The Syntax and Lexical Semantics of Cognate Object Constructions

by

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ABSTRACT

In this paper, I explore Cognate Object Constructions COCs (e.g. The clown *laughed* a creepy *laugh*) through three research questions: (1) What verbs can accept Cognate Objects COs? (2) Why can these verbs accept COs and other verbs cannot? and (3) How are COCs derived? I demonstrate that Sorace's Hierarchy sheds light on which verbs can accept COs and which cannot by explaining the discrepancies in grammaticality judgments that exist in the literature. I then argue that Hale and Keyser's Conflation account of COCs is not minimalist because it relies on a phenomenon that can be reduced to Merge. After commenting and repairing their account, I provide an outline for a more minimalist framework, which I refer to as *Problems of Projection Extensions* (PoP+), that focuses on MERGE, workspaces, labeling theory, phases, and determinacy. Inside this framework, I then develop my own account that depends on only Internal Merge and the constraint in English against stranded articles. With my account situated in this PoP+ framework, I am able to approach the research questions from a syntactic perspective, arguing that the Unergative Restriction on COCs is a result of a determinacy violation in the derivation of Unaccusative COCs. Finally, I point out that, being situated in the PoP+ framework, my account opens COCs up to further investigation not possible before.

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Chapter 1

INTRODUCTION TO THE RESEARCH QUESTIONS

The presence of cognate object constructions (e.g. The clown *laughed* a creepy *laugh*) and the potentially-related hyponymous object constructions (e.g. He *danced* a *jig*) in syntactic and lexical-semantic literature is the result of several factors. Firstly, these constructions are an interesting anomaly in a traditional understanding of verbs, so they are often cited when certain properties of verbs are examined. Secondly, as will become apparent in subsequent chapters, fluctuations in grammaticality judgments of these constructions present engaging logistical challenges. Finally, perhaps due to these fluctuations, these constructions are often used in poetic contexts which makes them interesting tools with which to examine linguistic phenomena.

The goal of this paper is to present a minimalist account of these constructions so that they can be opened up to further study. I claim that this paper aligns with the goal of the generative enterprise which is to encourage exploration in areas previously thought of as uninteresting or completely understood.

1.1 Cognate, Hyponymous, and Inclusive Object Constructions

To begin, let the following definitions delimit a preliminary scope to be refined as the investigation unfolds:

> *Cognate Object Constructions COCs - Scope Definition*
> Constructions wherein the object is semantically included in and morphologically related to the verb of the same clause.

Hyponymous Object Constructions HOCs - Scope Definition

Constructions wherein the object is semantically included in but not morphologically related to the verb of the same clause.

To be able to speak generally about these related constructions, I have defined the following set of constructions to include both Cognate and Hyponymous Object Constructions.

Inclusive Object Constructions IOCs - Scope Definition

Constructions wherein the object is semantically included in, and optionally morphologically related to, the verb of the same clause.

Traditionally, discussion of IOCs is situated within the broader study of argument realization, i.e. the study of the possible syntactic expressions of the arguments of a verb (Levin et al., 1995). A fundamental understanding of argument realization is worded in terms of valency: avalent verbs require at most zero arguments (e.g. *it rains*, where *it* fulfills a purely syntactic role completely devoid of semantic value), intransitive verbs require exactly one argument (e.g. *He*$_1$ *arrived*), transitive verbs require exactly two arguments (e.g. *He*$_1$ *saw his sister*$_2$), and ditransitive verbs require exactly three arguments (e.g. *She*$_1$ *gave him*$_2$ *flowers*$_3$).

This understanding is helpful but incomplete given observations of IOCs (e.g. *The clown*$_1$ *laughed a creepy laugh*$_2$). That is, *laugh* is typically intransitive, so it should not be able to accept more than one argument, but this example is perfectly grammatical with two. Furthermore, it is interesting to note that the second argument needs to be semantically and morphologically related to the verb; otherwise it becomes ungrammatical, i.e. **The clown laughed a small child*.

1.2 Research Questions and Outline

This observation motivates the following three research questions: (1) What verbs can accept IOs? (2) Why can these verbs accept IOs and other verbs cannot? (3) How are IOCs derived?

To address these questions, this paper is divided into four chapters. In this chapter, I define the scope and introduce my approach to addressing these research questions. In the second chapter, I review the literature's response to these questions. In the third chapter, I reference cite two datasets of examples found in the literature, and I use these datasets to identify potential gaps in the current treatment. I then develop my own syntactic and lexical-semantic accounts of IOCs. In the fourth chapter, I summarize and review my contribution to the discussion, then brainstorm potential avenues for future investigation.

1.3 Methodology

As this is a preliminary discussion of IOCs, the data provided in this paper will be in English and will come from primarily secondary sources. Because this phenomenon is variably productive cross-linguistically, future research should investigate its use in other languages and in corpora. At this stage of research however, the focus will be to clearly define an object of study from which to continue future investigation.

In this thesis, I approach the research questions from lexical-semantic and syntactic perspectives. My goal is to present these approaches not in competition, but simply as perspectives from different angles that have the potential to shed light on the research questions in different ways. Also, I do not make an effort to unify these approaches; I instead use one to inform the other. In this case, the lexical-semantic approach will inform the syntactic.

1.4 Preview of Proposals

In the course of this analysis, I arrive at the following conclusions. Like most of the literature, I claim that Unergative verbs can accept COs and Unaccusative verbs cannot - this is what is known as the Unergative Restriction on COCs. However, I argue that because ergativity is realized on a semi-continuous spectrum, i.e. Sorace's Hierarchy, there is variation in how verbs map between the binary unergative/unaccusative distinction in the syntax and the semi-continuous spectrum of ergativity in the semantics. I claim that this variation is the source of the alleged attestations of Unaccusative COCs that exist in the literature and the discrepancies in grammaticality judgments that surround them. Finally, I claim that the Unergative Restriction on COCs is the result of a syntactic constraint, i.e. Determinacy, that ultimately disallows the derivation of Unaccusative COCs.

Chapter 2

INCLUSIVE OBJECT CONSTRUCTIONS

The task of this chapter is to review the literature relevant to the research questions introduced in chapter one. To do this, I divide this chapter into three parts, each part summarizing the literature's position on each of the three research questions.

Although there is mention of IOCs in traditional grammars, I will focus on literature belonging to generative traditions generally, and from predominantly lexical-semantic and derivational syntactic perspectives in particular.

I follow previous literature by treating COCs and HOCs as separate, but potentially-related phenomena. I will also follow the tendency to set HOCs aside in order to focus on COCs. I will however retain the terminology I introduced in the first chapter for the occasional mention of IOCs and HOCs. As for terminology, the literature is often inconsistent or unclear - the term *Cognate Objects* and *Cognate Arguments* are terms used for both cognate and hyponymous objects, and *True Cognate Objects* is occasionally used to distinguish cognate objects from hyponymous objects and sometimes from *Adverbial Cognate Objects*, to be discussed later. To avoid confusion, I will continue with the terminology I defined in chapter one - COCs and HOCs are mutually exclusive types of IOCs.

2.1 What Verbs can Accept COs?

The answer to this first question is often taken for granted in the literature. Literature on COCs claims that only unergatives can accept COs (Levin et al., 1995; Larson, 1988; Macfarland, 1997). The following examples, gathered by (Kuno et al., 2004, p.106) (hereon K&T), are given as evidence for this claim:

1. Evidence that only Unergative verbs accept COs

   (a) *The glass broke a crooked break.

   (b) *The actress fainted a feigned faint.

   (c) *The apples fell a smooth fall.

   (d) *The city sprawled an extensive sprawl around the bay.

   (e) *The ship sank a strange sinking.

   (f) *The door opened its noisy opening.

   (g) *The snow melted a slow melt.

   (h) *Phyllis existed a peaceful existence.

   (i) *The statue stood a heroic stance in the middle of the common.

   (j) *She arrived a glamorous arrival.

   (k) *Karen appeared a striking appearance at the department party.

   (l) *We approached a strange approach.

   (m) *It emerged a strange emergence.

   (n) *John came an unhappy coming.

The wealth of evidence to support this claim allows early literature to extend it to the point that COs are used as metrics against unaccusativity, for example in Levin et al. (1995, pp.147, 148, 150, 152, 160, 173). That is, the literature occasionally adopts the following reasoning: this verb cannot accept a CO, so it is unaccusative. K&T, in order to argue against it, make explicit this claim by defining the following constraint.

Unergative Restriction on the Cognate Object Construction

Only unergative verbs can appear in the cognate object construction. No unaccusative verbs can (2004, p.107).

To open their counterargument, K&T discuss the ergativity of *die*. Because *die* allows COs but is traditionally classified as unaccusative, it is often referenced as a curiosity in this discussion, and for this reason, it is important to review the literature's stance on this verb here. K&T (2004, p.111) provide the following as examples of COCs with *die*.

2. COCs with *die*

   (a) Mark Twain *died* a gruesome *death*.

   (b) The general *died* the *death* of a hero.

   (c) No one wants to *die* a horrible *death*.

K&T claim, in line with the traditional understanding, that because the subject of *die* is a theme, it is unaccusative (2004, pp.111-113)[1]. Because examples in (2) are grammatical however, some have considered *die* unergative, following the CO metric against unaccusativity mentioned above (Larson, 1988, pp.386-387) or by experimenting with adjectival passives and *way*-constructions (Macfarland, 1997). Because unaccusatives can appear in adjectival passives (e.g. *wilted lettuce*) but *die* cannot (e.g. **a recently died knight*), *die* must not be unaccusative. Further, because unergatives can appear in *way*-constructions (e.g. *John yelled his way down the street*) and *die* is also attested in this construction (e.g. *You could die your way out of it...* (Macfarland, 1997, p.197)), *die* must be unergative. K&T however give the following examples to counter-evidence these two tests (2004, p.113).

[1]The following original and cited examples are taken from this section of K&T's analysis.

3. Evidence to counter the adjectival passive test

   (a) *never-*existed* dragons

   (b) *a suddenly-*come* guest

   (c) *a suddenly-*occurred* idea

4. Evidence to counter the *way*-construction test

   (d) The avalanche *rolled* its way into the valley.

   (e) Rainwater *trickles* its way to the underground pool.

   (f) The stream *oozed* its way through the rock wall.

These arguments together with demonstrating attestations of *die* in *there*-constructions and the absence of an agent nominal form of *die*, K&T develop substantial support for the traditional classification. Once this support is built however, K&T, perhaps inadvertently, suggest that *die* is in fact idiosyncratic:

> "According to the OED (Oxford English Dictionary), the noun *death* in 'to die a (specified) death' represented instrumental in the Old English, and was used in the Middle English with various prepositions such as *by*, *with*, *on*, and *in*. It is in present-day English that *death* is used without a preposition. (In *die a death*, *a* was originally the preposition *on* and came to be treated as an indefinite article much later.) Thus, the whole object NP involving *death* does not represent a result of someone's death; rather, *die a specified death* describes how someone dies" (2004, p.124).

