Head-Based Syntactic Identity in Sluicing[*]

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Sluicing (Ross 1969, Chung et al. 1995, Merchant 2001) is a form of wh-stranding ellipsis:

(1)   a.   Sally punched me in the face, but I don't know why.

   b.   **Sally punched me in the face**, but I don't know why <~~Sally punched me in the face~~>.

In (1a), we see a sentence in which a lone wh element seems to occupy a position in which we would expect to find a full CP. (1b) illustrates the standard theory of what is going on in (1a): the sentence is interpreted as if the wh element were followed by the <~~crossed-out material~~>; the ability to make the inference that the wh element should be interpreted as scoping over that material (and therefore the well-formedness of the entire sluicing construction) is determined by the presence of a suitable **antecedent clause**.

I will assume here, following the seminal work of Merchant (2001), that the crossed-out material in (1b) represents unpronounced syntactic structure.[1] This unpronounced constituent is present in the narrow syntax, but is eliminated from the phonological realization of that string; for this reason, I will refer to the crossed-out content as <~~elided material~~> or as <~~the ellipsis site~~>. I assume, still following Merchant (2001), that sluicing is always deletion of a full TP. Sluicing is restricted to clauses headed by null [+wh, +Q] Cs (see Merchant's section 2.2.1). I do not analyze the procedure by which

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[1]For alternative views, see for example Ginzburg and Sag (2000), Barker (2013), Chung et al. (1995, 2011), and Culicover and Jackendoff (2012). For the crucial arguments in favor of there being 'syntax in the silence', see Merchant (2001) (especially section 3.2).

TP deletion is triggered in this paper, nor why this triggering is restricted to such Cs. Rather, my exclusive focus in this paper is the Identity Condition on the well-formedness of sluicing—i.e., my goal is to characterize the relation that must hold between the **antecedent** and the <s̶l̶u̶i̶c̶i̶n̶g̶ ̶s̶i̶t̶e̶> in order for a sluice to be grammatical.

To be more precise, my goal is to characterize specifically the syntactic aspect of the identity condition on sluicing. Sluicing, like all ellipsis, is a process the full understanding of which requires consideration not just of syntax, but also of phonology and of meaning (whether it enters the picture via semantic identity conditions, as proposed by Merchant 2001 and AnderBois 2014, via pragmatic restrictions on the availability of interpretations for the ellipsis site, as proposed by Kroll 2016 and Kroll and Rudin 2017, or perhaps both). Because what I offer in this paper is only a theory of syntactic identity restrictions on sluicing, it must be married with accounts of the role of sound and meaning in sluicing before we can have a full picture of the restrictions on its acceptability. That said, I will suggest that a syntactic identity condition can supplant extant semantic identity conditions, though I stop short of arguing that it must do so. The worldview most compatible with what I will argue for here is that the role meaning plays in sluicing is primarily pragmatic.

This paper is split into two main parts, each of which puts forward one idea about sluicing. These two ideas are in principle independent of each other; however, they interact with each other in a way that justifies their inclusion in a single paper—viewed together, I believe they comprise a fuller sketch of a theory of the identity condition on sluicing than they would if considered separately.

In section 1, I present empirical arguments that strongly suggest that some form of syntactic identity between antecedents and ellipsis sites must be enforced, and examine contrasting arguments that have been previously taken to suggest that syntactic identity cannot be a condition on the wellformedness of sluices; I propose a novel way to think of syntactic identity that is flexible enough to avoid ruling out the grammatical cases taken to be problematic for syntactic identity conditions, without being so flexible as to avoid ruling out the ungrammatical cases that made syntactic identity conditions seem prudent in the first place.

In section 2 I present a broad range of data, much of it novel, about possible mismatches under sluicing that are problematic for all extant identity conditions. I propose that these mismatches can be given a unified syntactic characterization as being restricted to the portion of the clausal spine above the verbal domain, and give a general solution, namely that the domain of identity is strictly smaller than the ellipsis site—that sluicing privileges material originating within the verbal domain. The proposal that the domain of identity is strictly smaller than the ellipsis site can be ported into a wide variety of accounts of the identity conditions on sluicing, including semantic approaches to the identity condition; in this paper I show in detail how it can be implemented given the syntactic proposal in the previous section.

The proposal of section 2 makes a concrete and novel prediction: that identity will be strict (all mismatches will be ungrammatical) within the verbal domain of the sentence, but that interpretations associated with mismatches above the verbal domain will come into and out of availability as mediated by a large variety of pragmatic factors (including the salience of the interpretation, its relevance to prior discourse, its relationship to the local context, and so on). This prediction has so far been borne out by corpus work carried out at UC Santa Cruz under the aegis of NSF Grant #1451819: *The Implicit Content of Sluicing*.

In section 3 I supplement these two main proposals with some brief thoughts about the role of sound and meaning in sluicing, though as has already been stated, the purview of this paper is predominantly syntactic.

Though this paper focuses solely on sluicing, reflecting its origins in the corpus work mentioned above, in section 4, in addition to summarizing the arguments of the paper, I discuss the potential for extending its proposals to other well-studied forms of ellipsis, such as Verb Phrase Ellipsis.

1   Head-Based Syntactic Identity

The identity condition on sluicing that is most commonly assumed in the literature is a semantic condition originally proposed by Merchant (2001). On this account, a TP can only be deleted if it is e-GIVEN.[2] The notion of e-GIVENness is an extension of Schwarzschild's (1999) GIVENness; my presentation here is a mixture of Schwarzschild's own formulation and Merchant's deployment of his ideas:

(2) a. An expression E counts as GIVEN iff E has a salient antecedent A and, modulo $\exists$-type shifting, A entails the F-closure of E.

   b. $\exists$-type shifting raises expressions to type $<t>$ by existentially binding unfilled arguments

   c. The F-closure of a constituent α (F-clo(α)) is the result of replacing F-marked parts of α with $\exists$-bound variables of the appropriate type (modulo $\exists$-type shifting)

For Merchant (2001), the role GIVENness plays in determining the grammaticality of TP ellipsis is this:

(3) **Focus condition on TP-ellipsis** (e-GIVENness)   (Merchant 2001: ch.1 ex. 61/62)
   A TP **E** can be deleted only if it has a salient antecedent **A** and, modulo $\exists$-type shifting, **E** entails F-clo(**A**) and **A** entails F-clo(**E**)

In other words, modulo $\exists$-type shifting and F-closure, the elided TP must stand in a relation of mutual entailment to its antecedent. As expressed above, this mutual entailment condition is a necessary condition, but not a sufficient condition, on the well-formedness of a licitly triggered sluice. Recent work (e.g. Chung 2005, Chung 2013 and Merchant 2013b) has argued that this semantic identity condition must be supplemented by some sort of lexico-syntactic identity condition as well. Chung (2005) brings up data like the following:

(4) a. **We're donating our car**, but it's unclear to which organization <~~we're donating our car~~>.

   b. * **We're donating our car**, but it's unclear which organization <~~we're donating our car to~~>.

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[2]Recall that there are other restrictions on which TPs can be deleted, for instance the restriction to TPs that are the complements of [+wh, +Q] Cs.

Data like this appear problematic for a purely entailment-based account of the identity condition on sluicing: the only difference between (4a) and (4b) is that in the former a preposition has been pied-piped, and in the latter it has been stranded—a purely syntactic difference—and yet the sluice in (4a) is licit and the sluice in (4b) is not.[3]

In both cases, the stranded wh phrase has no overt correlate in the antecedent clause—what was christened 'sprouting' by Chung et al. (1995). If we add an overt correlate to the antecedent, (4b) becomes grammatical:

(5) a. **We're donating our car to an organization**, but it's unclear to which organization ~~we're donating our car~~.

b. **We're donating our car to an organization**, but it's unclear which organization ~~we're donating our car to~~.

