Discourse and unaccusativity
Quantitative effects of a structural phenomenon

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DGfS  2016 • Universität Konstanz
The syntax of argument structure: Empirical advancements and theoretical relevance
24 February 2016
Usage data and syntactic theory

- Using data from usage to inform syntactic theory
  - Corpus data

- Unaccusativity
  - “existential unaccusative” VPs
  - Information structural effects
Shared properties

• Existential BE sentences and existential unaccusative sentences

1. A hippie arrived (at the park).  (existential unaccusative)
2. A hippie walked in.
3. There was a hippie in the park.  (existential BE)
Roadmap

1. Introduction

2. Background
   1. Unaccusative subtypes
   2. Existential sentences and new discourse referents
   3. Proposal: Existential unaccusatives

3. Corpus: Method and results

4. Discussion and further work
Roadmap

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Unaccusativity in English

• Few robust diagnostics

• Diagnostics roughly correspond to familiar semantic classes of verbs

1. Change of state: *break, freeze, melt*

2. Existence/motion: *arrive, appear, come*
Causative-inchoative alternation

• Associated with changes-of-state

1. The vase broke.

2. The kids broke the vase.
Causative-inchoative alternation

• Associated with changes-of-state

1. The vase broke.

2. The kids broke the vase.

• Doesn’t work with existence/motion verbs

3. The menus arrived.

4. *The waiter arrived the menus.
There-insertion

• Works for existence/motion verbs

1. A group of boisterous kids arrived.

2. There arrived a group of boisterous kids.
There-insertion

• Works for existence/motion verbs
  1. A group of boisterous kids arrived.
  2. There arrived a group of boisterous kids.

• Fails with change-of-state verbs
  3. A vase broke (on the floor).
  4. *There broke a vase (on the floor).
“Unaccusativity mismatches”

• Discussion in Levin & Rappaport-Hovav (1995: 4-16) and elsewhere

• Syntactic approaches nowadays: More than one unaccusative structure
  o Kural (1996), Alexiadou & Schäfer (2009), Irwin (2012), inter alia
There-insertion pushed further

• Other “verb classes” allow there-insertion!

• Manner of motion verbs can allow there-insertion
  ○ Manner of motion: run-type verbs

• Levin (1993): “potentially extended uses of certain verbs as verbs of existence” (p. 90)
Manner of motion verbs

Observations from Levin (1993: 89-90)

• Manner of motion:
  1. A little boy ran in the yard.
  2. *There ran a little boy in the yard.
Manner of motion (± direction) verbs

Observations from Levin (1993: 89-90)

• Manner of motion:
  1. A little boy ran in the yard.
  2. *There ran a little boy in the yard.

• Manner of motion + direction of motion:
  1. A little boy darted into the room.
  2. ✓There darted into the room a little boy.
Presentation

• Some sentences only make sense on a “presentational” interpretation

• Guéron (1980: 653:a-c)

1. A man walked in from India.
2. A train chugged past with many passengers.
3. A bird darted by with golden wings.

• These sentences have manner of motion verbs + direction
Existential BE sentences

• Existential sentence: core function is to introduce new discourse referents onto the scene
  
  o Key diagnostic: subsequent reference

1. There were some hippies in the park. They seemed nice.

• McNally (1997): INSTANTIATE
Analysis

• Compatible ways to capture these shared properties
  o Event frames in the lexicon
  o Referential anchoring (von Heusinger 2007)

• Syntactic decomposition (my route)
  o \( \exists -be \) and \( \exists -unacc \) share a PredP headed by a Pred head whose denotation includes \textit{INSTANTIATE} (McNally 1997; McCloskey 2014)
  o Specifier of PredP is (or includes) a contextually-determined element LOC (Francez 2007)
Existential BE, in a nutshell

- Part of the denotation of Pred includes INSTANTIATE

- THING and LOC in the spirit of Borschev & Partee (1998)
Existential BE sentence

- Closely following McCloskey (2014)
Existential unaccusative (in a nutshell)

Irwin, *in prep.*
Existential unaccusative (in a nutshell)

Irwin, in prep.
Existential unaccusative

• A hippie walked in

Irwin, *in prep.*
Shared properties

• Analyzed here as shared structure
Shared properties

• Analyzed as shared structure + meaning
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The motivating intuition

• If some unaccusative sentences share core properties with existential sentences ... 

