Severing Internal Arguments from their Predicates: An English Case Study*

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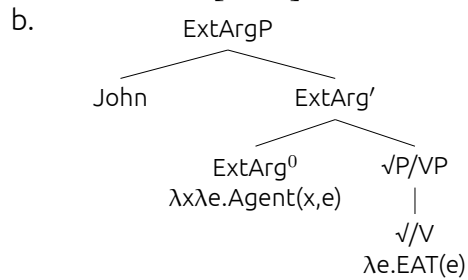
1   Introduction

◆ It's long been argued that external arguments[1] are not introduced by the verb

  ▸ There is an ever-increasing amount of evidence to this effect

    ▪ Verbal morphology, idioms, adverbial modification, semantic composition, passives, …

    ▪ (Larson 1988, Marantz 1984, 1997, Hale and Keyser 1993, Chomsky 1995, Kratzer 1996, von Stechow 1996, Pylkkänen 2002, Ahn 2010, Lohndal 2012, Harley 2013…)

  ▸ This is one aspect of a 'Neo-Davidsonian' approach to the Syntax-Semantics Interface

    ▪ Neo-Davidsonian semantics: a verb names the type of event, but its arguments are introduced by different functions

      ◇ Taken up in Parsons 1990 and Schein 1993, and many subsequent works; See Lohndal 2012:Ch.3 for an overview

    ▪ If arguments of a verb are introduced by unique verb-independent **semantic** functions, a transparent Syntax-Semantics Interface ought to require those functions be associated with unique **syntactic** heads

  ▸ Thus a neo-Davidsonian representation of *John ate* might look like (1a), with a transparent syntactic representation of this in (1b)
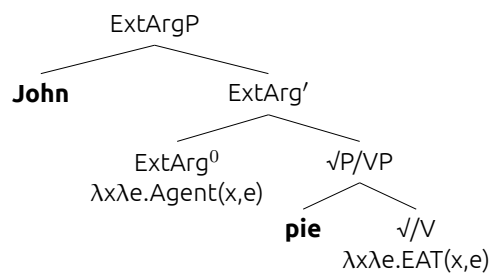
[1]To be clear, I use this term to refer to the highest argument in the thematic domain of a predicate.

(1)   a. $\exists e[Agent([\![John]\!],e) \ \& \ EAT(e)]$

      b.

ExtArgP
- John
- ExtArg′
  - ExtArg^0 $\lambda x \lambda e.Agent(x,e)$
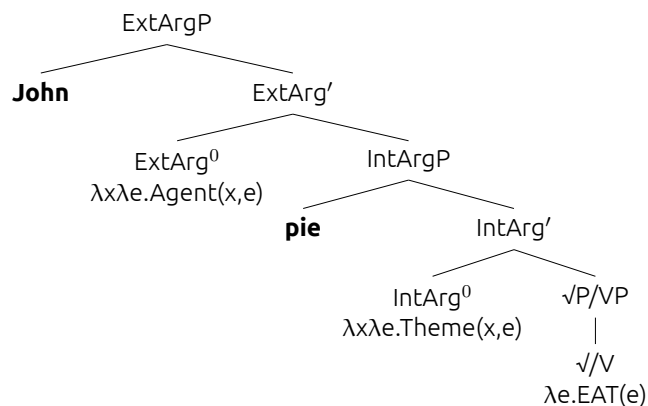 - √P/VP
    - √/V $\lambda e.EAT(e)$

- The external argument is "severed" from the lexical verb

- Introduced by a functional head (ExtArg/v/Voice/....) outside of the projection of the lexical predicate's root (√P/VP), which is associated with the semantics of the external argument function

◆ The question of whether internal arguments are severed from the lexical predicate is less commonly addressed

    ▸ Does *John ate pie* resemble (2a) or (2b)?

(2)   a.

ExtArgP
- **John**
- ExtArg′
  - ExtArg^0 $\lambda x \lambda e.Agent(x,e)$
  - √P/VP
    - **pie**
    - √/V $\lambda x \lambda e.EAT(x,e)$

     b.

ExtArgP
- **John**
- ExtArg′
  - ExtArg^0 $\lambda x \lambda e.Agent(x,e)$
  - IntArgP
    - **pie**
    - IntArg′
      - IntArg^0 $\lambda x \lambda e.Theme(x,e)$
      - √P/VP
        - √/V $\lambda e.EAT(e)$

Big Question

Are IntArgs of non-Change-of-State predicates syntactically introduced in the √P/VP, or elsewhere?