The generalization is this:

(6) CHUNG'S GENERALIZATION:
A preposition can be stranded in an ellipsis site only if it has an overt correlate in the ellipsis-licensing antecedent.

Chung (2005) proposes a lexico-syntactic condition to supplement the semantic identity condition; her condition states that sluices are well-formed only if the ellipsis site contains no lexical items that are not present in the antecedent. This condition directly stipulates the generalization in (6).

Though Chung acknowledges the provisional and unsatisfying nature of such a condition by characterizing it as 'the beginnings of a proposal,' it has been made use of elsewhere in the literature, for example in AnderBois (2014), as a ready-made lexico-syntactic patch on an otherwise purely semantic account of the identity condition.

This piece of data is an appropriate empirical starting point because it shows that there are non-trivial problems facing the idea that the identity condition on sluicing is based only on entailment relations between antecedents and ellipsis sites. That some sort of lexico-syntactic condition on sluicing is necessary has been clarified and expanded in its empirical scope in recent work by Chung (2013) and Merchant (2013b) (further relevant data will be encountered in section 1.1), but on both accounts the syntactic condition supplements a mutual entailment condition in the style of Merchant (2001). Such a split system, relying on both semantic and syntactic constraints on the grammaticality of sluicing, replicates the situation as it has stood for quite some time in the literature on Verb Phrase Ellipsis, giving rise to the same uncomfortable feeling of redundancy—that the semantic and syntactic constraints must inevitably duplicate each other to a large extent, given standard ways of understanding how syntactic and semantic composition parallel one another. My goal in this section—given the apparent necessity of reference to syntax in the condition on ellipsis licensing—is to state the syntactic

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[3]Christopher Tancredi (p.c.) points out that, despite pied-piping being a purely syntactic phenomenon, the problem for a mutual entailment approach rests on the question of whether the preposition stranded in the ellipsis site in (4b) is semantically contentful. If *to* is semantically contentful, then the ellipsis site will not necessarily stand in a relation of mutual entailment with its antecedent. I note only that for this argument to defang Chung's argument, it would need to be extended to all strandable prepositions, as Chung observes this effect with a wide variety of prepositions (see her ex. 18 and 19).

condition on sluice licensing in as powerful and general a way as possible, in hopes that doing so will provide us with a unitary, non-redundant conception of the identity condition on sluicing.

1.1 The Syntactic Condition on Sluicing

In this subsection, I will present a syntactic condition on the well-formedness of sluices. One of the goals of this paper is to push this condition as far as it can go—as it seems a syntactic condition is necessary, perhaps a syntactic condition of the appropriate kind could supplant the entailment-based semantic condition on sluicing entirely, giving us a cleaner, simpler account.

Merchant (2001) cites sluices like the following as an argument against syntactic identity as a requirement on the grammaticality of sluicing:

(7)   a.   **Sally ate**, but I don't know what <~~Sally ate~~>.

     b.

        TP   TP

      Sally   VP   Sally   VP

          ate   ate t_{what}
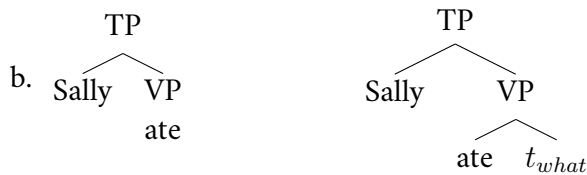
Here and throughout the rest of the paper, I present simplified syntax trees that abstract away from irrelevant complexities, and represent the tails of movement-dependency chains as traces, though the theory as presented is agnostic with respect to the theory of movement it assumes, and is perfectly compatible with a copy theory of movement. In (7) we see that though the antecedent and ellipsis site contain the same lexical items in the same order, in the antecedent the verb *ate*, an optional transitive, takes no internal argument; in the ellipsis site, *ate* does take an internal argument. The TPs are not syntactically identical, due to the presence of a structural object position in the elided TP, and therefore a condition that would require syntactic isomorphism between the antecedent TP and the elided TP fails.

In Merchant's (2001) arguments against syntactic identity conditions in sluicing,[4] as well as in the arguments presented in Merchant (2005), it is assumed that syntactic identity conditions for sluicing would be stated as conditions on identity between entire TPs. The syntactic identity condition that I propose here instead assesses syntactic identity head-by-head,[5] and is enforced only over items that are not tails of movement-dependency chains; i.e. lower copies/traces can be freely elided.[6]

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[4]The argument presented above is not Merchant's only argument against syntactic identity conditions; section 2 discusses more of his arguments.

[5]The decision to treat ellipsis identity head-by-head has its roots in Wasow's (1972) theory of ellipsis, famously adopted by Williams (1977), in which ellipsis sites are fully articulated syntactic structures populated entirely by null heads. However, in Wasow's theory, ellipsis sites are born empty and their antecedents are copied into them; Merchant (2001) argues forcefully against such theories on the basis of Case-matching facts.

[6]That ellipsis identity ignores lower copies/traces is not necessarily as stipulative as it might seem. This follows straightforwardly, for example, from a suitable implementation of ellipsis as phonological deletion. If ellipsis is phonological deletion, then it is perfectly natural that it would ignore lower copies/traces, as they are associated with no pronounced material—there's nothing there for the phonology to delete. See Bennett et al. (2015) and Rudin and Kalivoda (in prep) for formal phonological implementations of ellipsis.

(8)   SYNTACTIC CONDITION ON SLUICING (to be revised):
Given a prospective ellipsis site **E** and its antecedent **A**, ellipsis of any head $h \in \mathbf{E}$ is licit only if either h is a non-head member of a movement-dependency chain or h has a STRUCTURE-MATCHING CORRELATE $n \in \mathbf{A}$.

This definition is parasitic on the following two definitions. We can define STRUCTURE-MATCHING like so:

(9)   STRUCTURE-MATCHING:
A node n in domain d STRUCTURE-MATCHES a node n' in domain d' iff n and n' are dominated by an identical sequence of immediately dominating nodes within d and d'.

This definition takes some unpacking. First, a 'sequence of immediately dominating nodes' for a given node n refers to the node n_1 that immediately dominates n, followed by the node n_2 that immediately dominates n_1, and so on. Consider, for instance, the following tree:

(10)

TP
DP$_1$ T′
Andrew   T   VP
PAST t_1 V′
V   DP
slap   Bill
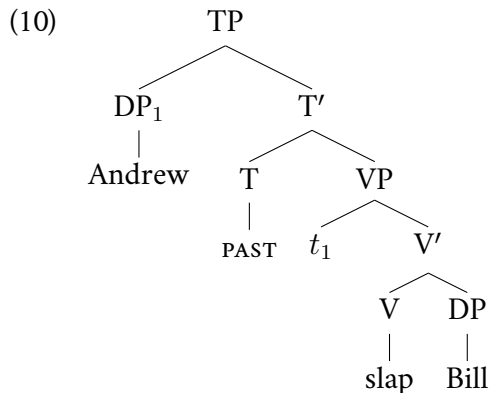
In this tree, the sequence of immediately dominating nodes that dominates the head *slap* is as follows:

(11)   TP - T′ - VP - V′ - V - slap

Talking about things in terms of the sequence of immediately dominating nodes that dominates a particular head, then, is a way of talking about its position in a tree irrespective of what other lexical items may be in that tree.

Second, the domains d and d'. We can assume for the time being that the domain of identity d is the entire ellipsis site—the full elided TP—and that the domain d' is the full antecedent TP.[7] In section 2.1 this conception will be revised to a smaller constituent of those TPs. It's important to note here that the calculation of structure-matching is done based on the positions of the elided and antecedent heads in the surface syntax, irrespective of their external merge sites or the positions they end up in at LF. This is of a piece with an implementation of ellipsis as phonological deletion—if ellipsis happens at PF, the relevant representations must be surface representations.

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[7]Note here that the TP which is identified as the antecedent that determines the domain of structure matching may well be an embedded TP within a larger structure. Thanks to Christopher Tancredi for discussion of this point.