Because *die* constitutes an important facet of the discussion of COCs, future investigation will need to determine more definitively its ergativity and/or etymological

peculiarity. Until that time, I will consider *die* idiosyncratic and consider instead the following examples of COCs with unaccusatives that K&T (2004, p.116) provide.

5. COCs with Unaccusatives

   (a) The tree *grew* a century's *growth* within only ten years.

   (b) ?The gale *blew* its hardest *blow* yet in the next hour.

   (c) The stock market *dropped* its largest *drop* in three years today.

   (d) The stock market *slid* a surprising 2 % *slide* today.

   (e) Stanley watched as the ball *bounced* a funny little *bounce* right into the shortstop's glove.

   (f) The apples *fell* just a short *fall* to the lower deck...

With these examples, K&T develop a functionalist account of COCs that circumnavigates the ergativity approach to this research question. In the next chapter, I will demonstrate that these examples are in fact not true unaccusatives. I will therefore adopt the understanding that only unergative verbs may accept COCs, contra-K&T.

2.2 Why can these Verbs Accept COs and Other Verbs cannot?

An interesting response to this question is the claim that COs act as "incremental themes" to measure out an event (Copley and Harley, 2015). In other words, this is the claim that the CO temporally delimits the event of the construction, making it altogether telic. The argument is that because unaccusatives are inherently telic, they cannot be measured out any further by any means, let alone via an incremental theme such as a CO.

One diagnostic to test telicity is with *in-* and *for-* adjuncts. Telic verbs can only accept *in-* adjuncts while durative verbs can only accept *for-* adjuncts, therefore (7) and (9) are ungrammatical with the adjuncts in parentheses.

6. The wall broke (in/after (ten) minutes).

7. The wall broke *(for (ten) minutes).

8. Ahmed sang (for (ten) minutes).

9. Ahmed sang *(in (ten) minutes).

Copley and Harley argue that the CO acts as a package for the event introduced by the verb. In the following examples, the adjunct in parentheses specifies a temporally delimited event inside the verb that projects it.

10. Shania sang (a song).

11. The clown laughed (a creepy laugh).

That is, according to the incremental theme analysis, (10) entails that Shania sang for the duration of said song and the singing stopped, and (11) entails that the clown laughed for the duration of said laugh and the laughing stopped.

In order to test the claim that COs are incremental themes, it is tempting to add *in-* and/or *for-* adjuncts. To test the ergativity of the verbs in examples (6) through (9), *in-* and *for-* adjuncts are affixed. If the construction is grammatical with an *in-* adjunct, the verb is telic; if the construction is grammatical with a *for-* adjunct, the verb is durative. This diagnostic however cannot effectively extend to examples (10) and (11) because adding adjuncts here introduces another point of coercion. That is, when adding *in-* and/or *for-* adjuncts to these examples, the nexus of grammaticality

begins to alternate between the verb, the CO and the testing adjunct. The *in-for* adjunct diagnostic is sensitive to delimitedness in both sets of examples, but it is more easily controlled in the former than the latter.

2.3 The Derivation of COCs

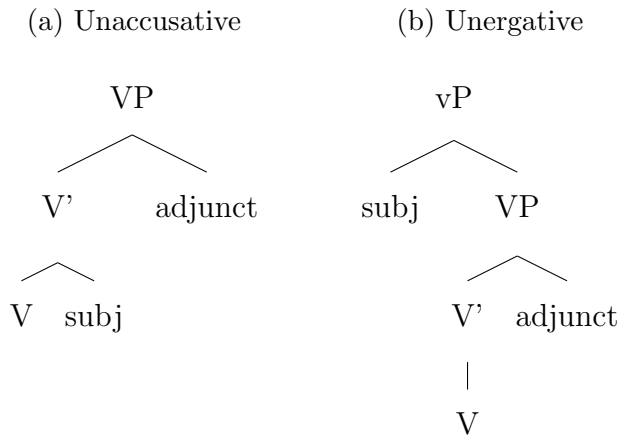
The question of how COCs are derived begins with whether they are arguments or adjuncts. Because this is a question that occupies much of the syntactic literature on COCs, it is important to survey it here.

2.3.1 Argument-Adjunct Distinction

Nakajima (2006, p.677) demonstrates that Argument COs, ArgCOs, can be passivized and undergo wh-movement, while Adverbial COs, AdvCOs, cannot. Pereltsvaig (2002) makes these observations about Hebrew, and Gallego (2012, pp.98-99) also notices that some COs cannot be passivized or undergo wh-movement, but Gallego attributes these observations to the distinction between COCs and HOCs. Citing the below two structures from Chomsky (1995, p.331), Nakajima claims:

> "In the unaccusative VP..., object position is already occupied by a superficial subject. It has therefore been widely assumed... that unaccusative verbs cannot take a cognate object in object position. Notice, however, that adjunct position is still available for adverbial phrases" (2006, p.678).

Figure 2.1: Unaccusative vs Unergative Structures



In the process of exploring this distinction between ArgCOCs and AdvCOCs, Pereltsvaig (2002, p.117) and Nakajima (2006, pp.679-681) notice ambiguities. While the former demonstrates scope ambiguities in Hebrew, it is unclear if this type of ambiguity affects ArgCOCs and AdvCOCs in English. The latter however shows that, because COs can take advantage of two available positions in the unergative structure, result and manner ambiguities arise.

Nakajima claims that because of these two available positions, COCs with unergative verbs can be interpreted as either ArgCOCs or AdvCOCs. If the CO occupies the adjunct position, the construction is an AdvCOC and the CO is interpreted as contributing adverbial content (i.e. manner, time, aspect, etc.). If the CO occupies the object position, the construction is an ArgCOC and the CO is interpreted as specifying a result.

Because resultative readings are sensitive to other lexical-semantic properties of the verb, the ambiguities are subtle and attempts to disambiguate them, cumbersome. For example, Nakajima (2006, p.680) claims that the following sentences are ambiguous.

12. Argument - Adjunct Ambiguities

(a) Mary laughed a mirthless laugh (for an hour/in an hour).

(b) Josie danced a silly dance (for an hour/in an hour).

(c) Martha sang a joyful song (for an hour/in an hour).

To disambiguate, Nakajima uses *in*- and *for*- adjuncts. While canonically telic verbs cannot accept *for*- adjuncts, and canonically durative verbs cannot accept *in*-adjuncts, with argument - adjunct ambiguity, these examples can accept both, according to Nakajima. My personal intuitions prefer examples in (12) with *for*- adjuncts, but the *in*-adjuncts are aided by the COs preceding them. K&T also notice this problem and attribute it to affectedness, making the following claim:

> "...the verb describes first what kind of action was performed by its subject referent, and then the cognate object [here understood as COs in ArgCOCs] describes what was produced by such an action. Thus, it can be concluded that 'cognate' objects are resultative objects and represent the results of the actions (or events) indicated by the intransitive verbs..." (2004, p.120).

K&T consolidate and rearticulate the above claim in the form of the following constraint:

> *The Functional Constraint on the Cognate Object Construction: A.ii.*
> In the cognate object construction [i.e. ArgCOC]... the object NP must represent a specific state or event that belongs to the set of the possible states or events resulting from the activity or event (2004, p.129).

According to Nakajima's claim, this constraint, along with wh-movement and passivization tests, serves as another diagnostic for determining whether a CO is an argument or adjunct. If the CO is interpreted as resultative, it is more likely an argument, and if it is interpreted as affected, it is more likely an adverbial.

Because the derivation of COCs depends on whether they are arguments or adjuncts, future investigation will require continued discussion of this distinction. For the duration of this paper however, I will consider COs as arguments.

2.3.2 COCs and Conflation

In their *Prolegomenon to a Theory of Argument Structure* (2002), Hale and Keyser, H&K, analyze the derivation of COCs in terms of merge, labels, p-signatures, and conflation, so I will structure this section around these terms.

To build a theory of conflation, H&K first claim that it is a "concomitant of Merge", which they define as the following operation: Merge(α, β) = $\{\alpha, \beta\}$, where α and β are syntactic objects. Because the notion of merge is not static in syntactic theory, I will use the term Merge (following H&K's convention of capitalizing the first letter), to distinguish the operation from the colloquial usage of the term, i.e. merge. In the next chapter, I will also rely on this convention to distinguish this operation from the current conception, MERGE. To exemplify this operation, they give the following derivation (I will explain H&K's use of square brackets below)(2002, p.61):

13. Example of H&K Merge

    (a) Select [make]

    (b) Select [trouble]

    (c) Merge([make], [trouble])={[make],[trouble]}

H&K argue that inherent in each of these elements is a set of features (one of which being the category) and that labels are necessary to abbreviate these sets of features. What exactly H&K mean by "abbreviate" is not certain because they mention that the substance of the label is irrelevant, urging that using the category to label "is no more valid a convention than using the spelling of the words themselves" (2002, p.61). They continue the derivation in (14), where the leftmost element in each is the label for its daughters (2002, p.61):

14. Example of H&K Merge (cont.)

    (a) {V, {V, N}}

    (b) {[make], {[make],[trouble]}}

H&K briefly mention the problematicity of arboreal representations, then they refine their definition for labels.

> *Label*
>
> The label of a syntactic object X is the feature set [F, H], where [F, H] is the entire complement of phonological, morphological, syntactic, and semantic features of H, the head of X (2002, p.62).

H&K do not consider sharpening an understanding of features, but they assume that the label includes information for interpreting X at the interface to the phonology, PF. They refer to this information as the *p-signature*, i.e. presumably X's phonemic representation, which H&K denote with square brackets. With an understanding of Merge, labels, and p-signatures, H&K are equipped to provide a preliminary definition of conflation.

Conflation

Conflation consists in the process of copying the p-signature of the complement into the p-signature of the head, where the latter is "defective" (2002, p.63).