• ... then we expect that those unaccusative sentences to have the same discourse function as existential sentences
  ○ We expect to see people using the structure
Operationalizing the intuition

• Let verb names stand in for structures
  - *arrive* will stand in for “existential unaccusative”
  - *smile* will stand in for an intransitive that can never occur in an existential structure

• Let definiteness stand in for discourse old and discourse new (*pace* lots of people)
Hypothesis

• We will find more indefinite subjects with existential unaccusative verbs than indefinite subjects with unergative verbs
  ○ Relative to definite subjects of those verbs
Overview of corpus method

• Choose pairs of verbs that are matched for lexical frequency

• Compare indefinite and indefinite subjects for each

• The prediction: More indefinites for unaccusatives vs. unergatives (relative to definites) reflects discourse function
Corpus: COCA

• Corpus of Contemporary American English

• Contains a mix of genres
  o Spoken data (from TV shows), novels, magazines, newspapers, film scripts, ...
Corpus method

- Verbs: unergative and unaccusative
- Closely matched in lexical frequency

  - [http://www.wordfrequency.info/top5000.asp](http://www.wordfrequency.info/top5000.asp)

<table>
<thead>
<tr>
<th>Unaccusative</th>
<th>Unergative</th>
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<tbody>
<tr>
<td>enter</td>
<td>laugh</td>
</tr>
<tr>
<td>arrive</td>
<td>smile</td>
</tr>
<tr>
<td>emerge</td>
<td>sleep</td>
</tr>
</tbody>
</table>
Corpus method

- Verbs: unergative and unaccusative
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<table>
<thead>
<tr>
<th>rank</th>
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<th>freq</th>
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<td>enter</td>
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<td>813</td>
<td>arrive</td>
<td>47,435</td>
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<td>1307</td>
<td>emerge</td>
<td>24,476</td>
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</table>

<table>
<thead>
<tr>
<th>rank</th>
<th>Unergative</th>
<th>freq</th>
</tr>
</thead>
<tbody>
<tr>
<td>864</td>
<td>laugh</td>
<td>48,567</td>
</tr>
<tr>
<td>1072</td>
<td>smile</td>
<td>41,473</td>
</tr>
<tr>
<td>1176</td>
<td>sleep</td>
<td>34,801</td>
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</table>
Corpus method: Extract sentences

• For each verb:
  o Extract sentences with indefinite subjects (*a/an* NP)
  o Extract sentences with definite subjects (*the* NP)

• Keep only sentences with animate subjects
  o To keep the numbers balanced: unergatives like *smile* allow only animate subjects

• Keep only sentences in which the verb in question functions as a main verb
Search strings

• Grab sentences with indefinite subjects:

  .|;|, a|an [n*] [smile].[v*]

• Grab sentences with definite subjects:

  .|;|, the [n*] [smile].[v*]
Corpus method: Extract sentences

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• Keep only sentences in which the verb in question functions as a main verb
COCA settings

• To get all data...

• (Relevant only for sentences with definite subjects)
A note on indefinite subjects

Switchboard Corpus: Subject Forms
(Francis, Gregory & Michaelis 1999)

They are very rare, even in English

N = 31,021 declarative sentences
(Francis, et al. 1999)
Results: Counts for definite subjects

Sentences with definite subjects

- **enter-arrive-emerge**
  - Unaccusative: 259
  - **Unergative**: 400

- **laugh-smile-sleep**
  - Unaccusative: 123
  - Unergative: 366
Results: Counts for indefinite subjects

