fall asleep
                * PP
                  * before
                    * VP
                      * reading

**AIC Violation**
1) Tree is an ojunct extension
2) Tree without ojunct violates feature calculus
3) Ungrammaticality is upward entailling
Why Parasitic Gaps are Different

PGs piggyback on a **mandatory feature checker**.
Why Parasitic Gaps are Different

PGs piggyback on a **mandatory feature checker**.

AIC Exemption

1) Tree is an ojunct extension
Why Parasitic Gaps are Different

PGs piggyback on a **mandatory feature checker**.

![Diagram of a syntactic tree]

---

**AIC Exemption**

1) Tree is an ojunct extension
2) Tree without ojunct satisfies feature calculus
PGs piggyback on a mandatory feature checker.

AIC Exemption
1) Tree is an ojunct extension
2) Tree without ojunct satisfies feature calculus
3) Grammaticality isn’t upward entailing $\Rightarrow$ nothing follows

which book [-wh]
Deriving the Coordinate Structure Constraint

CSC Violation
1) Ojunct extension of two trees
Deriving the Coordinate Structure Constraint

CSC Violation
1) Ojunct extension of two trees
2) Fine without second conjunct
Deriving the Coordinate Structure Constraint

CSC Violation
1) Ojunct extension of two trees
2) Fine without second conjunct
3) Nothing follows
Deriving the Coordinate Structure Constraint

CSC Violation
1) Ojunct extension of two trees
2) Fine without second conjunct
3) Nothing follows
4) Bad without first conjunct
Deriving the Coordinate Structure Constraint

CSC Violation
1) Ojunct extension of two trees
2) Fine without second conjunct
3) Nothing follows
4) Bad without first conjunct
5) Ungrammaticality is upward entailing

Diagram:
- CP
  - C'
    - did [+wh]
    - &P
      - TP
      - Ed
      - VP
      - brew
    - &'
      - TP
      - Greg
      - VP
      - drink
      - wine
- which beer [-wh]
Why ATB Extraction is Different

CSC Exemption

1) Ojunct extension of two trees

Which beer [-wh]

Which beer [-wh] did [+]wh

Greg drink

Ed brew

TP VP

&

&

1) Ojunct extension of two trees
Why ATB Extraction is Different

CSC Exemption
1) Ojunct extension of two trees
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Why ATB Extraction is Different

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Which beer [-wh]

Which beer [-wh]
Why ATB Extraction is Different

CSC Exemption
1) Ojunct extension of two trees
2) Fine without second conjunct
3) Nothing follows
4) Fine without first conjunct

\[
\begin{array}{c}
\checkmark \text{CP} \\
\downarrow \\
\checkmark \text{C'} \\
\downarrow \\
did [+wh] \\
\downarrow \\
\text{TP} \\
\downarrow \\
\text{Greg} \\
\downarrow \\
\text{VP} \\
\downarrow \\
drink \\
\downarrow \\
\text{which beer [-wh]}
\end{array}
\]
Why ATB Extraction is Different

CSC Exemption
1) Ojunct extension of two trees
2) Fine without second conjunct
3) Nothing follows
4) Fine without first conjunct
5) Nothing follows
Three Strong Islands
- Adjuncts
- Coordination
- Relative Clauses

The Math: Optionality and Grammaticality Inferences
- Ojuncts: Formalizing Optionality
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Deriving Island Effects

Empirical Challenges
- Not all Constructions Satisfy Optionality
- Optional Non-Islands?

Conclusion & Outlook
The Account So Far

- **Mathematical Fact**
  With minimal assumptions about Move, all ojuncts are islands while still allowing for parasitic gaps and ATB extraction.

- **Empirical Assumption**
  Adjuncts, coordinations and relative clauses are ojuncts. But is this true?

**Two Issues**
- Not all relevant constructions qualify as ojuncts.
- Some phrases look like ojuncts yet are not islands.
The Account So Far

- **Mathematical Fact**
  With minimal assumptions about Move, all ojuncts are islands while still allowing for parasitic gaps and ATB extraction.

- **Empirical Assumption**
  Adjuncts, coordinations and relative clauses are ojuncts. But is this true?

**Two Issues**

- Not all relevant constructions qualify as ojuncts.
- Some phrases look like ojuncts yet are not islands.
Not all adjuncts are optional.

(13)  a. This child reads well.
    b. This book reads *(well).
    c. John laughed a *(quiet) laugh.
    d. John behaved *(badly) to Chris.

These adverbs trivially do not allow for extraction, so they pose no challenge.
Word-Order Restrictions

Optionality is not surface-true in V2 languages.

(14) a. **Gestern** hat der Hans die Maria geküsst.
yesterday has the Hans the Maria kissed
‘Yesterday, John kissed Mary.’

b. Hat der Hans die Maria geküsst?
has the Hans the Maria kissed
‘Did John kiss Mary?’

c. * Hat der Hans die Maria geküsst.
has the Hans the Maria kissed
‘John kissed Mary.’