By "defective", H&K clarify that there are two instances: where the p-signature of the head is either null or an affix. An example of conflation in the former case follows this H&K derivation (keeping in mind the "V" and "N" shown in the following derivations are labels in the H&K sense):

15. *laugh (n)* → *laugh (v)* (2002, pp.63-64)

    (a) Head = {V, [Ø]}

    (b) Complement = {N, [laugh]}

    (c) Merge(Head, Complement) = {{V, [Ø]}, {N, [laugh]}}

    (d) P-signature of the complement substantiates the null p-signature of the head

    (e) {{V, [laugh]}, {N, [laugh]}}

    (f) The p-signature of the complement is deleted

    (g) {{V, [laugh]}, {N}}

An example of conflation in the latter case (where the p-signature of the head is an affix) follows this H&K derivation:

16. *strength (n)* → *strengthen (v)*

    (a) Head = {V, [-en]}

    (b) Complement = {N, [strength]}

(c) Merge(Head, Complement) = {{V, [-en]}, {N, [strength]}}

(d) P-signature of the complement substantiates the defective p-signature of the head

(e) {{V, [[strength]en]}, {N, [strength]}}

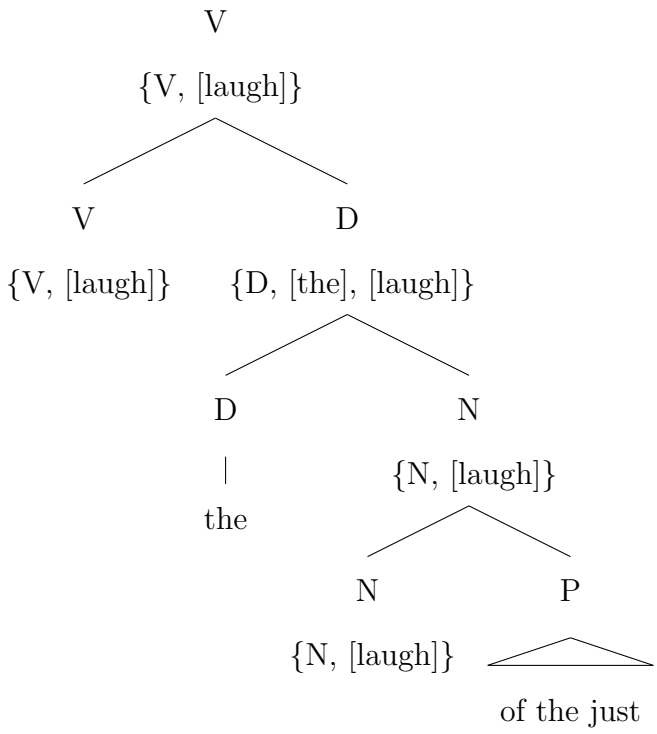
(f) The p-signature of the complement is deleted

(g) {{V, [[strength]en]}, {N}}

In other words, according to this preliminary analysis, denominal and deadjectival verbs are underlyingly nouns or adjectives whose p-signatures have substantiated the defective p-signatures of their verbal heads.

To incorporate this derivation into one of COCs, H&K make a terminologically confusing distinction between *True* and *Strict* COCs. In the former, the p-signature is copied from one lexical projection to another (i.e. from sister to sister, e.g. *laugh (n.)* → *laugh (v.)* or *She can sleep sleep into dreams*) and in the latter (the more attested of the two), the p-signature is copied into an extended projection (e.g. *sleep the sleep of the just*) (2002, pp.73-74). While canonical conflation, as exemplified in (15) and (16), can easily account for True COCs, it is impeded by the intrusive determiner in Strict COCs. In (15) and (16), for reasons H&K leave implicit, conflation is possible because of the sisterhood of the conflating elements, presumably their contiguity licenses morphophonological processes otherwise constrained. Nevertheless, H&K rely on their conception of labels to overcome this obstacle, providing the following tree (2002, p.75).

Figure 2.2: H&K Propagating Label Analysis - Arboreal Representation

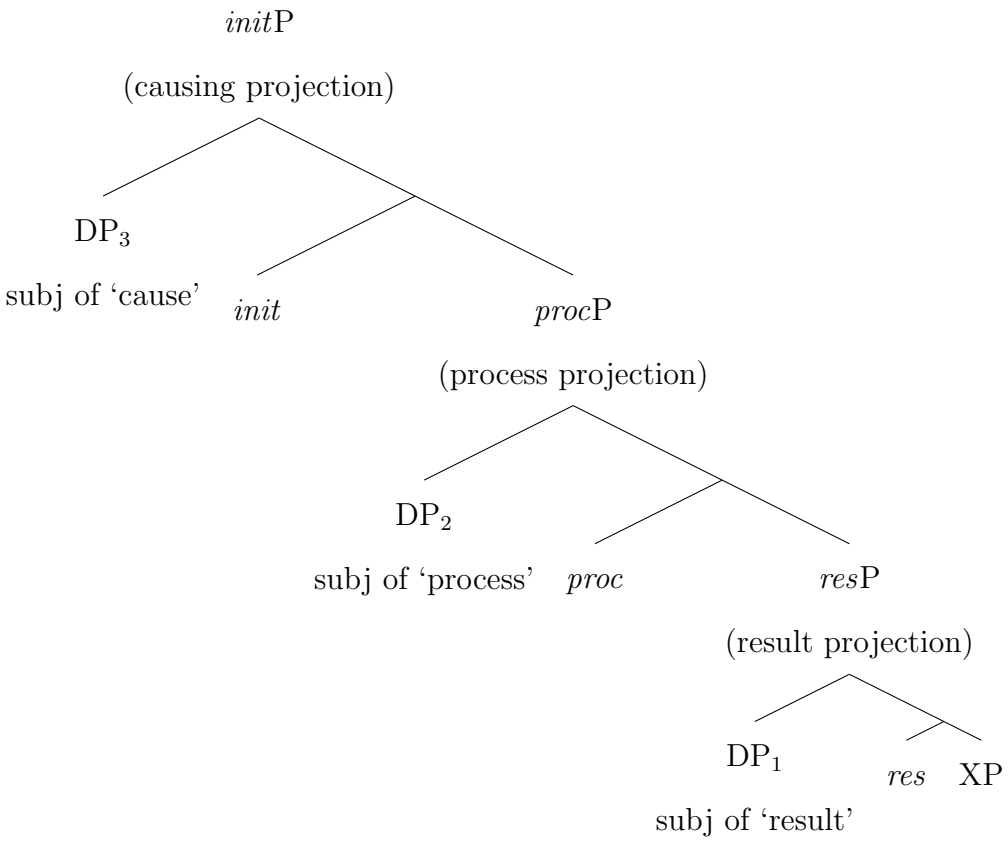


Because the label of a syntactic object X is the set of features of the head of X, the p-signature, among other features, propagates up the structure through the labels of intermediate nodes. In the above tree, the p-signature of the lower head *laugh* becomes part of the label for the dominating node: {N, [laugh]}, this label is Merged with its sister *the*, and the label for the output of this iteration of Merge is {D, [the], [laugh]}. Canonical conflation can then take place because this label is now sister to the target and the p-signature of the complement (i.e. member of {D, [the], [laugh]}) substantiates a defective p-signature of the head (i.e. {V, [Ø]} → {V, [laugh]}). This propagating label analysis addresses the sisterhood limitation of canonical conflation and suggests that both p-signatures are spelled out because English does not allow stranded articles.

Reflecting on their analysis, H&K question the motivation behind analyzing verbs like *dance* and *laugh* as underlyingly nouns. They acknowledge that there is no reason these verbs cannot base generate under a verbal head instead of a nominal one, in which case conflation would be unnecessary (2002, p.90). Eventually, they consider instead understanding denominal/deadjectival verbs as underlyingly items of indeterminate category, i.e. roots. If *dance* and *laugh* enter the derivation as roots, conflation may constitute both the means of categorizing them and the process by which COCs are generated.

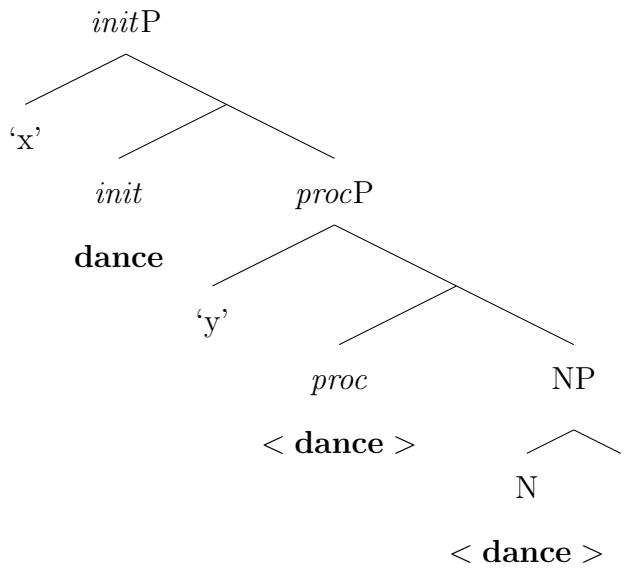
As opposed to being underlyingly of indeterminate category, Ramchand suggests these verbs have both nominal and verbal categorial features (2008, p.99). The system in which she makes this proposal is essentially an expanded V which takes the following form: *init*P introduces the external argument, *proc*P subsumes the dynamic process of the event, and *res*P is the result of the event (2008, p.39).

Figure 2.3: Ramchand's Expanded V



Instead of entering the derivation under either a nominal or a verbal head as in H&K's system, an expanded V allows the analysis to consider a lexical item as activating several projections. Ramchand exemplifies this concept with *dance* which she suggests may be listed with category features [init, proc, N] thereby entering the derivation in the following form (2008, p.96).

Figure 2.4: Ramchand's Expanded V - *dance*



Ramchand refers to the lower nominal content in the above structure as an implicit rheme[2]. She explains:

> "With verbs, [implicit rhemes are] possible when the lexical-encyclopedic content is in principle rich enough to identify the nature of the subevent without any explicit complement material. One way of thinking of this is to see the rhematic material as being implicit. Thus, another possibility for analyzing 'conflation' verbs is to see them as having implicit RHEMES, licensed by the lexical-encyclopedic content of the root." (2008, p.95)

The more impoverished the lexical-encyclopedic content of the verb, the fewer projections it activates, presumably these verbs would not be able to accept COs if no rhematic material is available.

Although these analyses come from interesting perspectives and propose compelling accounts of COCs, they are not sufficient. In the next chapter, I will respond

[2]Rhemes are also known as comments or foci in the sense of topic-comment/focus.

to the literature by commenting and repairing these analyses, then I will propose my own approach.

Chapter 3

PROPOSALS

In this chapter, I will respond to the literature reviewed in the previous chapter and propose my own analysis to answer the research questions raised in chapter one. To do this, I provide a small dataset in the appendix that I use to approach the research questions from a lexical-semantic perspective, I then dedicate the last section of the chapter to a syntactic perspective of the research questions.

3.1 Sorace's Hierarchy and COC verbs

Although the literature tends to provide binary answers to the first research question (i.e. What verbs can accept COs?), I propose that the answer should account for variation. I argue that although the syntax recognizes a binary distinction between unergative and unaccusative verbs, this distinction is mapped to/from a semi-continuous spectrum of ergativity, i.e. Sorace's Hierarchy, in the semantics. I demonstrate that there is variation in the mapping between the binary and semi-continuous realizations of ergativity and that this variation explains both the discrepancies in grammaticality judgments present in the literature, and the alleged attestations of Unaccusative COCs.

As opposed to representing ergativity as a dichotomy, as is the prevalent approach in the literature on COCs, Table 3.1, from Sorace (2000) and Keller and Sorace (2003), represents it as a continuum. At the unaccusative extreme, verbs are telic and select themes, while at the unergative extreme, verbs are durative and select agents (Keller and Sorace, 2003, p.60).

Table 3.1: Sorace's Hierarchy (Sorace, 2000; Keller and Sorace, 2003)

Ergative Class	
Change of location	Unaccusative
Change of state	↑
Continuation of state	↑
Existence of state	↑
Uncontrolled process	↓
Controlled process (motional)	↓
Controlled process (non-motional)	Unergative

Organizing the dataset according to this representation of ergativity shows that verbs toward both ends of the continuum accept COs. Pereltsvaig's examples demonstrate that, both unergative and unaccusative verbs allow COs, but while there is no modification requirement for unergatives (i.e. (3d)-(3f)), the more unaccusative a verb is, the more modification it requires (i.e. (3a)-(3c)). Interestingly, constructions very similar to those Hale and Keyser use to evidence this claim are judged grammatical by the sources cited in (Kuno et al., 2004, p.118). Compare (17) and (18).