Sentences with indefinite subjects

<table>
<thead>
<tr>
<th>Sentence Type</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>enter-arrive-emerge</td>
<td>128</td>
</tr>
<tr>
<td>unaccusative</td>
<td>66</td>
</tr>
<tr>
<td>laugh-smile-sleep</td>
<td>13</td>
</tr>
<tr>
<td>unergative</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>15</td>
</tr>
</tbody>
</table>
Grouped data

Unacc and unerg sentences grouped by subject type (def/indef)

definite

- unaccusative: 727
- unergative: 890

indefinite

- unaccusative: 246
- unergative: 35
Statistics

- Significance testing: a simple chi-squared test
  - Pearson's Chi-squared test with Yates' continuity correction
  - $X^2 = 172.07$, df = 1, p-value < $2.2\times10^{-16}$
  - Significant

Subject types (def/indef) grouped by verb types

- unaccusative (definite): 727
  - indefinite: 246
- unergative (definite): 890
  - indefinite: 35

$p$-value < $2.2\times10^{-16}$ = 0.0000000000000002
Litmus test of discourse referent-ood

• Subsequent reference (by a definite or pronoun)

• None of the indefinite laugh subjects are subsequently referred to -- except for one
Test of discourse referent-hood

• Discourse referent is event, not entity
  o Except for (4)

1. Directly below her, in the street, a woman laughed. It was a throaty, intimate sound. Eva thought of Ludmila, laughing
2. Oh, shit, " I said, looking over the water. A loon laughed, and my chest tightened.
3. Somewhere in the distance, a hyena laughed. Michael opened up his journal.
4. A woman laughed, and he stared her down. " I'm not a freak, " he snarled, and she couldn't muster a response. He turned away sullenly. " I'm better than you. I'm better than all of you. I embrace progress. I commune with the future.
6. A man laughed, genuinely pleased. Someone sang, I'm forever blowing bubbles. She wondered
7. At a table far to the right, a woman laughs as she touches her husband's knee.
9. Around the bend, a child laughs # I start toward the sound as # I slowly begin to creep toward my
10. And you can see them being happy. A chimpanzee laughs. When a chimpanzee finds a group of bananas in the woods, he will
11. She went backstage to get her clothes. In the echoing wings, a girl laughed somewhere, and a door slammed.
12. A man laughed at me. I looked around for the source of the voice but the pier
13. A policeman laughed as they fished through the broken window for boxes of tricks. While older boys
Subsequent reference to event

• Unergatives with indefinite subjects establish a discourse referent for the event (and that’s all)

1. **a woman laughed.** It was a throaty, intimate sound. Eva thought of Ludmila, laughing

2. **A man laughed** at me. I looked around for the **source of the voice** but
Oddball sentence

• *a chimpanzee*: non-specific kind

1. A chimpanzee laughs. When a chimpanzee finds a group of bananas in the woods, he will
The exception

• Transitory

1. A woman laughed, and he stared _her_ down. "I'm not a freak," he snarled, and _she_ couldn't muster a response. He turned away sullenly. "I'm better than you. I'm better than all of you. I embrace progress. I commune with the future...
Hypothesis confirmed

• If verb type doesn’t make a difference for establishing discourse referents, we expect to see the same relative number of definite and indefinite subjects

• But we did not: we found more indefinite subjects with existential unaccusative verbs than indefinite subjects with unergative verbs
  • Relative to definite subjects of those verbs

• But wait...
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Verbs and meaning

• But wait...

• Don’t the verbs *enter, arrive, emerge* MEAN coming on the scene??
  ○ And *that* is why they have more indefinite subjects?

• Needed: verbs that can occur in either an existential unaccusative or an unergative structure
Returning to manner of motion

• Manner of motion ± direction

• Use these with definite/indefinite subject status to diagnose structure?

• Manner of motion:

1. A little boy ran in the yard.  (manner)
2. A little boy ran into the yard.  (manner + direction)
3. There ran into the yard a little boy.
Structural ambiguity

- Are (1)-(2) structurally ambiguous?