For the moment, I will give the following characterization of what can serve as the correlate of a head:

(12)   CORRELATES (to be revised):
       A head h can be a correlate for a head h' iff h and h' are tokens of the same lexical item.

This characterization will be revised in section 1.2.

To illustrate how this criterion operates, let's revisit the case in (7), shown again below:

(13)   **Sally ate**, but I don't know what <~~Sally ate~~>.

The antecedent and ellipsis site are not syntactically isomorphic to each other; the difference lies in the presence of a structural object position in the ellipsis site. The content of that object position, however, is a trace (or unpronounced lower copy), which is to say the tail of a movement-dependency chain; therefore, the rule in (8) does not require it to have a structure-matching correlate. I assume that the verb *ate* in the antecedent and the verb *ate* in the ellipsis site are lexically identical, with optional transitivity being a lexical feature of each. For it to be grammatical for the *ate* in the ellipsis site to go unpronounced as a result of sluicing requires only that it has a structure-matching correlate in the antecedent. To calculate structure-matching in the sense defined above, it's only necessary to look at the head and at the chain of nodes dominating it:

(14)   a. antecedent verb   b. elided verb

           TP   TP
           | |
           VP   VP
           | |
           ate   ate

In each case (abstracting away from irrelevant complexity), the verb is the head of a VP that itself is dominated by a TP. The elided verb has a structure-matching correlate in the antecedent (the same reasoning applies to the elided subject, which is not shown), and so the ellipsis is well-formed. The fact that one instance of the verb *ate* has an object and the other instance does not plays no role in the calculation; all that matters is that they're lexically identical and that they both occupy the same position within their respective TPs. Object position is irrelevant to the well-formedness of this particular sluice: it is too low to alter the domination chains of anything else in the clause, and its content has been 'moved out,' obviating the need to find it a structure-matching correlate.[8]

It should be clear at a glance how an analysis like this accounts for Chung's generalization in (6): if the preposition is stranded in the deleted TP, as in (4b), the ellipsis is ill-formed, because the preposition has no correlate in the antecedent; if the preposition is pied-piped out of the ellipsis site, as in (4a), then it needs no correlate, because it has 'moved out,' leaving only a trace (or unpronounced lower

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[8]Note that this explanation assumes that movement does not involve the creation of additional syntactic structure within the domain of identity.

copy). If a correlate for the preposition is present in the antecedent, as in (5), the preposition can be safely stranded in the ellipsis site.

This account has the added benefit of providing a clean explanation of the impossibility of various other mismatches in the verbal domain that are not possible under sluicing, despite not obviously following from an entailment-based account of identity. The clearest such cases are active/passive mismatches.

The fact that active/passive mismatches are impossible under sluicing has been discussed most extensively by Merchant (2005, 2013b). Observe:

(15) (Merchant 2013b, ex. 5)

    a. *__Joe was murdered__, but we don't know who <~~murdered Joe~~>.

    b. *__Someone murdered Joe__, but we don't know by who <~~Joe was murdered~~>.

Take, for example, (15b). In this case, the meaning of the antecedent clause, namely that someone murdered Joe, is identical to the meaning of the elided clause, namely that Joe was murdered (given the assumption that *murder* entails that the killer is a person). A mutual entailment account does not on its own explain the unacceptability of the examples in (15), though perhaps it could be supplemented by a pragmatic explanation of their infelicity. The syntactic identity condition proposed here, however, explains why these voice mismatches are systematically impossible in sluicing. For one, there are significant differences in the structural positions of the arguments of verbs in active and passive sentences in English that result in those arguments not structure-matching each other. However, the most general way in which this account explains the impossibility of voice mismatches under sluicing is in terms of mismatching vs. A passive v cannot serve as a correlate to an active v, as they are not lexically identical, and so we predict the impossibility of voice mismatches under sluicing crosslinguistically regardless of the morphosyntactic reflexes of the passive in any particular language.

That causative/inchoative alternations under sluicing are impossible was also observed by Merchant (2005):

(16)   * __The jug broke__, but I don't know who <~~broke the jug~~>.

Data like this are less clearly problematic for entailment-based approaches to the identity condition, as there is potentially one subtle semantic difference between the antecedent and the ellipsis site here: the inchoative antecedent does not entail that the jug was broken by an agentive action, whereas the causative ellipsis site does. Regardless of whether cases like this are insurmountably problematic for entailment-based accounts, their ungrammaticality follows from the syntactic proposal at hand: the lexical items in the ellipsis site are not in the same structural positions as the correlating lexical items in the antecedent.

Merchant (2005) and Chung (2013) discuss a variety of other argument structure mismatches that are impossible under sluicing:

(17) (Merchant 2005, ex. 79)

a. ***They embroidered something with peace signs**, but I don't know what on <~~they embroidered peace signs~~>.

b. ***They embroidered something on their jackets**, but I don't know with what <~~they embroidered their jackets~~>.

(18) a. ***They loaded something onto the truck**, but I couldn't quite make out with what <~~they loaded the truck~~>.

b. ***They loaded one of the trucks with hay**, but I couldn't quite make out onto which truck <~~they loaded hay~~>.

These examples also may not be insurmountably problematic for entailment-based accounts due to subtle differences in meaning between the relevant argument structure variants (Rappaport and Levin 1988, Dowty 1991), but again, the syntactic proposal here has no problem accounting for their ungrammaticality, given that there are differences in structural position between elided heads and their antecedent correlates in all cases.

Though these argument-structure mismatches are all ruled out by the failure of elided heads to structure-match their antecedents, just as with the case of voice mismatches a more general formula for ruling out such mismatches is provided by the theory here: insofar as argument structure mismatches can be traced to different vs, we expect argument structure mismatches to be impossible, as the elided v will not be able to find a correlate in the antecedent.[9]

The way the current account connects the impossibility of various argument structure mismatches, among other things, to the impossibility of mismatching lexically different vs receives independent support from the fact that similar explanations have been proposed within accounts of ellipsis identity that are otherwise quite different from the one proposed in this paper—for instance, Merchant (2013b) also invokes the role v plays in argument structure in his explanation of the impossibility of such argument structure mismatches.

1.2   Correlation and Coreference

Above, I proposed a syntactic condition to supplant entailment-based semantic conditions on sluicing. I caution against interpreting that as endorsing the notion that meaning plays no role in the identity condition that governs the wellformedness of sluices. I will propose, however, that the role of meaning in the identity condition is limited to the way in which reference is encoded syntactically: via indexation. Indexation plays an important role in the identification of the correlates that antecede elided heads. In this section, I will incorporate two indexation-related conditions on ellipsis from prior literature, arguing that they should be thought of as expansions on the notion of CORRELATE.

The syntactic condition on sluicing presented in (8) above relies crucially on the notion of a CORRELATE of a head. The original definition of correlation proposed in (12) was that the only valid correlate of a head is a lexically identical head. The following data show that that view is unsustainable (cf. comparable data in Merchant 2001, ch. 5):

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[9]For a recent argument for the breadth of the role v plays in regulating word order within VPs, see González-Vilbazo and López (2012).

(19) a. **I don't know who**$_1$ t_1 **said what**$_2$, or why <~~they~~$_1$ ~~said it~~$_2$>.

b. **I think [a guy I know]**$_1$ **won a gold medal**, but I don't know when <~~he~~$_1$ ~~won a gold~~
~~medal~~>.[10]

c. **Someone ate at [five burger restaurants]**$_1$, but I don't know who <~~ate at them~~$_1$>.[11]

In (19a), we see a sluice with an interrogative antecedent; the ellipsis site, however, does not receive an interrogative interpretation. Rather, the interpretation of the ellipsis site is something like: *why those people who said those things said the things that they said*. To put it less convolutedly, the interpretation of the ellipsis site is *why the antecedent questions have the answers that they have*. The antecedent is interrogative, but the ellipsis site receives a definite interpretation.