17. (Hale and Keyser, 2002, p.71)

    (a) *She slept her last nap/a long winter slumber.

    (b) *He laughed a surreptitious giggle/chuckle.

18. (Kuno et al., 2004, pp.105, 116, 118)

    (a) He slept a fitful slumber.

    (b) Van Aldin laughed a quiet little cackle of amusement.

If *sleep* and *laugh* belong to the *uncontrolled process* class (following Perlmutter who classifies *sleep* as unergative, falling under the "involuntary bodily function" category (1978, p.162)), this discrepancy in grammaticality judgments may be the result of these particular verbs' intermediary position on Sorace's hierarchy. If they are interpreted as more unaccusative, disallowing HOs may be evidence for Hale and Keyser's suggestion that HOs are no different than other non-IOs. If they are interpreted as more unergative, adding objects would be unproblematic.

Mapping the dataset onto Table 3.1 yields Table 3.2 which shows all the verbs represented in the dataset, not indicating repetitions, according to the ergative class to which they belong. This allows for a more precise understanding of the relationship between ergativity and the verbs' ability to take IOs.

Table 3.2: Dataset on Sorace's Hierarchy

Ergative Class	**Verb from the dataset**
Change of location	
Change of state	*die,* ***grow,*** ***drop,*** ***slide,*** *fall*
Continuation of state	
Existence of state	*live*
Uncontrolled process	*sleep, laugh, smile,* ***blow,*** ***bounce,*** *bark, grin, sneeze, howl, sigh*
Controlled process (motional)	*dance*
Controlled process (non-motional)	*sing*, *drink*

The bold represents verbs that have the ability to undergo transitive alternation, and the underlining represents verbs that, because of their proximity to the unergative extreme, have little issue taking non-IOs.

Interestingly, despite the relatively small dataset I provide in the appendix, corpus study substantiates the distribution seen in Table 3.2. By picking seventeen of the most mentioned COC verbs in the literature, Jong-Bok Kim and Jooyoung Lim found 12,282 examples of COCs in COCA (2012, p.8). They provide the following analysis of those tokens where "frequency" is the number of COCs with that particular verb.

Table 3.3: Kim and Lim Corpus Findings (2012, p.9)

Frequency	**Unergatives**	**Frequency**	**Unaccusatives**
6899	live	529	die
3371	sing	0	fall
639	smile	0	grow
238	dream	0	drop
199	laugh	0	bounce
120	dance	0	blow
86	sleep	0	slide
77	grin	0	blush
28	sigh		

Superimposing Kim and Lim's findings onto Table 3.2, yields the following table. In this table, I strike out the examples present in my dataset but absent in Kim and Lim's findings (there are no verbs absent in my dataset but present in Kim and Lim's findings).

Table 3.4: Kim and Lim Findings on Sorace's Hierarchy

Ergative Class	**Verb from the dataset**	**Freq.**
Change of location		0
Change of state	*die, ~~grow~~, ~~drop~~, ~~slide~~, ~~fall~~*	529
Continuation of state		0
Existence of state	*live*	6899
Uncontrolled process	*sleep, laugh, smile, ~~blow~~, ~~bounce~~, ~~bark~~, grin, ~~sneeze~~, ~~howl~~, sigh*	1029
Controlled process (motional)	*dance*	120
Controlled process (non-motional)	*sing, ~~drink~~*	3371

Mapping from Binary Unergative/Unaccusative Distinction in the Syntax to a Semi-Continuous Spectrum in the Semantics

Near the end of this chapter, I will explore a derivational account of COCs. In that section, I adopt the understanding that although the ergativity of a verb is realized on a spectrum in the semantics, i.e. Sorace's Hierarchy, the syntax makes a binary distinction between unergative and unaccusative verbs (with v* and v. respectively). This must mean that the binary distinction in the syntax is mapped to/from the semi-continuous spectrum in the semantics. In this binary-to-semi-continuous mapping, I claim (1) there is room for inter-speaker variation, (2) that this variation is more variable near the middle of the hierarchy, and (3) that this accounts for the attestation of COCs with verbs in the *uncontrolled process* class. Because verbs in this class are intermediary on the hierarchy, they are not as easily mapped to unergative as are the verbs in the *controlled process* classes. Adding COs may therefore be a way to coerce a mapping of these verbs to unergative.

With this understanding, it is clear that verbs in *change of location* (e.g. *...*come the coming of the triumphant*) and *continuation of state* (e.g. *...*remain a lazy remaining*) cannot accept COs because they invariably map to unaccusative. This explanation accounts for the presence of verbs in the lower three classes and the absence of verbs in the *change of location* and *continuation of state* classes, but not the other verbs.

As for *live*, it is possible that it either really belongs in the *uncontrolled process* class or belongs in the *existence of state* class but is still mapped to unergative. In either case, evidence of *live* patterning with the underlined verbs in Table 3.2 suggests that it may in fact belong even closer to the unergative extreme. Consider the following examples:

19. IOCs with *live*

    (a) Lou lived a great life.

    (b) Rebecca wanted to live the American dream.

    (c) Fatima lived out the plan set in motion years before.

There are a couple of differences between these constructions and the others. Future investigation will need to explore these differences at more depth in order to better determine the ergativity/transitivity of *live*. Some avenues to explore in that vein include the following:

- If the objects in these constructions are interpreted as hyponyms of *live*
  - If they are hyponyms, they pattern more closely with the underlined verbs in Table 3.2.

  - If they are not hyponyms, it is possible that *live* patterns more closely with other optionally transitive verbs, e.g. *draw* in *he drew a duck*, where *duck* is not interpreted as a hyponym of *draw*.

- If the morphophonological divergence of the cognate object (in this case, *life*) from its verb facilitates the derivation of the construction

- If there are etymological idiosyncrasies like *die* that predispose *live* to accepting IOs more readily

Until these avenues are explored at more depth, I will adopt the understanding above that *live* belongs either in the *existence of state* or *uncontrolled process* class and maps to unergative.

3.1.1 Alternating vs. Non-alternating

To account for the last class, i.e. *change of state*, it is worth noting that only two of the verbs in this class are non-alternating unaccusatives, *die* and *fall*. Because they can undergo transitive alternation, *grow, drop,* and *slide* have structural assistance in accepting COs. That is, because these verbs project transitive structures (as demonstrated in Hale and Keyser (2002, pp.9-10)) if they undergo alternations, the presence of COs may be coercing their external arguments into causer roles, thereby making these examples structurally and thematically identical to transitive constructions with non-IOs. If this is the case, COCs with *grow, drop,* and *slide* are practically indistinguishable from other transitive verbs (although not necessarily derivationally equivalent). This means that Kuno and Takami are left without evidence to counter the Unergative Restriction on COCs; because they alternate, the verbs they cite are no longer intransitive let alone unaccusative when they accept COs.

Presuming *fall* like *die* is idiosyncratic (e.g. if *to fall* and *to fell* are etymologically related, *fall* may be listed in the lexicon with weakened transitive features), this explanation accounts for the verbs in *change of state*. That being said, it does not account for the ungrammaticality of such examples as **The glass broke a crooked break* (Levin et al., 1995, p.40) where the verb is alternating unaccusative but does not accept a cognate object. Nevertheless, the observations yielded by the ergativity / alternation distinction may be articulated in the following form.

Table 3.5: IOCs and Sorace's Hierarchy

Ergative Class	**Non-IOs**	**Unmod. COs**	**HOs**	**Mod. COs**
Change of location	No data			
Change of state	×	×	?	?
Continuation of state	No data			
Existence of state	?	?	✓	✓
Uncontrolled process	×	×	?	✓
Ctrl. proc. (motional)	?	✓	✓	✓
Ctrl. proc. (non-motional)	?	✓	✓	✓

The checkmarks represent where that class of verbs allows that type of object, the question marks represent areas where the data is unclear or outside the scope of this paper, and the Xs represent where that class of verbs disallows that type of object. The following are some additional notes on the question-marked boxes.

- *Change of state* × HOs / Mod. COs - although K&T cite attestations of COCs with verbs in this class, they are invalid for the following reasons:

    1. The verbs in these attestations are etymologically idiosyncratic (e.g. *fall* and *die*).

2. The verbs in these attestations are able to undergo transitive alternations which disqualifies them as unaccusatives when they accept an object.
3. The distribution of these attestations is not reflected in corpora.
   (a) Out of 12,282 tokens, Kim and Lim (2012) found 529 COCs with *die* and 0 with any of the other unaccusatives searched for in Table 3.3.

- *Existence of state* × Non-IOs / Unmod. COs - common examples such as *He wants to live the American dream* suggest that verbs in this class may accept non-IOs, but differences between COCs with *live* and other COCs suggest that there are more variables at play.

- *Uncontrolled Process* × HOs - this box is questionable due to the discrepancies in grammaticality judgments demonstrated above, e.g. with ?*He slept a fitful slumber.*

- *Controlled Process (Motional and Non-Motional)* × Non-IOs - these boxes are questionable because objects for verbs in this class are interpreted as hyponymous by virtue of the "denominal" character of the verb. For example, a nonsense word that is an object of verbs in this class is interpreted as a hyponym of the verb.
  - He danced (a/the) *plumbus* ⊨ *plumbus* is a type of dance
  - They sang (a/the) *plumbus* ⊨ *plumbus* is a type of song
  - We will all drink *plumbus* tonight ⊨ *plumbus* is a type of drink

3.2 Deriving COCs

In the first part of this chapter, I explored the research questions from a lexical-semantics perspective, albeit inevitably mentioning mechanisms in the syntax. In this

section, I develop an derivational account of COCs and ultimately use it to approach the research questions from a syntactic perspective.

Unlike the H&K analysis, my account does not acknowledge Conflation as playing any role. Instead, COCs are derived by internally Merging the root of the cognate verb/object from its base-generated position (i.e. sister to a nominalizer) into a higher head (i.e. sister to a verbalizer/phase head). Because English disallows stranded articles, deleting the lower root copy is not possible, so both copies are spelled-out. One immediate benefit of this account is that it explains the Unergative Restriction on COCs. Because unergative verbs are Merged with v* which is a phase head, once the phase is built, the lower root becomes inaccessible to further computation, due to the Phase Impenetrability Condition. Because unaccusative verbs are Merged with v. however, both root copies remain accessible to further computation. When the root copy is targeted by Merge to move to Aspect, because there are two identical copies available, the input to Merge is indeterminate, constituting a Determinacy Violation.