Possible Answers

- V2 is post-syntactic and thus irrelevant for optionality.
- V1 is grammatical, but restricted by discourse factors.
Incorrect Grammaticality Inference in German

```
CP
  ↓
C'
  ↓
TP
  ↓
DP  T'
  ↓
  ↓
der Hans T
die Maria VP geküsst
```
Incorrect Grammaticality Inference in German

*CP
  \(^C'\)
    hat
    \(\text{TP}\)
      \(\text{DP}\)
        der
        Hans
        \(\text{T'}\)
          \(\text{VP}\)
            DP
              geküsst
            die
            Maria
Incorrect Grammaticality Inference in German

\[
\text{CP} \quad \text{gestern} \quad \text{C'} \quad \text{hat} \quad \text{TP} \quad \text{DP} \quad \text{der} \quad \text{Hans} \quad \text{T'} \quad \text{T} \quad \text{VP} \quad \text{DP} \quad \text{geküsst} \quad \text{die} \quad \text{Maria}
\]
Conjuncts and Agreement

At a surface-level, conjuncts matter for $\phi$-agreement and semantic number requirements.

$$(15) \quad \text{Ed *(and Greg) are brewing beer.}$$

$$(16) \quad \text{Ed *(and Greg) met.}$$

Possible Answer

- Optionality must hold with respect to morphological dependencies, not specific feature values.
- Semantic requirements are ignored.
(17)  a.  ? Every woman and no man has ever had a period.
    b.  * Every woman has ever had a period.

(18)  * (Jón og) afar sínír voru
       Jón and grandpas POSS-REFL.NOM.PL were
       glaðir.
       happy.NOM.PL
       ‘(Jón and) his grandpas were happy.’

Worrying, but all relevant examples are deviant for independent reasons:

(19)  a.  * Which actress has (every TMZ reporter and) no
       fanboy of t ever talked to?
    b.  * Which field did the dean introduce every professor
       (of t) and no student of t to any senators?
Optionality must be computed over abstract structures that allow us to ignore

- certain movement operations (at least V2),
- concrete $\phi$-feature instantiations,
- some semantic requirements
  - size of set denoted by DP,
  - NPI-licensing,
  - binding requirements.

If one relegates these conditions to PF and LF, syntactic trees with Agree dependencies should work.

Problem

This still leaves us with ojuncts that are not islands!
**Interim Summary**

Optionality must be computed over *abstract structures* that allow us to ignore

- certain movement operations (at least V2),
- concrete $\phi$-feature instantiations,
- some semantic requirements
  - size of set denoted by DP,
  - NPI-licensing,
  - binding requirements.

If one relegates these conditions to PF and LF, syntactic trees with Agree dependencies should work.

**Problem**

This still leaves us with ojuncts that are not islands!
In passives, *by*-phrases are optional but do not block extraction. The same holds for instrumentals.

(20)  
   a. Mary was assaulted *(by John) (with a hammer)*.
   b. Which man was Mary assaulted by *t*?
   c. What kind of weapon was Mary assaulted with *t*?

However, these phrases are *semantic arguments of the verb*. 
Truswell Sentences

Truswell adjuncts also allow for extraction (Truswell 2007).

(21) Which car did John drive Mary crazy trying to fix?

**Truswell’s Generalization**

Adjunct denotes an event $e'$ that is related via $R$ to the event $e$ of the matrix clause

$\Rightarrow$ does not have standard (Neo-Davidsonian) denotation
$\Rightarrow$ adjunct behaves more like a semantic argument
Resumptive Pronouns

No island violations with resumptive pronoun instead of trace (e.g. Lebanese Arabic)

(22) ha-l-muttahame tfeezaʔ to lamma/laʔanno this-the-suspect.SGFEM surprised.2 when/becauseifrəftoʔ anno hiyye nhabasit. know.2 that she imprisoned.3SGFEM

‘This suspect, you were surprised when/because you knew that she was imprisoned.’ Aoun et al. (2001:575)

follows if binding rather than movement is involved

Problem

Antecedent and adjunct must both be dropped
⇒ discontinuous adjuncts?
Resumptive Pronouns

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Problem

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The Big Picture

- **Step 1**
  more fine-grained classification than just argument vs adjunct (cf. Dowty 2003; Needham and Toivonen 2011)

<table>
<thead>
<tr>
<th>syn-adjunct</th>
<th>sem-argument</th>
<th>sem-adjunct</th>
</tr>
</thead>
<tbody>
<tr>
<td>syn-argument</td>
<td>Truswell adjuncts</td>
<td>ojuncts</td>
</tr>
<tr>
<td></td>
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- **Step 2**
  specify exactly which parameters are ignored for optionality, and why
The Big Picture

- **Step 1**
  more fine-grained classification than just argument vs adjunct
  (cf. Dowty 2003; Needham and Toivonen 2011)

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<td>arguments</td>
<td>case-marked adjuncts (?)</td>
</tr>
</tbody>
</table>

- **Step 2**
specify exactly which parameters are ignored for optionality, and why
Why do we see (strong) island effects?
Because islandhood is a necessary consequence of optionality given standard feature checking requirements.

Why are there exceptions?
- Because not all adjuncts/conjuncts are indeed optional.
- Because not all extractions involve movement.
  (cf. resumptive pronouns)

So what counts as optional?
That’s the $10^7$ question!

Conjecture
Only syntactic and semantic subcategorization requirements block optionality.
All other (non-local?) requirements are ignored.