Likewise, in (19b), we see an indefinite in the antecedent, but the ellipsis site doesn't receive an indefinite interpretation. If there were a corresponding indefinite in the ellipsis site, an interpretation would be possible in which a *guy I know* could be referred to in the ellipsis site who is not the same *guy I know* as the one referred to in the antecedent. Such an interpretation is not available. The interpretation of the ellipsis site is something like: *when that guy I mentioned won a gold medal*. Again, the ellipsis site receives a definite interpretation.

Finally, (19c) shows that it is possible for quantificational antecedents to receive definite interpretations in ellipsis sites as well. The reading of the ellipsis site indicated in (19c) is one in which the interpretation of the ellipsis site is something like: *who ate at those five restaurants*. We see that even with quantificational antecedents, ellipsis sites can receive definite interpretations.

I've glossed all of these elided definites as pronouns coindexed with elements of the relevant ellipsis antecedent, anticipating my solution. These data suggest that, for the CORRELATE relation to capture the data effectively, it should allow the elision of heads to be licensed relative to correlates that are traces or wh elements (19a), and full DPs (19b), including quantified DPs (19c).[12] All of these data can

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[10]Christopher Tancredi (p.c.) points out that a similar interpretation could be derived with an indefinite in the ellipsis site. If *he* is replaced with *a guy I know* in the ellipsis site, one available interpretation of the sluice would be *For no guy I know do I know when he won a gold medal*. This would entail the relevant interpretation of the sluice. However, the sluice in (19b) is felicitous in a context in which the speaker knows when everybody won a gold medal except the specific guy she's talking about. Observe that the following is not a contradiction:

(1) I think a guy I know won a gold medal, but I don't know when. This other guy I know won a gold medal for sure, at the 2016 Olympics.

The accepability of this example shows that the availability of the reading indicated in (19b) cannot be reduced to the interaction of an indefinite in the ellipsis site with negation outside of it.

I don't want to dismiss out of hand the idea that there might be a way of deriving these kinds of interpretations while maintaining lexical identity between the antecedent and ellipsis site, allowing us to maintain a simpler notion of correlate, but it is difficult to see how to do so.

[11]This is to be contrasted with another potential interpretation of this sluice:

(1) **Someone ate at five burger restaurants**, but I don't know who <~~ate at five burger restaurants~~>

Data like this were originally discussed by Merchant (2001, ch. 5). That both readings are indeed available has been disputed in subsequent literature; Chung et al. (2011) argue that the reading in (19c) is unavailable, contra Merchant; Elliott and Sudo (2016) argue that both readings are indeed possible.

[12]It has long been noted (Klima 1964, Merchant 2013a) that NPIs can mismatch under ellipsis as well:

(1) John didn't **see anyone**, but Mary did <~~see someone~~>.

be captured by the current proposal if correlation is defined in terms of indexation, like so:[13]

(20) CORRELATES (final):
A node n can be a correlate for a head h iff at least one of the following conditions holds:

  a. n is a head and n and h are tokens of the same lexical item
  b. n is coindexed with h

In addition to the possibility of elided heads to be correlated with lexically identical antecedent heads, an antecedent DP can serve as a correlate for an elided head if they are coindexed. The relation of correlation defined above is a relation between a head and a (potentially non-terminal) node. So, for example, in (19b), the deletion of the pronoun *he* in the ellipsis site is licensed in virtue of the fact that the pronoun's correlate, the full DP *a guy I know*, is a DP node at the same position in the antecedent TP as the pronoun is within the elided TP.

In contrast with previous fully- or primarily-semantic theories of sluice licensing, I hope to have shown that we can define an empirically adequate identity condition in which the role coindexation plays in identifying correlates for deleted heads is the only point at which meaning affects the grammaticality of a sluice. Coreference and binding, as expressed in the syntax by indexation, plays an important role in identifying possible antecedent correlates for elided heads. That it is only the syntactic expression of coreference and binding that matters is of a piece with the syntactic nature of the identity condition on sluicing that I've proposed here.[14]

On the account Merchant develops to explain this, NPIs like *anyone* and their non-NPI correspondents, like *someone*, are lexically identical—the NPI is the reflection of agreement with polarity. To the extent that NPI mismatches are possible under sluicing, that account could be adopted here unproblematically.

[13]The notion that indexation is relevant to ellipsis identity goes back to the very earliest work on the subject, and has been a standard assumption ever since; see in particular Sag (1976), Rooth (1992), Fiengo and May (1994), and Heim (1997) (cf. critical discussion in Merchant 2001). (20b) is a straightforward restatement of the notion of 'vehicle change' in Fiengo and May (1994).

[14]There may be further modifications necessary to make the definition in (20) empirically adequate. Consider the following grammatical sluice:

(1) **Many prominent congressmen still have not endorsed the candidate**. In a moment, two of them will explain why ~~they still have not endorsed the candidate~~.

The relevant interpretation of (1) is the one in which the elided *they* is interpreted as referring back to the two congressman doing the explaining, not the the DP *many prominent congressmen* in the antecedent. In this case, we have a grammatical sluice in which an elided pronoun meets neither of the conditions on correlate identification in (20): material in the relevant portion of the antecedent is neither lexically identical or referentially identical (coindexed).

Though I consider a fuller discussion of these data to be outside the scope of this paper, I will note that Merchant (2001) proposes an analysis of data like this in terms of the rebinding of the elided pronoun by the 'local, c-commanding quantifier' (Merchant 2001, p. 214). Merchant notes further interesting empirical phenomena associated with rebinding readings, such as the requirement that the set the rebinding quantifier is associated with be a subset of the set quantified over by the antecedent quantifier (see Merchant 2001 ex. 158-161, p. 215), which are desiderata for the explanatory success of a full theory of rebinding readings.

1.3 Interim Conclusion

In this section, I've proposed a syntactic condition which can account for several facts about sluicing that have been held to necessitate lexico-syntactic identity conditions on the grammaticality of sluicing, while avoiding pitfalls claimed to be problematic for such conditions. As we saw at the beginning of this section, some sort of lexico-syntactic component has often been taken to be required in the identity condition that governs the grammaticality of sluicing, even by analysts arguing for a predominantly semantic approach. Though I don't take myself to have disproven the possibility of a purely semantic approach in principle, I see no reason why the syntactic condition described here couldn't (or shouldn't) supplant prior semantic identity conditions. The syntactic identity condition presented here captures the data that have been taken to necessitate reference to syntax by prior analysts, and enforces stringent enough lexico-syntactic identity requirements that a high degree of semantic identity between antecedent and ellipsis site emerges as a consequence, rendering it unclear why an independent semantic identity condition would be necessary.

In the next section, I introduce novel data that is problematic for all theories of sluicing currently on the market, and make a general proposal to account for that data. The novel data concern mismatches high in the clausal spine, above the verbal domain; the general proposal is that sluicing requires syntactic identity within the verbal domain but tolerates mismatches above it.

2 Mismatches Above the Verbal Domain

In the previous section, I presented a syntactic condition on sluicing, and showed that it could account for some of the data that has been argued to necessitate syntactic conditions on ellipsis without running aground on other data argued to be problematic for syntactic conditions on ellipsis. In this section I'll present data that is equally problematic for both syntactic and semantic identity conditions, and make a general proposal for how it can be accounted for in a (fairly) theory-independent way. I'll then present a concrete implementation of that theory-independent solution couched in the terms of the syntactic account developed above.