To build this account, the strategy of this section is (1) comment on the H&K derivation introduced in the previous chapter, (2) make suggestions to the analysis within the contemporaneous framework, then (3) build an analysis with respect a more minimalist framework. I focus on the H&K derivation for two reasons. First, H&K have the most extensive generative syntactic account for COCs, so any COC derivation should acknowledge the H&K analysis. Second, the H&K analysis has a controlled scope - the derivation is predicated on fundamental syntactic phenomena and is therefore an overgenerative account. In this section, I also develop an overgenerative crashing device for generating COCs. By "overgenerative", I mean that it is likely that this account generates COCs (or more generally, linguistic expressions) that are not grammatical. This is in contrast to an undergenerative device which would fail to recognize COCs (linguistic expressions) that are grammatical.

By "crashing", I mean that this account generates derivations that continually diverge (i.e. crash) at the interfaces until a convergent derivation is generated - this is to avoid stipulating look-ahead operations.

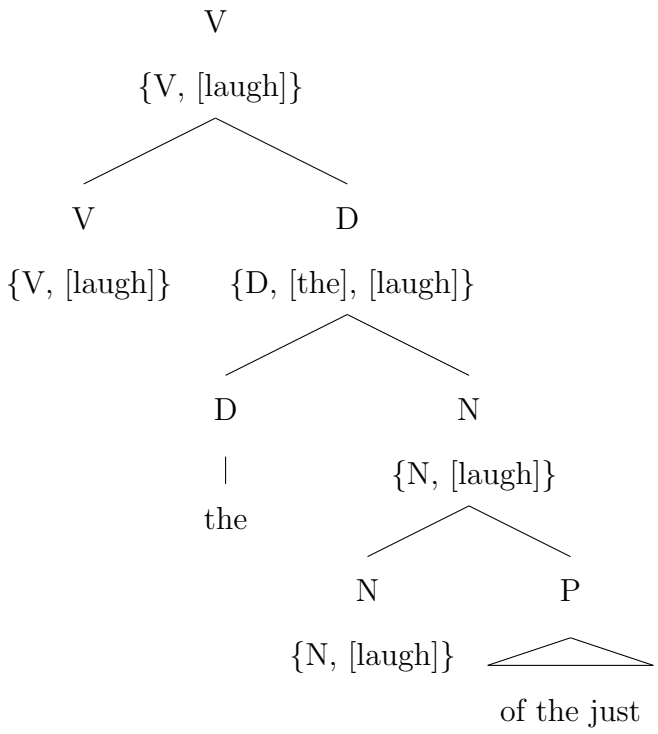
For these reasons, and others that surface in section 3.2.3, I will avoid Ramchand's analysis introduced in chapter two. For a more complete account, future investigation will need to explore Ramchand's analysis in addition to H&K's, along with selection and feature checking as they are likely to play an integral role in the generation of COCs.

3.2.1 Commentary on the H&K Derivation of COCs

I will begin with the tree that I introduced in the previous chapter, repeated in Figure 3.1. I have copied this tree exactly from the section of H&K's analysis explaining the difference between True and Strict COCs. True COCs (e.g. *she can sleep sleep into dreams...*) are COCs where the verbal and nominal conflating heads are sisters. Strict COCs (as in Figure 3.1) are COCs where there is a determiner between the conflating items. H&K stipulate that conflation can only occur between sisters, so while conflation easily explains True COCs, Strict COCs require more explanation.

The first challenge in Figure 3.1 is that it appears as if there are two labels at every branching node, making it unclear which is the true label at each node. At the N branching node for example, is "N" the label or is the label what is right under it, "{N, [laugh]}"? The upper label appears to be the true label because it is the category of the head of that projection, which to some degree follows H&K's definition of labels. The lower label however would constitute a departure from H&K's definition of labels. I will return to this shortly.

Figure 3.1: H&K Propagating Label Analysis - Arboreal Representation



H&K themselves point out the detriments of arboreal representations, so to repair this double label problem, I will translate the derivation into bracket notation. Following the Chomsky (1995) notation adopted by H&K, the label of an output of Merge is listed as the leftmost[1] member of the set containing that output of Merge. With this notation, the above arboreal representation can be translated into bracket notation, below.

[1]The curly brackets indicate that the set is unordered, so {V, {V, N}} is equivalent to {{N, V}, V}. For expository purposes, referencing the "leftmost" member here will suffice.

Figure 3.2: H&K Propagating Label Analysis - Bracket Representation

$$Merge(\ \{N,\ [laugh]\},\ \{P,\ of\ the\ just\}\ ) = \{\{N,\ [laugh]\},\ \{\{P,\ of\ the\ just\}\}\}$$

$$Label(\ \{\{N,\ [laugh]\},\ \{\{P,\ of\ the\ just\}\}\}\ ) = \{N,\ [laugh]\}$$

$$Merge(\ \{D,\ the\},\ \{N,\ [laugh]\}\ ) = \{\{D,\ the\},\ \{N,\ [laugh]\}\}$$

$$Label(\ \{\{D,\ the\},\ \{N,\ [laugh]\}\}\ ) = \{D,\ [the],\ [laugh]\}$$

$$Merge(\ \{V,\ [\emptyset]\},\ \{D,\ [the]\ ,\ [\text{laugh}]\}\ ) = \{\{V,\ [laugh]\},\ \{D,\ [the],\ [laugh]\}\}$$

$$Label(\ \{\{V,\ [laugh]\},\ \{D,\ [the],\ [laugh]\}\}\ ) = \{V,\ [laugh]\}$$

In Figure 3.2, the double label problem is resolved, but another challenge then surfaces. Placing the category of each lexical item (LI) to its left inside the curly brackets gives the impression that the category itself was Merged with the LI it relates to. That is, {N, [laugh]} has the same form as the output of Merge, given its definition as Merge(α, β) = $\{\alpha, \beta\}$. Therefore, given any arbitrary set, e.g. $\{\gamma, \delta\}$, it is impossible to determine whether this set is the result of Merge or a single LI δ of category γ. Merging the category with the LI it relates to is a possible route of derivation (a possibility I explore later), but this does not seem to be the intention in H&K's analysis. To avoid this potential confusion in this section, I will temporarily adopt this notation $\begin{bmatrix} \gamma \\ \sqrt{\delta} \end{bmatrix}$ where γ is the category of the root δ. The radical over δ makes it clear that, independent of γ, δ is of indeterminate category. This notation allows for the curly brackets to be reserved for sets built by Merge.

Further examining the bracket representation reveals a third problem. At first glance, it appears as if H&K do not include the lower P in the propagating label as a stylistic abbreviation. It is not relevant for the derivation, so there would be no reason to provide an explicit derivation of it. Upon closer inspection however, it becomes clear that whatever the motivation, omitting the lower P from the propagating label

causes problems for the derivation. If we suppose the lower P is omitted from the propagating label for other than stylistic reasons, the Label steps are needed to point out exactly what of the daughters' features are included in the label. In the arboreal representation, this explains why the label at the N branching node is {N, [laugh]} not {N, [laugh], [of the just]}. It turns out that the lower P from the propagating label is omitted because H&K's definition of labels, repeated below, is the set of all the features of the head (thereby excluding the lower P from the propagation).

> *Label*
>
> The label of a syntactic object X is the feature set [F, H], where [F, H] is the entire complement of phonological, morphological, syntactic, and semantic features of H, the head of X (2002, p.62).

If this definition of labels is taken seriously and the complement is not important to the propagating label (as implied by the label at the N branching node), then the label at the D branching node should be {D, [the]}, not {D, [the], [laugh]} just as the label at the N branching node is {N, [laugh]} and not {N, [laugh], [of the just]}. Because this label is where the intrusive determiner is eluded and the sisterhood constraint on conflation is met, it must be {D, [the], [laugh]} for the propagating label analysis to explain Strict COCs. For this analysis to account for Strict COCs therefore, the propagating label should include the entire set of all its daughter nodes' features. If this is the case, every Label step in the bracket representation is redundant because it would be identical to the output of Merge at that node.

This brings me to the fourth problem - eluding the sisterhood constraint. Even if the label at the D branching node is {D, [the], [laugh]}, it is still problematic to claim that the sisterhood constraint is eluded at this step of the derivation. H&K claim that the sisterhood constraint is met in spite of the intrusive determiner in Figure

3.2 because the label at the D branching node, i.e. sister to the target V, contains the source N needed for conflation. This reasoning however is unclear. Although the label at the D branching node, i.e. {D, [the], [laugh]}, is sister to the target V, the source N is still unavailable for two reasons: (1) the label containing it appears to have been collapsed into a one-dimensional set and (2) the determiner is still in between the source and target. In other words, whereas before the determiner was hierarchically intrusive (i.e. {Ø, {the, {laugh, ...}}}), now it is linearly intrusive (i.e. {, {the, laugh, ...}}). It may be argued that because {Ø, {the, laugh, ...}} = {Ø, {laugh, the, ...}}, the sisterhood constraint is in fact met. This also does not hold for two reasons: (1) Merge cannot build ordered sets, and if there were some other mechanism to order sets, (2) it would be superfluous to order the set to meet the sisterhood constraint only to be reordered at PF.

In chapter two, it was presumed that the sisterhood constraint exists because the contiguity of the conflating elements licenses morphophonological processes otherwise constrained. Because H&K are not explicit about whether the origins of this constraint are morphophonological or syntactic, future investigation will need to explore it further. Until that time, I will set further discussion of this constraint aside.

3.2.2 The H&K Account in a Contemporaneous Framework

To account for these notational challenges, consider the following two figures. In these two figures, I have addressed the three concerns outlined in the previous section in the following ways: (1) I have avoided the double label confusion by showing only one line at each node, (2) I have employed the $\left[\begin{smallmatrix}\gamma\\ \sqrt{\delta}\end{smallmatrix}\right]$ notation I suggested in the previous section to differentiate sets built by Merge (curly brackets) from sets existing whole in the lexicon (square brackets), and (3) I have made each level the entire output of the Merge of the dominated nodes.

Figure 3.3: H&K Derivation - Arboreal Representation (Repaired)

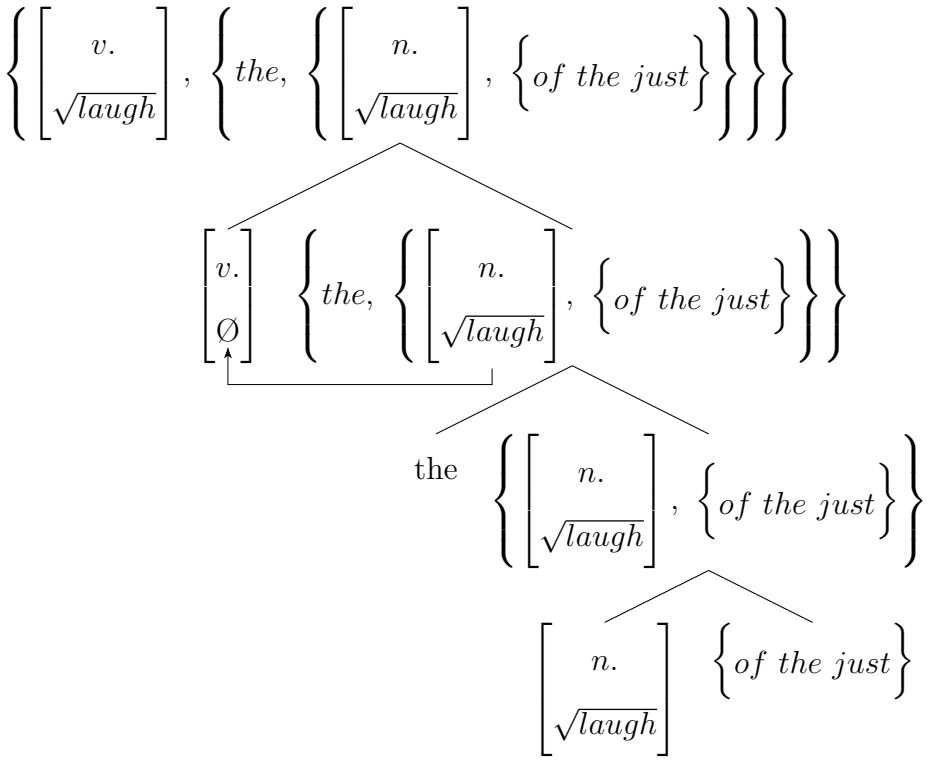


Figure 3.3 shows each branching node as the output of the Merge of that branching node's daughters. This representation is different from the H&K derivation in that labels play no role. In this representation, each branching node is not necessarily a label for its daughters, instead it is simply the output of the Merge of its daughters.