▸ IntArgs of change-of-state (CoS) predicates introduced outside √P/VP (Hale and Keyser 1993, Cuervo 2003, Doron 2014)

  ▪ For non-CoS IntArgs, (2a) is commonly assumed (e.g., Chomsky 1995, Kratzer 1996), and has been recently defended by Harley (2014a,b)

  ▪ (2b) is less common, but has been argued to hold for non-CoS IntArgs (Borer 2005a,b, Bowers 2010, Lohndal 2012, Alexiadou 2014, Cuervo 2014, …)

2   *out*-PRED Data

◆ *out-* can prefix to predicates forming complex predicates (*out*-PRED):

(3) a.   Google has outdone itself today   (http://bit.ly/1GY0Np0)
     b.   Neither one outsang the other.   (http://bit.ly/19PZpup)
     c.   By 2017, connected devices will outnumber people.   (http://bit.ly/1BqSr4I)
     d.   78-Year-Old Natator Says He Can Outfloat Rivals   (http://bit.ly/1FJXJ2w)

  ▸ First, let us consider what a canonical example like (3a) means

    ▪ Notably, this does not entail that Google has done itself

    ▪ This expresses that Google did something to a greater/better/more extreme degree, as compared to the other events in which Google ('*themselves*') has done that thing

      ◇ (In this case, the thing being done is the daily Google doodle)

    ▪ In general, these can be paraphrased as "<u>SUBJECT</u> participated in a <u>VERB</u>ing (of something) to a greater/better degree than <u>OBJECT</u>"

  ▸ This out-PRED construction is highly productive

    ▪ The predicate in question must be able to be construed as some kind of contest, or as something with a scalar aspect to it

    ▪ Whatever theta role the PRED normally assigns its external argument gets assigned to the subject and object of out-PRED

    ▪ Both arguments receive the same thematic interpretation with regard to PRED[2]

      (4) a.   <u>Agent</u>: Gorbachev is outmaneuvering his critics.   (http://trib.in/1EGgwq6)
           b.   <u>Experiencer</u>: And a bear can out-smell even a bloodhound.(http://bit.ly/1BMPvz3)
           c.   <u>Theme</u>: This food outlasts even a Twinkie.   (http://bit.ly/1OyYvSw)

      (5) a.   <u>Agent</u>: He outsells all our other salespeople.   (http://bit.ly/1CqpKJV)
           b.   <u>Theme</u>: Mustangs outsell Camaros and Firebirds combined.(http://bit.ly/1GmxKNL)

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[2]There are some out-PREDs which allow their internal argument to be some kind of standard, measure, or point on a scale, e.g. *Chad hasn't out-grown comics* where comics cannot be said to be growing. Not every out-PRED allows this, e.g. **John outran the record time.* In the examples I have observed with this property, they cannot be easily passivized, unlike the *out*-PREDs discussed here; see (9)–(11) and surrounding discussion.

2.1   PRED and *out*-PRED

◆ An *out*-PRED retains PRED's lexical properties

▸ Including **morphophonological irregularities**

(6) a.   do + -s = [dʌz], *[duz]   run + -ed = *ran*, **runned*
     b.   outdo + -s = *out*[dʌz], **out*[duz]   outrun + -ed = *outran*, **outrunned*

■ out-PRED never triggers regularization of PRED, suggesting that PRED is obligatorily active/visible in the morphological derivation

■ This is unlike other cases, where regularization can take place, as opacity may allow derivations in which the irregular item is inaccessible to morphology

(7)   light + -ed = *lit*
      green-light + -ed = *green-lighted*

▸ As well as its lexically specified **semantic stativity**

(8) a.   *James is weighing 180lbs.   ✓Joanna is singing a song.
     b.   *James is outweighing Josh.   ✓Joanna is out-singing Louisa.

▸ PF and LF properties of PRED: *out*-PRED is not a separate listeme in the lexicon (Keyser and Roeper 1984)

▸ **PRED effects in PF + LF ⇒ PRED in the narrow syntax**

◆ Though PRED's root-properties persist in out-PRED, **out-PRED behaves as an entirely different predicate** in other ways

▸ ***out*-PRED can always be passivized** – even if PRED cannot be

(9) a.   By mid-September, they numbered 10,000.
     b.   *By mid-September, 10,000 were numbered (by them).
     c.   By mid-September, they out-numbered us.
     d.   By mid-September, we were out-numbered (by them).
(10) a.   Titanic 2 didn't run in theaters for a long time.
      b.   *Theaters weren't run in by Titanic 2 for a long time.
      c.   Titanic 2 didn't outrun Titanic.
      d.   Titanic wasn't outrun by Titanic 2.
(11) a.   Julie cooked tofu.
      b.   Tofu was cooked (by Julie).
      c.   Julie out-cooked Lee.
      d.   Lee was out-cooked (by Julie).