In the data that follows, the ellipsis sites are glossed in a manner that anticipates what my analysis of these cases will be. I do not mean to claim that the indicated ellipsis sites represent the only possible way of representing the interpretation of the elided material, just that the indicated ellipsis sites represent a *plausible* way of glossing the interpretation of the elided material. One crucial assumption that I've made, guided by the notion that ellipsis is phonological deletion of (part of) a grammatically acceptable syntactic structure, is that the sentences must be grammatical if unelided.[15]

I argue that it is possible to give glosses of all of the ellipsis sites below in terms of lexico-syntactic mismatches that are restricted to material originating in the portion of the clausal spine above the verbal domain, with vPs that are syntactically identical to their antecedents (in the sense developed in the previous section). I've glossed these problematic data in terms of mismatches having to do with

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[15] See Dayal and Schwarzschild (2010) and Barros (2014). This is, of course, modulo the observation that sluicing can render grammatical kinds of extractions that would be ungrammatical if pronounced (Ross 1969, Chung et al. 1995, Merchant 2001 section 5.1).

tense, finiteness and modality in order to show that they can be given a unified empirical characterization in terms of the location of the mismatches within the clausal spine.

Many of these examples are adapted from corpus examples aggregated and annotated using funds from NSF Grant #1451819: *The Implicit Content of Sluicing*.

(21) MISMATCHES IN FINITENESS (q.v. Merchant 2001, Ch. 1)

    a. *Finite antecedent, nonfinite sluice*:
        Sally cooks every night; she learned how <~~to cook~~> from her father.

    b. *Nonfinite antecedent, finite sluice*:
        The baseball player went public with his desire **to be traded**. He doesn't care where <~~he {is, will be} traded~~>.

(22) MISMATCHES IN TENSE
    Your favorite plant is alive, but you can never be sure for how long <~~your favorite plant will be alive~~>.

(23) MISMATCHES IN MODALITY (q.v. Klein 1985, Merchant 2001)

    a. APPEARANCE OF MODALITY:
        Sally knows that there is always the potential for **awful things to happen**, but she doesn't know when <~~awful things {will, might} happen~~>.

    b. DISAPPEARANCE OF MODALITY:
        Although Sally sees that **she must defeat her competitors**, she relies on Susie to tell her how <~~to defeat her competitors~~>.

    c. ABSTRACTION OF MODALITY:
        Sally said that **customers should be given lower rates**, but Susie said it's hard to see how <~~customers could be given lower rates~~>.

(24) MISMATCHES IN POLARITY (q.v. Kroll 2016)[16]
    Either turn in your final paper by midnight or explain why <~~you didn't turn it in by midnight~~>![17]

(25) ILLOCUTIONARY MISMATCHES
    Always save a little from each paycheck. Once you're older, you'll understand why <~~you~~

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[16]Cf. the discussions of mismatches in polarity questions formed with *why (not)* (Merchant 2006, Yoshida 2010).

[17]An anonymous reviewer expresses skepticism about the acceptability of this example. Such examples are very widely attested, however, and the relevant examples have been scrutinized under the aegis of the Santa Cruz Ellipsis Project by at least 6 undergraduate annotators each, as well as by various graduate students and faculty members working on the project, to say nothing of the fact that they reliably make it past newspaper copy editors at the *New York Times*. I provide a corpus example with a more elaborated context here, to show how natural such cases sound in actual usage:

(1) [corpus example 22987, Santa Cruz Ellipsis Project]
    Context: On Dec. 10, [Senator] McCain sent a letter to the FCC urging the five-member board to end two years of deliberations and decide whether Paxson Communications should be given a license for a Pittsburgh station. Angela J. Campbell, an attorney for opponents to the deal, told the Globe that McCain's letter likely 'tipped' the scales in favor of the decision.
    Sluice: "Senator McCain said, 'Do it by December 15 or explain why,' and the commission jumped to it and did it that very day," Campbell told the Globe.

See Kroll (2016) for extensive discussion of polarity mismatching sluices.

~~should always save a little from each paycheck~~>.

In all cases above, mismatches of material higher than the verbal domain result in elided TPs that are not lexico-syntactially identical to their antecedent TPs. These data are not just problematic for syntactic accounts of sluicing; the elided TPs do not stand in a relation of mutual entailment with their antecedent TPs either. In fact, there is often no entailment in either direction. To see this clearly, note the modal mismatches in (23), in which modality can appear, disappear, or change both in modal flavor and modal force, in every case unarguably leading to an elided TP that means something substantially different than its antecedent.[18] The case in (23c), as well as the cases in (23a) and (21b), illustrate a common property of these left-peripheral mismatches under sluicing: their interpretation is somewhat nebulous. In (23c), it's quite clear that the ellipsis site is not interpreted relative to the antecedent modal *should*; the modals *might* and *could* both yield plausible interpretations, as does *will*; no one interpretation seems clearly correct.[19]

2.1 RESTRICTION TO EVENTIVE CORES

Mismatches of the kinds encountered above are frequently attested in corpora, yet despite the breadth of the range of possible mismatches demonstrated above, no examples have yet been encountered which threaten the claim that argument structure mismatches under sluicing are impossible. The empirical generalization is this: verbs and their arguments cannot be mismatched under sluicing, but what *can* be mismatched are the finiteness of the clause, the time at which the event described by the verb occurs, the modality that lets us know whether that event is actual, hypothetical, desirable, and so on. The fact that some aspects of the interpretation of the ellipsis site, such as the verb and its arguments, are fixed, but other aspects, like modality, are slippery and indeterminate, suggests that the explanation of these left-peripheral mismatches is that identity requirements on sluices apply only to some subset of the elements in the elided TP. Specifically, I claim that identity conditions on ellipsis apply only to elements that originate inside what I call the EVENTIVE CORE of the elided clause—roughly speaking, the verb and its arguments.

The notion that there is a syntactically privileged core of a clause was explored at length by Langacker (1974), in his discussion of the 'objective content' of a sentence. Here's Langacker, following up a discussion of how difficult 'objective content' is to define positively:

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[18]Changes in both force and flavor were originally documented by Merchant (2001, Ch. 5) in discussion of cases of model subordination under sluicing. However, that the full range of mismatches in modality documented in (23) are possible is, to the best of my knowledge, a novel observation.

[19]Christopher Tancredi (p.c.) notes that the modal mismatch cases are not necessarily problematic for semantic accounts of the identity condition if one does not make the assumptions that I've made about the syntactic structure of the ellipsis site, and instead compares LF representations. For instance, he notes that (23a) could be analyzed like so:

(1) Sally knows that at all times t, it is possible that **awful things happen at t**, but Sally doesn't know for which t ~~awful things happen at t~~>.

This is a considerably more abstract level of representation than the one which must be assumed to be relevant given the assumption that lexico-syntactic identity plays an important role in the identity condition on sluicing, but it's not an unreasonable level at which to analyze semantic identity conditions. However, whether such an approach might extend to all of the modal mismatches discussed here remains to be seen, and it remains unclear at best how it might extend to the polarity mismatches.

It is perhaps easier to say what is EXCLUDED from the objective content of a sentence. The illocutionary force of a sentence is excluded, as are specifications of tense, aspect, and modality. … In short, the objective content of a sentence specifies a situation that the sentence is to deal with, and the remainder of the sentence—what I will call the non-objective content—specifies the location of this situation along various dimensions, such as temporal/aspectual, real/unreal, speaker's affective reaction, and speech act.   (Langacker 1974, p.645-646)

Langacker goes on to express skepticism that 'objective content' is a syntacticizable notion. This is understandable given the state of syntactic theory at the time; 40 years of syntactic theory later, however, it's become quite an easy concept to syntacticize. I associate the eventive core with the vP of a clause—the complete verbal complex, including the origin sites of verbs and their internal and external arguments.