The reader will notice that because every branching node is the output of the Merge of its daughters, this arboreal representation is redundant. The same derivation can be understood by just the line at the top of the tree, perhaps with the arrow to indicate conflation. The difference between the arboreal representation and the single line at the top of the tree is an expository one; a sense of *derivation* is intended with the tree, not simply a static representation. That same sense of *derivation* is intended with the following representation, where each step in the derivation takes as an input

the output of the step immediately before it. I have abbreviated "of the just" to "..." for sake of margins.

Figure 3.4: H&K Derivation - Bracket Representation (Repaired)

$$Merge\left(\left[\begin{array}{c} n. \\ \sqrt{laugh} \end{array}\right], \left\{...\right\}\right) = \left\{\left[\begin{array}{c} n. \\ \sqrt{laugh} \end{array}\right], \left\{...\right\}\right\}$$

$$Merge\left(the, \left\{\left[\begin{array}{c} n. \\ \sqrt{laugh} \end{array}\right], \left\{...\right\}\right\}\right) = \left\{the, \left\{\left[\begin{array}{c} n. \\ \sqrt{laugh} \end{array}\right], \left\{...\right\}\right\}\right\}$$

$$Merge\left(\left[\begin{array}{c} v. \\ \emptyset \end{array}\right], \left\{the, \left\{\left[\begin{array}{c} n. \\ \sqrt{laugh} \end{array}\right] \left\{...\right\}\right\}\right\}\right)$$

$$= \left\{\left[\begin{array}{c} v. \\ \emptyset \end{array}\right], \left\{the, \left\{\left[\begin{array}{c} n. \\ \sqrt{laugh} \end{array}\right], \left\{...\right\}\right\}\right\}\right\}$$

$$= \left\{\left[\begin{array}{c} v. \\ \sqrt{laugh} \end{array}\right], \left\{the, \left\{\left[\begin{array}{c} n. \\ \sqrt{laugh} \end{array}\right], \left\{...\right\}\right\}\right\}\right\}$$

This derivation, and the notation it employs, is so far the simplest. Because I am setting aside selectional considerations, this account reduces the phenomena that allow Strict COCs to three: Conflation as concomitant to Merge, and the constraint against stranded articles in English. Although it is the simplest so far, this account still presents problems for the derivation.

To incorporate this account into a more minimalist framework, it is now necessary to continue where H&K left off. When they concluded their analysis of conflation, they cast doubt on the initial presumption that denominal and deadjectival verbs

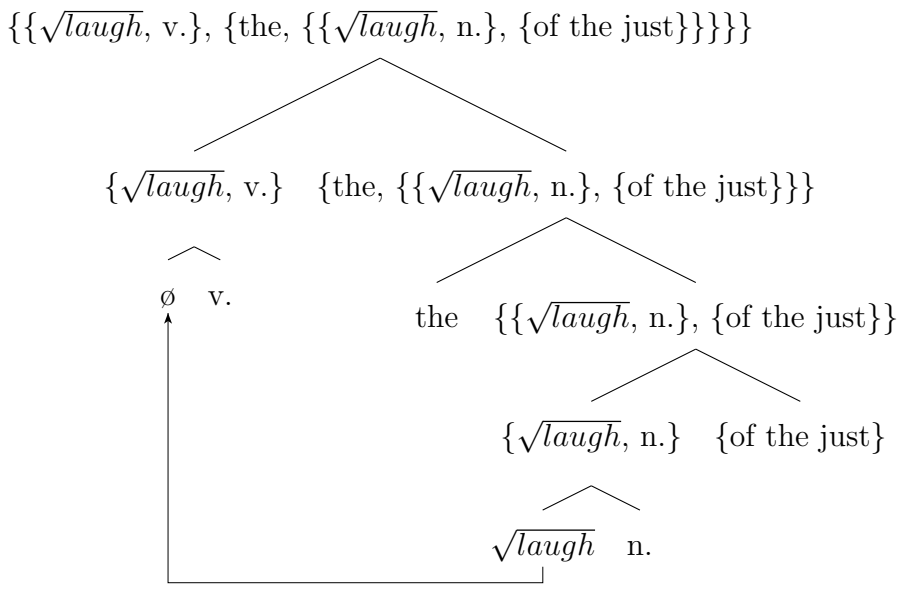
are, as their names suggest, underlyingly nouns or adjectives. Their doubt stemmed from the fact that if these verbs are base-generated under verbal heads, as opposed to nominal or adjectival ones, there would be no need for conflation. The question of what determines where the verb is base-generated therefore leads to the consideration of roots as playing a role in the derivation. The exact character of root H&K had in mind is not clear in their analysis but, for the purposes of this analysis, I will consider roots simply as LIs of indeterminate category, to be linked to their category during the course of the derivation.

All the derivations to this point have presupposed that categories enter the derivation already bound to LIs in feature bundles. This conception aligns with the notion of features contemporaneous to the H&K analysis wherein categorial information is stored in the intrinsic features of a LI and that these features enter the derivation attached to the LI they relate to Chomsky (1995, pp.230-231). For this reason, categories in the above derivations are always attached to LIs, even if the LI in question has a null p-signature.

The alternative of course is that categorial information enters the derivation independent of any LI. That is, categories would enter the derivation as LIs themselves over which operations can be performed. This contrasts with the propagating label analysis, wherein categories exist both as references to LIs (not as the result of any operation) and as inputs to Merge.

Allowing categories to enter the derivation independently and LIs to be of indeterminate category is the first step toward developing a more minimalist account for COCs. Presumably, LIs entering the derivation are essentially atomic, but only to the extent that the features they do come bundled with are irrelevant to labeling; whatever these features are is uncertain. The following derivation incorporates these two considerations.

Figure 3.5: Derivation with Categories as LIs - Arboreal Representation



This derivation differs from Figure 3.3 in that the categories enter the derivation independently and every branching node is a set built by Merge (i.e. there are no feature bundles of the form $\begin{bmatrix} \gamma \\ \sqrt{\delta} \end{bmatrix}$). Now that the derivation includes roots and categories as LIs, it is possible to transition the analysis into a more minimalist framework and address the questions that Figure 3.5 brings up.

3.2.3 Developing an Account in a More Minimalist Framework

In order to introduce these questions, it is necessary to provide a brief outline of the minimalist framework to which I have been referring. In this section, I will use Chomsky (2013, 2015) as the basis of this framework, which I will refer to as Problems of Projection Extensions, PoP+. In this framework, Merge is re-conceptualized as the operation MERGE over *workspaces* (as opposed to an operation over syntactic objects SOs as Merge was defined) and labels are interpreted by means of a minimal search

algorithm activated at transfer. Take the following definitions as the conceptual outline of PoP+ as it relates to a derivation of COCs.

Workspace WS -

"...the stage of the derivation at any given point" (Kitahara et al., 2018; Goto and Ishii, 2018). Two of many reasons this term was introduced were (1) to be able to talk about MERGE building sets in parallel and (2) to be able to talk about how the derivation terminates. That is, if the cardinality of the WS (the number of elements in the WS) is reduced to 1, the derivation may either terminate or introduce another LI. If $| WS |$ (i.e. the cardinality of WS) is 2, it may not terminate.

MERGE -

Small caps merge is Simplest Merge (i.e. the concept of Merge used to this point, Merge(α, β) = $\{\alpha, \beta\}$) but instead of operating over SOs, MERGE operates over SOs that are in WSs (Chomsky et al., 2017). As in previous conceptions, MERGE operating with elements not already in the WS is External MERGE EM and when operating with elements already specified in the WS, it is Internal MERGE IM.

Phase -

"The smallest syntactic object which ... has an interior immune to change" (Chomsky, 2012, p.5). I will consider the phases as CP and v*P after Chomsky (2000) and following.

Transfer (Spell-Out) -

An operation to shift a constructed SO (in this framework the Phasal Complement) over to the semantic and phonological components of the faculty of language (Chomsky, 2008, p.142).

Labeling Algorithm LA (Chomsky, 2013, p.43) -

1. If the SO = {H, XP}, assign H as the label.
2. If the SO = {XP, YP}, either
   (a) change the SO into H, XP, or
   (b) assign the shared features between X and Y as the label (e.g. $\phi\phi$, QQ, etc.)
3. If the SO = {H, H}, assign the categorizing H as the label. The only case of this is $\{\sqrt{x}$, (n, v, a)$\}$. That is, the only case where H, H occurs is when a root pulled from the lexicon is MERGED with a category. Because the root does not have category, the category labels the SO (Rizzi, 2016, pp.106-107).

With these terms, it is now possible to outline a general course of derivation within PoP+. MERGE builds SOs until the SO is a phase, then the phasal complement is transferred to the interfaces, at which time it becomes inaccessible to MERGE and LA labels it. If LA cannot label the structure (i.e. part (2) of the above definition of LA), the derivation crashes and the SO is transferred back into the workspaces for repair (either by (2a) or (2b)). This process loops until the derivation converges (i.e. is completely labelable) and is spelled out.

With this PoP+ outline, we can now address some questions that the derivation in Figure 3.5, repeated here in bracket notation, brings up. Note that I have indicated the IM target copy with an IM subscript and I have abbreviated "of the just" to "..." for sake of margins.