▸ The adjuncts that are available differ between *out*-PRED and PRED; **instrument PPs are unavailable with *out*-PRED** even when available with PRED

(12) a.   Katie ate (pizza) with a fork.
      b.   ?*Katie outate Pete with a fork.

▸ These syntactic properties are properties of functional material in (the high portion of) the predicate's extended projection

- Passivization depends on a head towards the edge of the verbal domain (e.g., Kratzer 1996, Sailor and Ahn 2010, Harley 2013)
- Instruments depend on Agent-related syntax: (e.g., Reinhart 2000)

  ▸ ⇒ *out*-**PRED's extended projection** ≠ **PRED's extended projection**

◆ Very low properties (morphophological irregularities, lexical stativity) controlled by PRED

◆ Very high properties (passivizability, instrument adjuncts) controlled by *out*-PRED

Interim Conclusions 1

PRED is syntactically active, and *out*-PRED has a different extended projection

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2.2　*out*-**PRED's IntArg**

◆ <u>Question</u>: In *out*-PRED contexts, are IntArgs controlled by PRED or *out*-PRED?

  ▸ **None of PRED's internal argument(s) can surface with out-PRED**

  - It does not matter if the internal argument is...

    ◇ ...an object of a transitive PRED:

      (13)　a.　She thinks about syntax.
      　　　　b.　She outthinks (*about syntax) them (*about syntax).

      (14)　a.　Google lobbied Congress.
      　　　　b.　Google outlobbied (*Congress) Microsoft (*Congress).

    ◇ ...an optional cognate object of an unergative PRED:

      (15)　a.　Mike danced (a good dance).
      　　　　b.　Mike outdanced (*a good dance) Janet (*a good dance).

      (16)　a.　James weighs (a healthy weight).
      　　　　b.　James outweighs (*a healthy weight) Josh (*a healthy weight).

    ◇ ...either argument of a ditransitive PRED:

      (17)　a.　Jackie donated money to museums.
      　　　　b.　Jackie outdonated (*money) (*to museums) Lisa (*money) (*to museums).

      (18)　a.　Our group gave blood to the Red Cross.[3]
      　　　　b.　Our group outgave (*blood) (*to the Red Cross) one of the local hospitals (*blood) (*to the Red Cross).

  ▸ **Even if PRED is obligatorily transitive**, PRED's IntArg cannot be expressed in *out*-PRED (and another one takes its place)

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[3]This example is inspired by a web-hit: *Last year, we outgave one of the local hospitals.* (http://bit.ly/1NipVst)

(19) a.   The Iron Man sequel grossed *($625million).
      b.   Each Marvel sequel has out-grossed its predecessor.   (http://bit.ly/1BqdPHI)
      c.   Each Marvel sequel has out-grossed (*$625million) its predecessor (*$625million).

(20) a.   He spent *(his inheritance).
      b.   He outspent (*his inheritance) his siblings (*his inheritance).

‣ **Even if PRED is obligatorily *in*transitive**, such as the following unaccusatives[4], *out*-PRED requires an IntArg

(21) a.   In math class, this student shines.
      b.   In math class, this student outshines *(everyone else).

(22) a.   This candidate polls well.
      b.   This candidate outpolls *(that candidate).

◆ Answer: the IntArg in an *out*-PRED context is controlled by *out*-PRED

‣ ***out*-PRED is always monotransitive**, regardless of PRED's valency

> ### Interim Conclusions 2
> *out*-PREDs are obligatorily monotransitive, occurring with their own unique internal argument

2.3   PRED's IntArg

◆ PRED's missing IntArgs are indeed absent from the derivation: **morphosyntactically controlled "argument suppression"**, like the (anti-)passive

‣ Interpretations that depend on IntArg presence fail in *out*-PRED

◆ CoS unaccusatives require IntArgs (Rappaport Hovav 2008:24)

(23) a.   Ray cooks tofu better than Lee.   (CoS transitive)
      b.   Ray outcooks Lee.
      c.   Tofu cooks better than tempeh.   (CoS unaccusative)
      d.   #Tofu outcooks tempeh.