(26)
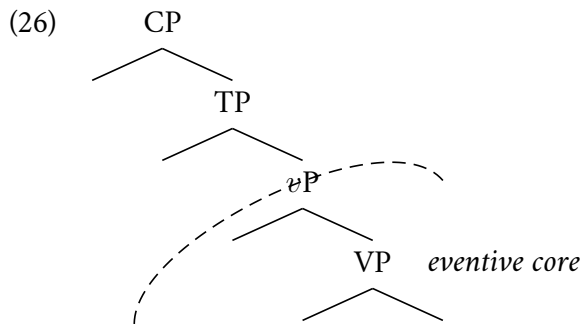
Though it might seem odd at first glance, the claim that identity in sluicing is enforced only over the vP of the elided TP is actually quite natural on the Langackerian view: the vP is the constituent inside of which the 'objective content' of a sentence enters the derivation. Sluicing is grammatical only if the elided clause encodes the same content as its antecedent in terms of the basic event described, the 'who did what to who,' so to speak, though the two clauses may mismatch each other in terms of the status of that event relative to the current state of the world (polarity, tense, aspect, finiteness), or the status of that event relative to the speaker's information or desires (various flavors of modality), both encoded by material that enters the derivation above the vP. It's suggestive that this domain of identity corresponds to a phase—this in concert with the Langackerian notion of the split between objective and non-objective content could be taken as substantiating Chomsky's (2001) claim that the vP phase corresponds to a semantically meaningful subclausal unit that could be thought of as somehow propositional.[20]

(27) EVENTIVE CORES (to be revised)
      The eventive core of any TP is its highest vP.

Due to the possibility of recursive clause embedding in natural language, any clause can have arbitrarily many vPs within it. The eventive core of the clause is its highest vP—the vP associated with its

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[20]It's not clear, however, whether this clean connection to phasehood could be extended to an account of mismatches available in other forms of ellipsis—see for instance Merchant's (2013b) discussion of voice mismatches under VPE, a topic I'll return to briefly in section 4.

matrix verb. There is one further complication with the notion of eventive core that will be discussed in section 2.2.1.

The claim that the eventive core is the domain of identity calculation in sluicing can be implemented in different ways in different frameworks. For example, given a semantic, entailment-based identity condition such as that of Merchant (2001), this could play out by requiring that there be mutual entailment between the eventive cores of the antecedent and the ellipsis site, instead of between the full TPs[21] (this would work most smoothly assuming a copy or multidominance theory of movement where moved-out material is still in the eventive core, so the semantic value of the eventive core can be calculated in isolation—the alternative would be to force obligatory reconstruction). For an LF-copying account along the lines of Chung et al. (1995, 2011), this could play out by copying only the antecedent's eventive core, and decorating it with whatever other material results in a plausible interpretation. I set these other implementations aside here, as fully developing a semantic implementation of these ideas is far outside the scope of this paper. In the rest of this section, I will assume the syntactic identity condition developed in the previous section, and develop an implementation of the claim that the eventive core is the domain of identity calculation for sluicing couched in the terms of that analysis.

In a nutshell, given the syntactic approach detailed in the previous section, the claim that the eventive core is the domain of identity calculation can be implemented by taking the identification of a structure-matching correlate as a requirement on the grammaticality of a sluice only for the deletion of heads that entered the structure within the vP phase.

This account generalizes to all of the examples with which this section began. Because mismatches in finiteness, tense, modality, polarity and illocutionary force don't affect the eventive core of a sentence, such mismatches will be acceptable on my account insofar as the eventive cores of the antecedent and ellipsis site are still identical.[22]

The syntactic identity condition developed in the previous section can be revised in the following way to restrict its domain of application to the eventive core:

(28) SYNTACTIC CONDITION ON SLUICING (final):
      Given a prospective ellipsis site **E** and its antecedent **A**, non-pronunciation of the phonological content associated with any head $h \in$ **E** is licit if at least one of the following conditions hold
      a. h did not originate within **E**'s eventive core
      b. h has a STRUCTURE-MATCHING CORRELATE $i \in$ **A**.

In other words: when deletion of a constituent is triggered, for each head in that constituent the deletion mechanism checks whether that head is inside the eventive core of the elided TP, or is a member of a movement-dependency chain whose tail is inside the eventive core of the elided TP.

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[21]This works for Merchant's entailment-based account; it's not clear that it could work for the account presented in AnderBois (2014), which relies crucially on the notion that the entailment relation holds between full CPs.

[22]Crucially, the account of illocutionary mismatches only goes through on the assumption that there is a syntactically present but unpronounced subject in the imperative that can serve as a correlate for the declarative subject in the ellipsis site. This is a standard assumption in the literature on both the syntax and the semantics of imperatives (Potsdam 1998, Zanuttini 2008, Kaufmann 2012), though cf. Portner (2004).

If no, the head is deleted with no further questions asked; if yes, a search for a structure-matching correlate of the head in the ellipsis-licensing antecedent is initiated, and the derivation crashes if none can be found.

A demonstration of the revised condition in (28) is given below:

(29)   Sally knows that there is always the potential for **awful things to happen**, but she doesn't know when ~~awful things {will, might} happen~~.

(30)
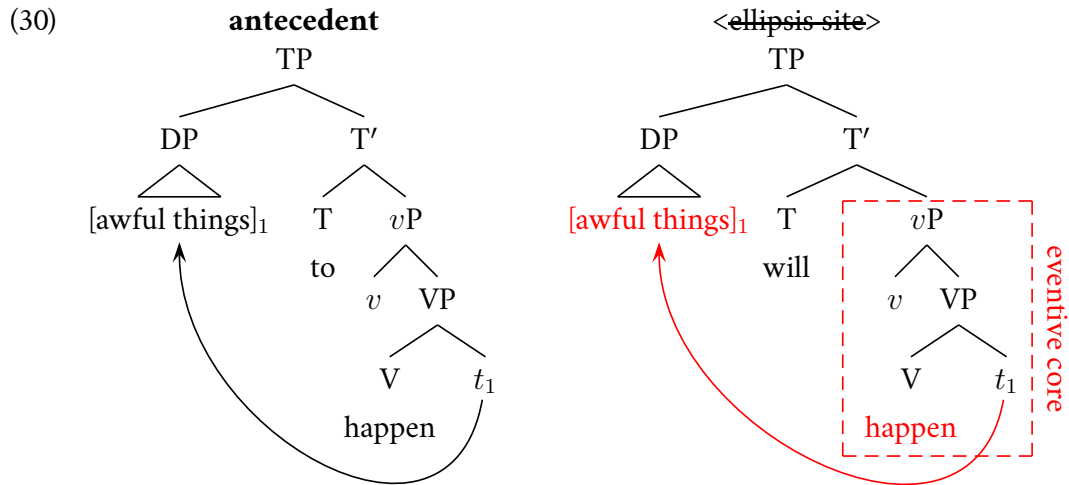
In (30), lexical heads that originated within the eventive core of the ellipsis site are shown in red—the heads shown in red above are the only heads to which the syntactic condition on sluicing applies. The content of T, which did not originate within the eventive core, can be freely mismatched.

2.2   COMPLICATIONS

I'd like to close this section with brief comments on four complications, three tractable and one not so clearly so.

2.2.1   MODAL VERBS

The first complication has to do with the definition of an eventive core in (27). This definition identifies the eventive core of a clause with the highest vP in that clause, but in some languages, elements whose content Langacker would call 'non-objective' occur as verbs. For instance, all modals in German are V heads, not T heads. Despite the fact that in German, modality is expressed within the verbal complex, modal mismatches under sluicing still occur in German. The opposite of this is predicted on the eventive core account of modal mismatches. The crucial cases here are German analogues of the modal mismatches in (23), because these are cases in which there are elided modals with no structure-matching correlate in the antecedent. In German, despite modality being expressed below T, the same sorts of phenomena are possible (Andreas Walker p.c.):

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(31) *Das war ein Problem, dass die Physik lösen musste, aber für lange Zeit war es nicht klar,*
that was a   problem that the physics solve must,   but for long time was it not   clear,

wie   <~~die Physik es lösen könnte~~>.
how the physics it solve could

'This was a problem that physics had to solve, but for a long time it wasn't clear how <~~physics could solve it~~>.'