Figure 3.6: Derivation with Categories as LIs - Bracket Representation

$$Merge(\ \sqrt{laugh},\ n.\ ) = \{\sqrt{laugh},\ n.\}$$

$$Merge(\ \{\sqrt{laugh},\ n.\},\ \{...\}\ ) = \{\{\sqrt{laugh},\ n.\}, \{...\}\}$$

$$Merge(\ the,\ \{\{\sqrt{laugh},\ n.\}, \{...\}\}\ ) = \{the,\ \{\{\sqrt{laugh},\ n.\}, \{...\}\}\}$$

$$Merge(\ \sqrt{laugh}_{\text{IM}},\ v*\ ) = \{\sqrt{laugh}_{\text{IM}},\ v*\}$$

$$Merge(\ \{\sqrt{laugh}_{\text{IM}},\ v*\},\ \{the,\ \{\{\sqrt{laugh},\ n.\}, \{...\}\}\}\ )$$
$$= \{\{\sqrt{laugh}_{\text{IM}},\ v*\},\ \{the,\ \{\{\sqrt{laugh},\ n.\}, \{...\}\}\}\}$$

This derivation departs from H&K in one crucial aspect - it does not rely on Conflation to account for Strict COCs. The reader will remember that Conflation is the process whereby the p-signature of a source complement substantiates the defective p-signature of a target head. H&K claimed that this process was not a phenomenon in and of itself, but a *concomitant* of Merge. As soon as the feature bundle is split apart and features enter the derivation independent of the LI they ultimately attach to, there is no longer any need for such a by-product of Merge. In other words, Conflation was presented as a type of Merge where only part of a feature bundle (i.e. the p-signature) is Merged. If there is no feature bundle, there is no need for Conflation.

At this point therefore, COCs are explained by two interrelated phenomena: IM and the English constraint against stranded articles. Because English disallows stranding articles, the original IM copy is pronounced where typically it would not be. Still, the derivation in Figure 3.6 requires more refinement. The following are some ways in which Figure 3.6 is unclear:

- There are parallel paths of derivation, but they are not indicated.
- The path from source to target IM copies is not clear.

- The phase boundary is not indicated.
- The structure is not labeled, if it is labelable.
- This derivation generates ungrammatical Unaccusative COCs.

To address these concerns, consider Figure 3.7. In this figure, I make use of the concept of WSs to show how the derivation splits into parallel paths, and I indicate source and target IM copies with the subscript WS_1 (the source) attached to the IM copy being input to WS_{2a} (the target). For sake of margins, I have abbreviated {of the just} to {...} once it is specified in WS_{1a}. In this figure, I have also indicated that the derivation terminates and is transferred. Because a phase head is MERGED into WS_{1d} and the cardinality of WS_{1d} is reduced to one in the process, the derivation is ready to terminate and transfer the SO to the interfaces.

Figure 3.7: Derivation Indicating Workspaces and without Conflation

$$WS_1 = \sqrt{laugh},\ n.$$

$$\textsc{merge}(\ \sqrt{laugh},\ n.\ ) = \{\sqrt{laugh},\ n.\}$$

$$WS_{1a} = WS_1,\ \{of\ the\ just\}$$

$$\textsc{merge}(\ \{\sqrt{laugh},\ n.\}\ ,\ \{...\}\ ) = \{\{\sqrt{laugh},\ n.\}, \{...\}\}$$

$$WS_{1b} = WS_{1a},\ the$$

$$\textsc{merge}(\ the,\ \{\{\sqrt{laugh},\ n.\}, \{...\}\}\ ) = \{the, \{\{\sqrt{laugh},\ n.\}, \{...\}\}\}$$

$$WS_{1c} = \{the, \{\{\sqrt{laugh},\ n.\}, \{...\}\}\}$$

$$WS_2 = v*, \sqrt{laugh}_{\text{WS}_1}$$

$$\textsc{merge}(\ WS_2,\ \sqrt{laugh}_{\text{WS}_1}\ ) = \{\sqrt{laugh}_{\text{WS}_1},\ v*\}$$

$$WS_{2a} = \{\sqrt{laugh}_{\text{WS}_1},\ v*\}$$

$$WS_{1d} = WS_{1c},\ WS_{2a}$$

$$\textsc{merge}(\ \{\sqrt{laugh},\ v*\},\ \{the, \{\{\sqrt{laugh},\ n.\}, \{...\}\}\}\ )$$

Phasal Complement, PC

$$= \{\{\sqrt{laugh},\ v*\},\ \boxed{\{\text{the},\ \{\{\sqrt{laugh},\ \text{n}_{\text{LEX}}\}, \{...\}\}\}}$$

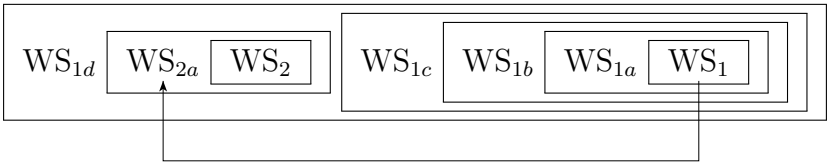
$$\boxed{\left|WS_{1d}\right| = 1\ and\ WS_{1d} \ni v* = phase\ head\ \therefore\ \textsc{transfer}(PC)}$$

Phasal Complement, PC

$$\{\{\sqrt{laugh}, v*\},\ \boxed{\{\text{the},\ \{\{\sqrt{laugh},\ \text{n}_{\text{LEX}}\}, \{...\}\}\}}$$

Figure 3.8 is a representation of the above derivation in terms of its embedded WSs. In this representation, IM and parallel paths of derivation (WS_{2a} is not embedded in WS_{1c}) are indicated more spatially.

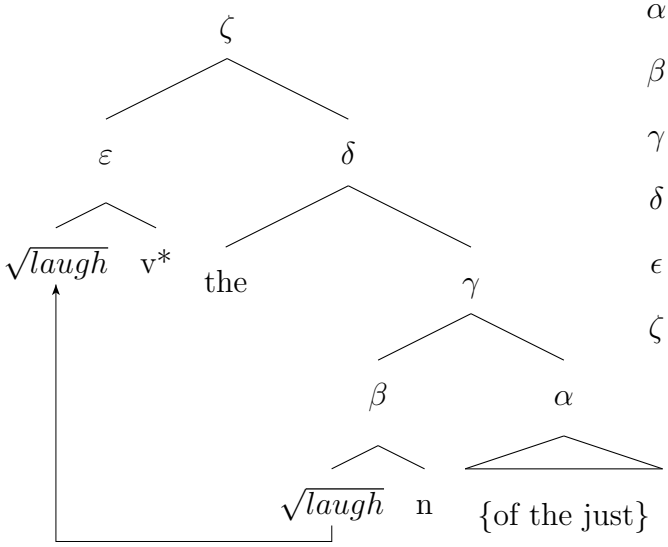
Figure 3.8: Constituent Representation



Once the SO in WS_{1d} is transferred, it is labeled so that it is interpretable at the interfaces. For expository purposes, I will show the entire phase being labeled, instead of just its complement. To label this SO, consider Figure 3.9. In this figure, I have put placeholder labels at each of the branching nodes, this is for reference only. For the purposes of this analysis, I will understand LA as working its way through the SO from the bottom up. The following is LA applied to Figure 3.9a.

Figure 3.9: Labeling SO from WS_{1d}

(a) Unlabeled SO



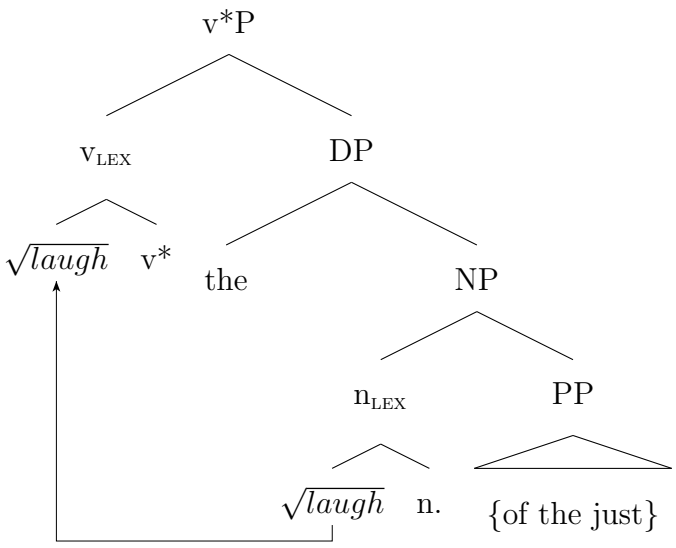
(b) Labeling Nodes in SO

α	{P, DP} $\therefore \alpha$ = PP
β	{$root_{LEX}$, n_{LEX}} $\therefore \beta = n_{LEX}$
γ	{n_{LEX}, PP} $\therefore \gamma$ = NP
δ	{D, NP} $\therefore \delta$ = DP
ϵ	{root, v^*_{LEX}} $\therefore \epsilon = v^*_{LEX}$
ζ	{v*, DP} $\therefore \zeta$ = v*P

Almost all nodes fall under the first case mentioned in the definition of LA above, namely LABEL({H, XP}) = H. The two nodes that are not trivial are β and ϵ. At these nodes, I use the subscript "LEX" introduced by Rizzi (2016) to indicate that

the LI is pulled directly from the lexicon (2016, p. 111), which is what makes a head (2016, p. 110). I have not included the LEX subscript where it belongs in Figure 3.9a for sake of margins, but it is indicated instead in Figure 3.9b. β falls under the third case listed in the definition of LA, namely {H, H}, which means the category determines the label at β. ϵ is interesting because it is not clear if it is {H, H} like β or {H, XP}. If what makes a head is LEX, $\sqrt{laugh}$ is not a head because it was internally MERGED into its position under ϵ; this means that it must be XP. This has interesting implications for Head Movement, but I will set this aside until the final chapter. Either way, v* wins and labels ϵ as v_{LEX}. The following is Figure 3.9a with the labels filled in.

Figure 3.10: Labeled SO from WS_{1d}



To summarize the course of the derivation, MERGE built an SO until a phase head (v*) appeared in the WS and the cardinality of the WS reduced to one. At this point, the phasal complement transferred to the interfaces and in the process, LA labelled it to be interpretable to the interfaces. Once the SO was made interpretable to the interfaces, it was spelled out.

3.2.4 Determinacy and the Unergative Restriction on COCs

With this derivation, situated in a PoP+ framework, it is now possible to revisit the second research question (i.e. Why can unergative verbs accept COs and unaccusatives cannot?). To use this derivation to answer that question, a few more definitions are needed.

In the course of a derivation, more than one copy of a LI may surface due to IM. Because MERGE applies freely, if both of these copies remain accessible to MERGE, they are both potential inputs to MERGE. In order for MERGE to apply unambiguously however, MERGE can only target one. When there is only one accessible copy, it is clear which LI is being internally MERGED. If there are two accessible copies and MERGE targets that LI, it is not clear which of the two is the input to MERGE - this constitutes a *Determinacy Violation*. For some empirical bases for this constraint, see Goto and Ishii (2018). Consider the following definition.

> *Determinacy*
>
> The input to MERGE must be determinate. The input to MERGE is determinate when there is no more than one LI targeted by MERGE in the workspace (Goto and Ishii, 2018).

With this in mind, it is important to review the cases in which a LI is accessible to MERGE and when it is not. The following two definitions answer this question.

> *Recursion*
>
> The elements in a workspace are accessible to further operations (Goto and Ishii, 2018; Chomsky et al., 2017).