‣ (23d) is bad because the IntArg is missing from the derivation, and its presence is required to interpret the CoS unaccusative properly[5],[6]

‣ (See Ahn 2015 for more discussion)

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[4]By 'unaccusative', I simply mean that an internal argument ends up as the external argument. In this way, it is a cover-term, encompassing middles, anticausatives, ergatives, etc.

[5]The same lexical form can be used as both a CoS unaccusative (*tofu cooks*), CoS trasnitive (*Ray cooks tofu*), and some kind of null-object unergative (*Ray cooks*). In the case of (23b), it would seem to be that *cook* is the unergative type, as true CoS predicates are said to require IntArgs for their semantic composition (Rappaport Hovav 2008).

[6]Certain verbs that can be used as CoS unaccusatives have been reported to be acceptable with *out-*; in particular, *out-grow* and *out-bloom* (Adamson 2015). However, these appear to be exceptional, and few forms have been found to behave this way. Perhaps it is that they are construed as unergatives (see footnote 5) – a similar idea is proposed by Adamson.

◆ Certain idioms require IntArgs

(24)　a.　Julie cooked the books.　　　　　　　　　　　　　　(= Julie falsified financial records)

　　　b.　Julie out-cooked the other accountants.

　　　　　　　　　　≠ Julie falsified financial records better than other accountants.

　　　c.　The books have been cooked.

◆ The meaning of *have* is determined by its IntArg

　▸ "Because *have* itself is semantically vacuous, all of the thematic content of such sentences comes from *have*'s [internal argument]."(Myler 2014:387)

　▸ None of the various uses of have identified in Myler 2014 allow *out-*; two examples:

(25)　a.　John has more cars than Bill.　　　　　　　　　　　　　　　(Relational *have*)

　　　b.　＊In terms of cars, John out-has Bill.

　　　c.　In terms of cars, John out-owns Bill.

(26)　a.　John had more wonderful things happen to him today than Bill. (Experiencer *have*)

　　　b.　＊In terms of wonderful things, John out-had Bill today.

　　　c.　$\sqrt{}^{?}$In terms of wonderful things, John out-experienced Bill.

◆ **PRED's IntArg is syntactically absent from the derivation**
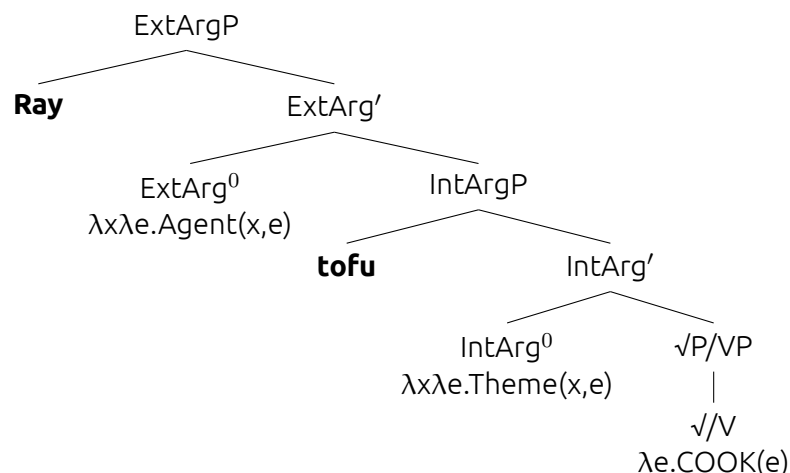
　▸ Adding *out-* suppresses PRED's IntArg

◆ **Monotonicity Hypothesis**: adding morphemes cannot destroy syntactic structure (Koontz-Garboden 2007)

　▸ PRED's IntArg(s) must be absent from the derivation (as just shown)

　▸ An IntArg could not have entered the syntactic derivation and then be destroyed

　▸ Whatever introduces PRED's normal IntArg must be absent from the derivation of *out*-PRED

　▸ PRED is in the derivation of *out*-PRED (§2.1)

　▸ **PRED must not be the introducer of IntArgs**

◆ Instead, an $IntArg^0$ that is outside of √P/VP introduces them

(27)　a.　Ray cooked tofu

　　　b.

```
                    ExtArgP
              ┌────────┴────────┐
            Ray              ExtArg′
                        ┌───────┴───────┐
                    ExtArg⁰          IntArgP
                  λxλe.Agent(x,e)  ┌────┴────┐
                                 tofu      IntArg′
                                       ┌─────┴─────┐
                                   IntArg⁰        √P/VP
                                 λxλe.Theme(x,e)    │
                                                   √/V
                                                 λe.COOK(e)
```

- How do we "suppress" PRED's IntArg in *out*-PRED?