Walker reports that (31) is perfectly grammatical with the indicated modal mismatch interpretation. In other words: a German modal verb can be elided even when it has no correlate in the antecedent. As it stands, the present account predicts this to be impossible—it only allows modal mismatches because identity is not enforced for elements whose external merge site is above the verbal domain
.

To fix this, we must characterize the syntactic notion of EVENTIVE CORE in a somewhat more complex way than simply saying that the eventive core of a clause is its matrix vP. The solution to this problem is also the reason why 'eventive core' is a more enlightening term than 'verbal domain' or just 'vP': instead of taking the term 'eventive core' simply to pick out the matrix vP of a clause, we can define the eventive core of a clause instead as the highest vP in that clause that is associated with an event-introducing predicate.

(32) EVENTIVE CORES (final definition)
The eventive core of a clause is its highest vP that is associated with an event-introducing predicate.

Modal verbs only communicate something about the modal status of their prejacent proposition; thus, they are parasitic on the event introduced by the matrix verb of that prejacent. This revision of the definition of eventive cores is quite of a piece with the notion of objective content in Langacker (1974).[23]

Note also that this revision to the notion of eventive core clarifies an issue with English auxiliary verbs, pointed out to me by Christopher Tancredi (p.c.). Consider the following:

(33) **Sally must have won**, but I wonder how <~~she won~~>.

This case shows that auxiliary verbs can be mismatched as well. This fact follows from the idea that the eventive core of a clause is the vP associated with the highest event-introducing predicate. As an auxiliary verb, *have* doesn't introduce an event, and so sits above the eventive core of the clause, allowing it to be grammatically mismatched.

2.2.2 PUTATIVE CASE MISMATCHES

Chung (2013) discusses data like the following:

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[23]It is worth noting that the distinction between event-introducing and non-event-introducing verbs is, *prima facie*, a semantic distinction, and thus not obviously of a piece with the predominantly syntactic approach to ellipsis identity pursued in this paper. However, if one takes the semantic type of events to be syntactically encoded, this distinction could be expressed in purely syntactic terms. Thanks to Christopher Tancredi for discussion of this point.

(34) Modified from Chung (2013) ex. 56/57

    a.   * In this monastery, it's possible in principle **to sing**, but the abbot has to specify which monks <~~can sing~~>.

    b.   In this monastery, it's possible in principle **to sing**, but the abbot has to specify which songs <~~to sing~~>.

These data are *prima facie* problematic for the account developed herein: In (34a), all of the elided heads that originated within the eventive core are structure-matched by their correlates in the antecedent. The account developed here therefore incorrectly predicts it to be grammatical. The generalization that Chung derives from facts like these is that the sluice-stranded wh phrase must be assigned Case by a head that is identical to the head that assigned Case to its correlate; she suggests that a principle that enforces such a generalization may supplement entailment-based theories of sluicing. However, the data in (34) isn't the full picture. Further scrutiny suggests that the actual generalization doesn't have to do with Case. Observe the following:

(35) In this monastery, it's possible in principle for **monks to sing**, but the abbot has to specify which monks <~~can sing~~>.

The fact that (35) is grammatical casts severe doubt on the notion that parallel Case assignment is required in order for sluicing to be grammatical. In this case, just as in (34a), the wh phrase is being assigned Case by a head that is not identical to the head that assigns Case to its correlate; however, the sluice is well formed.[24] In reaction to this, one might conclude, following Thoms (2015), that the sluiced wh-remnant must be correlated with a certain kind of DP in the antecedent, and that that requirement fails in the case of a null subject, as in (34a). However, a more careful consideration of the empirical facts indicates otherwise:

(36) For monks in this monastery, it's possible in principle **to sing**, but the abbot has to specify which monks <~~can sing~~>.

In this case, the antecedent (*to sing*) and ellipsis site (*can sing*) are the same as in the ungrammatical example in (34a). However, bringing monks to salience prior to the sluice renders the sentence significantly less degraded. This suggests that the ill-formedness of (34a) stems not from Case mismatch, as Chung (2013) claims, nor from the impossibility of null subjects to serve as correlates for sluiced wh-remnants, as Thoms (2015) claims, but is instead a result of the pragmatics of the recoverability of the interpretation of a sluice: the ill-formedness of (34a) comes from the fact that the context does not adequately prepare the ground for the question *which monks?*[25]

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[24]An anonymous reviewer points out that (35) might instead be analyzed as having the following structure:

(1) In this monastery, it's possible in principle for **monks to sing**, but the abbot has to specify which monks <~~it's possible for *t* to sing~~>.

In this structure, *which monks* has been extracted from subject position. This would normally be a COMP-trace violation, but if one assumes, following Merchant (2001), that the impossibility of at least some extractions is due to PF considerations, and that therefore some extractions are possible under ellipsis that would not be possible unelided, this is a plausible structure that poses no problem for Chung's (2013) account. No such analysis, however, is possible of (36), which is equally problematic for Chung's account.

[25]Chung (2013) also notes that possessor extraction is impossible under Chamorro sluicing with no possessor in the

2.2.3   Split Antecedents

Sluicing, just like Verb Phrase Ellipsis, allows split antecedence, as the following examples demonstrate:

(37) a. Sally punched Jeff or Steven. I can't remember which (one).

   b. Sally went to the park, or she went to the movies. I can't remember which (one).

   c. Sue punched Jeff, or Jeff punched Sue. I can't remember which (one).

Cases like these are discussed in depth by AnderBois (2014) and Barros (2014). They may or may not pose a problem for the theory presented in this paper, depending on what one's analysis of the content of the ellipsis site is in each case. I argue that (37a) and (37b) are easy to account for using the analysis presented in this paper. (37c) may be trickier.

(38) a. **Sally punched Jeff or Steven**. I can't remember which (one) <~~she punched~~>.

   b. **Sally went to the park**, or **she went to the movies**. I can't remember which (one) <~~she did~~>.

Given the hypotheses presented in (38) about the content of the ellipsis sites of (37a) and (37b), the theory presented in this paper predicts both cases to be grammatical. In (38a), the content of the

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antecedent:

(1)   * *Malingu   ga'lågu, lao ti   hu   tungu' håyi.*
      AGR.disappear dog   but not AGR know who

      'A dog disappeared, but I don't know whose.'

This is despite the fact that possessor extraction is grammatical in Chamorro:

(2)   *Håyi un   fåhan karetå-ña?*
      who AGR buy   car-AGR

      'Whose car did you buy' (lit., Who did you buy a car of?)

Chung explains the ungrammaticality of possessor remnants in sluiced clauses in the absence of a correlate possessor in the antecedent in terms of her requirement that Case assignment at the extraction site of the sluice remnant be identical to Case assignment at the corresponding position in the antecedent. The account developed in this paper can just as easily explain these facts if there is a structural distinction between possessive DPs and non-possessive DPs. Evidence that such differences indeed exist in Chamorro comes from the optionality of order of arguments in Chamorro possessive DPs. In standard Chamorro possessive DPs, the possessor is to the right of the head noun; however, under certain circumstances the ordering can be reversed, and the possessor comes first:

(3)   a. *Yanggin mampus   atdit   chetnot-ña i   patgun.*
         if   extremely AGR.severe illness-AGR the child

         'When a child has a very serious illness.'

      b. *Yanggin mampus   atdit   i   patgun chetnot-ña.*
         if   extremely AGR.severe the child   illness-AGR

         'When a child has a very serious illness.'

Such ordering reversals between elements of non-possessive DPs are impossible. These ordering reversals have the peculiar property of only being possible in possessive DPs headed by null determiners, which I have no explanation for. However, the very possibility of variable ordering within possessive DPs suggests that in possessive Chamorro DPs there is an additional layer of structure to which the DP can move, resulting in the anomalous ordering.

ellipsis site is structure-matched by the antecedent; nothing more needs to be said. (38b) is more complicated. In this case we have what seems to be two distinct antecedents. However, crucially, there is only one head in the ellipsis site that originated within its eventive core: *she*. This head is structure-matched in both antecedents. We might, then, account for split antecedence in the following way: in the case that an ellipsis site has multiple antecedents, the relevant heads in the ellipsis sites must find structure-matching correlates in *both* antecedents.