> *Phase Impenetrability Condition PIC*
>
> In phase α with head H, the domain of H is not accessible to operations

> outside α; only H and its edge are accessible to such operations (Chomsky, 2000, p.108). In other words, PIC is "... [the] immunity of the interior [of the phase] to change..." (Chomsky, 2012, p.5).

This must mean that to avoid determinacy violations, one copy must be made inaccessible to MERGE by sending it (with the phasal complement that it is member of) to the interfaces. If two copies cannot be separated by a phase boundary, they both remain accessible to MERGE which, when targeted by MERGE, constitutes a determinacy violation.

Interestingly, this constraint on the input to MERGE explains the Unergative Restriction on COCs. The reader will remember that this is the claim that only unergative verbs can accept COs. Because v* is a phase head, and because unergative verbs are MERGED with v*, there is a phase boundary between the higher target and lower source cognate roots. In the following figures, I presume that the root copy is targeted by MERGE for successive cyclic movement to Aspect. The first line in Figure 3.11 is the last step in the derivation from Figure 3.7 - this step shows the IM of $\sqrt{laugh}$ with v*. In the second step, I indicate with an opaque box that the phasal complement becomes inaccessible to MERGE when transferred. In the third step, I show that $\sqrt{laugh}$ is a determinate input to MERGE, when targeted for Aspect, because there is only one copy accessible to MERGE.

Figure 3.11: Unambiguous Rule Application - Unergative COCs

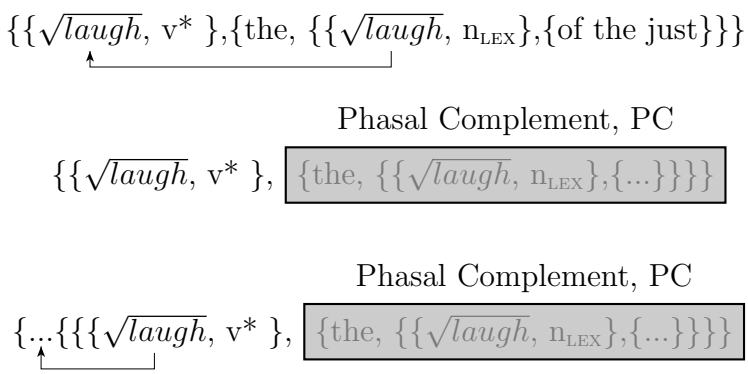
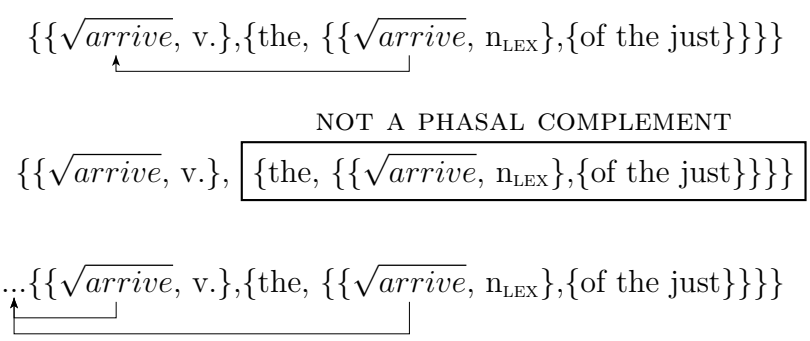


Figure 3.12 represents the analog of Figure 3.11, but with an unaccusative verb. In the first line, $\sqrt{arrive}$ is internally MERGED with v. because it is unaccusative, but because v. is not a phase head, the derivation continues without barring access to the lower copy of $\sqrt{arrive}$. In the third step, I show that access to both copies of $\sqrt{arrive}$ when targeted for Aspect results in a determinacy violation. Because a phase head has not been MERGED yet, both copies remain accessible to MERGE, so it is unclear which copy will be input to MERGE.

Figure 3.12: Ambiguous Rule Application - Unaccusative COCs



The Unergative Restriction on COCs is the result of this determinacy violation. That is, Unaccusative COCs like that in Figure 3.12 are ungrammatical because in the course of their derivation, indeterminate inputs to MERGE are produced.

In this section, I developed a minimalist account of the derivation of COCs. I began with a simple overgenerative crashing device consisting of two phenomena, Internal MERGE and the constraint in English against stranded articles. To rein in the overgeneration, I explored a constraint on the input to MERGE known as Determinacy which bars the generation of Unaccusative COCs, thereby giving a syntactic explanation for the Unergative Restriction introduced early in the paper.

With this PoP+ derivation of COCs, future investigation is now equipped to explore the myriad of questions that are now available. In the final chapter, I will elaborate on some of the questions this derivation motivates and summarize the paper with respect to the three research questions introduced in chapter one.

Chapter 4

SUMMARY

In this paper, I have explored IOCs through three research questions: (1) What verbs can accept IOs? (2) Why can these verbs accept IOs and other verbs cannot? (3) How are IOCs derived? Although I adopted the literature's tendency to focus on COCs to the exclusion of HOCs, I presented the following scope definitions before I addressed the research questions.

> *Cognate Object Constructions COCs - Scope Definition*
> Constructions wherein the object is semantically included in, and morphologically related to, the verb of the same clause.

> *Hyponymous Object Constructions HOCs - Scope Definition*
> Constructions wherein the object is semantically included in, but not morphologically related to, the verb of the same clause.

> To be able to speak generally, I coined a term to combine Cognate and Hyponymous Objects - *Inclusive Objects IOs*.

> *Inclusive Object Constructions IOCs - Scope Definition*
> Constructions wherein the object is semantically included in, and optionally morphologically related to, the verb of the same clause.

To open the paper, I reviewed the literature's treatment of the research questions. Below is a summary of that treatment.

4.1 Current Treatment

1. **What verbs can accept COs?**

   Only unergatives can accept COs, but there appear to be some attestations of unaccusative COCs.

2. **Why can these verbs accept COs and others cannot?**

   COs are a tool to measure out an event. Because unaccusatives are inherently telic, they cannot be measured out any further by any means, let alone via an incremental theme such as a CO.

3. **How are COCs derived?**

   Conflation, a concomitant of Merge, is a process whereby the p-signature of the lower nominal head substantiates the defective p-signature of the higher verbal head. This p-signature can be transmitted from the source cognate to the target cognate by means of a propagating label. Because English disallows stranded articles, both p-signatures are spelled out.

These responses to the research questions were interesting and, in many ways compelling, but for reasons explored in this paper, they are not sufficient. The following is my contribution to the topic.

4.2 Proposed Treatment

1. **What verbs can accept COs?**

   Only unergatives can accept COs and the alleged attestations of unaccusative COCs are not true attestations because the verbs in them are (1) etymologically idiosyncratic, (2) able to undergo transitive alternations, and/or (3) not substantiated with corpus investigation.

I also demonstrated that there is variation in the mapping between the binary and semi-continuous realizations of ergativity (in the syntax and semantics respectively) and that this variation explains both the discrepancies in grammaticality judgments present in the literature, and the alleged attestations of unaccusative COCs.

2. **Why can these verbs accept COs and others cannot?**

   I argue that unaccusative verbs cannot accept COs because in the course of their derivation, indeterminate inputs to MERGE are produced. Because unergative verbs are MERGED with v* which is a phase head, once the phase is built, the lower root becomes inaccessible to further computation, due to the Phase Impenetrability Condition. Because unaccusative verbs are MERGED with v. however, both root copies remain accessible to further computation. When the root copy is targeted by MERGE to move to Aspect, because there are two identical copies available, the input to MERGE is indeterminate, constituting a Determinacy Violation.

3. **How are COCs derived?**

   Unlike the H&K analysis, my account does not acknowledge Conflation as playing any role. Instead, COCs are derived by internally MERGING the root of the cognate verb/object from its base-generated position (i.e. sister to a nominalizer) into a higher position (i.e. sister to a verbalizer/phase head). Because English disallows stranded articles, deleting the lower root copy is not possible, so both copies are spelled-out.

Throughout this paper, I have made continual calls for future research. From the beginning of this paper, dozens of avenues for exploration opened up, but the following are some questions that are only now possible because of my account.

- How does the possibility of DP phase-hood affect this derivation?
- Would another phase system alter the derivation? For example, if the entire phase were transferred as opposed to just its complement?
- How does Head Movement mechanics affect this derivation?
- How can this derivation account for $\overline{A}$-movement constraints on some COCs? E.g. **What did he die?* (from *he died a gruesome death*) (Gallego, 2012, p.99).
- How can this derivation account for passivization effects on some COCs? E.g. **A weary sigh was sighed by Bill* (from *Bill sighed a weary sigh*) (Jones, 1988).
- What effect does modification have on the derivation of COCs? E.g. *Karen laughed a *(merry) laugh* (Pereltsvaig, 2002, p.107).

These are just a few of the paths future investigation may explore. The goal of the generative enterprise (as with any other science) is to encourage exploration of areas previously thought of as uninteresting or completely understood. It is my hope that this paper aligns with that tradition.

APPENDIX

The following is a list of examples of IOCs cited and recycled in the literature. I draw from this dataset in my observations addressing the first two research questions.

1. (Hale and Keyser, 2002, p.71)

   (a) She slept the sleep of the just.

   (b) He laughed his last laugh.

   (c) He danced a jig.

   (d) He bagged the potatoes in a gunnysack.

2. (Van Gelderen, 2018, pp.29-30, 48, 54)

   (a) He danced the cha-cha.

   (b) I wanted to dance the part of a fisherman.

   (c) I slept and dreamt that life was joy.

   (d) I mean, I never sleep a good night's sleep.

   (e) Three weeks after his wife, Rosie, had died a puzzling death.

   (f) How are we able to sing songs. (translation from Old English)

   (g) Alexander, you have lived your life fully to the end... (translation from Old English)

   (h) ?Then it begins/will begin to rain bloody rain.

3. (Pereltsvaig, 2002, p.107)

   (a) Dan smiled a *(happy) smile.

   (b) Maria slept a *(peaceful) sleep.

(c) Karen laughed a *(merry) laugh.

(d) Paul danced a (slow) dance.

(e) Bill drank a (poisoned) drink.

(f) Louise sang a (beautiful) song.

4. (Kuno et al., 2004, pp.105, 116, 118)

(a) The tree grew a century's growth within only ten years.

(b) ?The gale blew its hardest blow yet in the next hour.

(c) The stock market dropped its largest drop in three years today.

(d) The stock market slid a surprising 2% slide today.

(e) Stanley watched as the ball bounced a funny little bounce right into the shortstop's glove.

(f) The apples fell just a short fall to the lower deck, and so were not too badly bruised.

(g) Rover barked what I would characterize as a friendly bark.

(h) He slept a fitful slumber.

(i) Van Aldin laughed a quiet little cackle of amusement.

(j) Bob grinned a sideways grin.

(k) Bill sighed a weary sigh.

(l) The wolf howled and long howl.

(m) Jack sneezed the most tremendous sneeze I had ever heard.

5. (Nakajima, 2006, p.677)

(a) The baby slept a sound sleep.

(b) The woman lived a happy life.

(c) The boy dreamed a terrifying dream.

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