  - Contemporary approaches to passive achieve this by preventing the syntactic head that introduces an ExtArg from merging in the syntax

  - Similarly, ***out*-PRED's derivation must block the head that introduces an IntArg**

  - At the same time, *out*-PRED needs to be able to introduce an IntArg of its own

- <u>Solution</u>: In *out*-PRED, ***out*- merges with a bare √P/VP and projects its own thematic structure**

(28) a. Ray outcooked them

b.

```
                        ExtArgP
                       /      \
                     Ray     ExtArg'
                            /       \
                    ExtArg⁰          IntArgP
                    λxλe.Agent(x,e)  /      \
                                  them     IntArg'
                                          /       \
                                  IntArg⁰          outP
                                  λxλe.Agent(x,e)  /    \
                                              out-    √P/VP
                                                        |
                                                       √/V
                                                     λe.COOK(e)
```

(bracketing at right: *out-* spans from ExtArgP down to outP; PRED spans √P/VP and √/V)

ExtArg^0 : $\lambda x \lambda e.\text{Agent}(x,e)$
IntArg^0 : $\lambda x \lambda e.\text{Agent}(x,e)$
$\sqrt{}/\text{V}$: $\lambda e.\text{COOK}(e)$
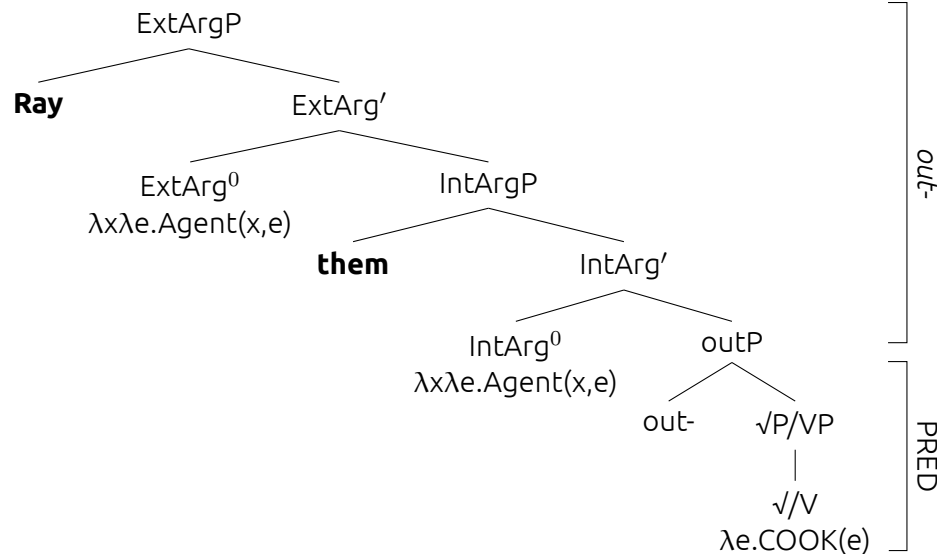
  - The $\sqrt{}^0$ *cook* is able to influence which thematic roles ExtArg^0 and IntArg^0 assign, non-locally (as in Harley 2013:§8)

  - This structure is consistent with all we have said so far:

    - PRED is syntactically active

    - out-PRED is a distinct predicate, projecting its own extended verbal domain

      ◇ out-PRED can always passivized because it is always the same extended verbal domain

    - Internal arguments of PRED that are suppressed in out-PRED are introduced outside of the √P/VP that *out-* selects as its complement

      ◇ **We now have evidence that non-CoS internal arguments may be severed from the predicate**

3   Conclusion

- ◆ **IntArgs, like ExtArgs, are severed from the lexical predicate**
  - ▸ **For non-CoS predicates**, too, based on *out*-PRED

- ◆ **Supporting a fully transparent neo-Davidsonian syntax-semantics interface**
  - ▸ All arguments separated from the lexical predicate, each introduced by unique semantic functions, which correspond with unique syntactic positions

- ◆ **Word formation of *out*-PRED takes place in syntax**
  - ▸ Non-syntactic constituent (*out* + V) can yield a phonological constituent (*out*-PRED)

- ◆ **Open Questions:**
  - ▸ How do transitivity restrictions get enforced if IntArgs are introduced higher?
  - ▸ What kinds of principles whether a predicate's interpretation can/must depend on its IntArg(s)?

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