1. A little boy ran in.  (manner + direction)

2. A little boy ran into the yard.  (manner + direction)
Next steps

• *run, walk* ➔ may select for existential PredP

• vs. (pure) manner verbs that “cannot” select for an existential PredP: e.g., *hammer, pound*

• For a syntactic decomposition analysis, this would mean that verb meaning matters less than the ability of a verb (or *v*+root) to select for an existential PredP
Thank you!
Selected references


Stowell, Tim. 1978. Stylistic movement rules (ms). MIT.

Extra slides
Arrive-type verbs

• How many verbs like *arrive* does English have?
  o *arrive, appear, emerge, ...*
  o Latinate verbs: etymologically, all involve a preposition

• *arrive*: ad + ripa (‘to the shore’)

• *emerge*: e + mergere (roughly: ‘to dip out (from)’)

OED entry for *arrive*, v
late Latin arribāre < arrīpāre, adrīpāre,
< ad to + rīpa shore; = ad rīpam appellĕre

OED entry for *emerge*, v.¹
< (directly or through French émerger)
Latin emergere, < e out + mergere to dip

(Irwin 2012; Moro, 1997: 291, fn. 19)
Arrive-type verbs

• How many verbs like arrive does English have?
  o arrive, appear, emerge, ...
  o Latinate verbs: etymologically, all involve a preposition

• So, not many?

• We have lots! come in, walk up, roll up, ....
  ➢ unaccusative verb + particle constructions
  ▪ My analysis: the particle denotes PATH to LOC

(Irwin 2012; Hoekstra & Mulder 1990; Irwin, in prep)
Discourse referent: Definition

• “the appearance of an indefinite noun phrase establishes a ‘discourse referent’ just in case it justifies the occurrence of a coreferential pronoun or definite noun phrase later in the text.” (Karttunen, 1976: 366)

1. The princess saw a __unicorn__. It was beautiful.
Indefinite NPs and discourse referents

• Most indefinite NPs establish discourse referents

1. There were some hippies in the park. They were dancing all around.

2. I saw some hippies yesterday. They seemed nice.
Negation and modality get in the way

• In some syntactic contexts, an indefinite NP cannot establish a discourse referent

1. There weren’t any hippies in the park. #The hippies were dancing around.

2. You should get a dog. #He likes to go on walks.
The lifespan of discourse referents

• Discourse referents can be limited in their “lifespan” (Heim 1982: 249ff.)

1. Everyone with a dog should walk it.

2. Everyone with a dog should walk it.
   #It likes to play fetch.
Elements of existentials

1. There is a hippie HERE at the door.

   BE THING LOC (contextual modifier)

• **THING**: the NP; semantically, a property or set

• **LOC**: a physical or “virtual” location; can be implicit
  (Partee et al., 2011: 142)

  ○ Contextually-determined element, like a pronoun
    (Francez 2007)

• Coda: contextual modifier (Francez 2007)
The role of location

1. There’s no tea!

2. There’s no tea [LOC]!

• Existential predications always involve a location
  o “Existence is always relative to a `LOCation,’ which may be implicit” (Partee et al. 2011: 142)

• *Location* broadly construed: spatio-temporal, virtual, etc.

Francez (2007); Partee et al. (2011)
Contextually-determined LOC

• Why is LOC always “here”?
  - “here” = center of the discourse

1. There ran towards me a group of noisy children.
2. #There ran away from me a group of noisy children.

• “There-insertion is possible with verbs of motion only if the motion is directed towards what is perceived as the center of the discourse” Stowell (1978: 5)

Sentences from Stowell (1978), who credits J. Guéron with the observation
Summary of properties

Existential *be* sentences

*There’s a hippie here.*

- VP-internal NP
- *there*-insertion
- Verb meaning bleached
- Presentational discourse function

Existential unaccusatives

*A hippie walked in.*

- VP-internal NP (can move)
- *there*-insertion possible
- Verb meaning bleached
- Presentational discourse function