I believe that the explanation for the trickier case, (37c), lies in the nature of anaphoric *one*. The case in (37a) involves coordinated DPs, and the *one* in the sluiced wh-remnant is anaphoric to those DPs; the case in (37b) involves coordinated VPs, and the *one* in the sluiced wh-remnant is anaphoric to those VPs; and the case in (37c) involves coordinated TPs, and the *one* in the sluiced wh-remnant is anaphoric to those TPs. It might be the case that when *one* is a TP anaphor, it lexicalizes the entire TP span, in which case the content of the sluiced CP prior to wh-movement is simply *which one*. If that were the case, the content of the ellipsis site in (37c) would simply be the trace of the moved wh element, which would not need a structure-matching correlate by virtue of being the tail of a movement dependency chain; there would be no content needing a structure-matching correlate in the antecedent. The development of such a theory of anaphoric *one* is far outside the scope of this paper. It may instead be that the true explanation for sluices like (37c) is that they are not true sluices—for instance, Barros (2014) presents what amounts to a pseudosluicing analysis of such sentences.

2.2.4 Exceptive Antecedents

Sluicing is possible in exceptive constructions like the following:

(39) **Nobody liked the movie except Jerry**, and I have no idea why <~~Jerry liked the movie~~>—he's usually very highbrow.

This sentence is quite problematic on every account of sluicing of which I am aware—it's problematic for mutual entailment accounts, because there is only a one-way entailment, from the antecedent to the ellipsis site; it's problematic for LF copying accounts, because the ellipsis site doesn't contain a copy of the antecedent (crucially, the interpretation of the sentence is *not* 'I don't know why nobody other than Jerry liked it'); it's problematic for my syntactic account, because the subject of the antecedent clause is *nobody*, not *Jerry*.

This observation goes back to Merchant (2001), who presents the following sentence:

(40) **Nobody'll talk to you, except for old Wakasha.** I have no idea why <~~old Wakasha will talk to you~~>.

Merchant sources this sentence to the 1993 film *Thunderheart*. He presumably recreated it from memory; I revisited the scene in the film, transcribed the dialogue in question, and checked my transcription against the official subtitle track. The precise exchange in the film is actually somewhat more interesting than Merchant's recollection:

(41) **A:** They don't want you here. Ain't nobody gonna talk to you.
B: Fine.

A: Except for the *wica'sa wakan*, and I don't know why.
B: The who?
A: The man who sent me to find you. Says he has some information for the FBI.

There is a substantial pause between each conversational turn; **B**'s lines don't interrupt **A**'s. **A**'s middle turn is presented prosodically as a complete and self-contained sentence. **A**'s final turn, for our purposes, serves to disambiguate the interpretation of the ellipsis site in the sluice from **A**'s middle turn—it makes it clear that the intended interpretation of the ellipsis site is indeed something like ~~he's gonna talk to you~~.

This dialogue clearly demonstrates that the solution to the problem of exceptive sluices is parasitic on the analysis of exceptive constructions. One trend in the literature on exceptives is to treat them as quantifier modifiers: *except Jerry* modifies *nobody* to produce quantification over the set of non-Jerry humans. (See e.g. Reinhart 1991, von Fintel 1993, Gajewski 2008.) The fact that an exceptive can be used in a separate sentence from the quantifier that it modifies causes difficulties for a compositional semantic account of exceptives as quantifier modifiers. This phenomenon is robust even in cross-speaker cases:

(42) **A:** Nobody liked that movie.
      B: Yeah, except Jerry.

The exact nature of the problem that the possibility of exceptive sluices like (39) pose for the theory of sluicing will not be clear until we have a clear syntactic theory of exceptive phrases. It may be that the possibility of sluices like (39) can serve as a useful diagnostic in the development of such a theory.

2.3 Interim Conclusion

In this section I've proposed a theory-independent way to account for the possibility of a wide variety of left-peripheral mismatches under sluicing: the domain of identity for TP deletion isn't the full TP, it's the eventive core of the elided TP. This conception is of a piece with the Langackerian notion that the subset of sentential content that refers to the concrete particulars of an event has a special privileged status relative to content expressing the relation of that event to the current state of the world, and to the speaker's beliefs and desires. Syntactic identity of that privileged 'objective' content is required in order for sluicing to be grammatical.

3   Beyond Syntax: Sound and Meaning in Sluicing

In this section I offer brief thoughts on ways that sound and meaning fit into the syntactic identity condition presented here. I argue first that the role meaning plays is predominantly pragmatic, serving to restrict the set of grammatically possible interpretations of sluices to those that are actually available in a particular context. Second, I argue, following recent work by Bennett et al. (2015), that

the impossibility of mismatches involving verum focus could be profitably given an analysis in terms of phonological grammar, rather than syntax or semantics.

3.1 THE ROLE OF MEANING: THE PRAGMATICS OF INTERPRETATION RECOVERABILITY

One possible objection to the proposal developed in the previous section, namely that mismatches under sluicing that occur outside of the eventive core of the elided TP are grammatical, goes something like this: *why*, says the skeptic, *given this account, can't I get left-peripheral mismatches willy-nilly? Why*, says the skeptic, *is the following interpretation not available?*

(43)   # **Sally punched someone in the face**, but I don't know who <~~Sally should punch in the face~~>.

The sluice above is perfectly grammatical with the indicated interpretation of the ellipsis site if mismatches above the eventive core are freely possible. Doesn't the account presented here predict that such interpretations will be available? I believe that this objection confuses conditions on the well-formedness of sluices, which is a grammatical notion, with conditions on the availability of interpretations of sluices, which is a pragmatic notion. To put it another way: undergeneration and overgeneration are very different sorts of problems.

When reasoning about what structural relationships between antecedents and ellipsis sites are grammatically possible, the most powerful evidence is positive evidence: if a sluicing construction can have a particular interpretation, it must be the case that it is grammatical to perform ellipsis on a structure with that interpretation. However, though the set of interpretations that interpreters will assign to sluicing constructions is presumably limited to the set of grammatically possible sluices, there is no reason to suppose that no ellipsis-independent pragmatic factors restrict the set of interpretations interpreters are willing to propose for specific sluices. To put it concisely: if an interpretation of a sluice is available, a sluice with that interpretation must be generated by the grammar of sluicing; if an interpretation of a sluice is unacceptable, it does not necessarily follow that it cannot be generated by the grammar of sluicing, as there is a huge variety of potential reasons why an interpretation might not be available in a particular context. The status of negative evidence in relation a grammatical theory is less clear than the status of positive evidence.

A prediction made by this basic line of reasoning, which goes back to the earliest work on generative grammar—namely that the grammar produces a proper superset of what is actually acceptable in context—is that we should expect the set of interpretations an interpreter is willing to assign to a sluice in context to be a proper subset of the possible interpretations of grammatical ellipsis structures. The data bears out this prediction: a huge variety of mismatches above the eventive core of the elided TP are grammatical, but not every interpretation traceable to such a mismatch is available for every sluice in every context.

What I have done in this paper is present an account of the role that syntactic identity between antecedent and ellipsis site plays in determining the well-formedness of sluices. The syntactic identity condition that I've developed predicts that some matches will be impossible, and that others will be

possible—mismatches inside the eventive core will be impossible, mismatches above it will be possible. This gives us, for any sluice, a set of grammatically available interpretations: all interpretations involving mismatches of material above the vP of the elided TP are made available by the grammar of sluicing. This gives listeners a meaning-recovery problem: which interpretation did the speaker intend to communicate?

I argue that this problem is a problem for pragmatics, not a problem for grammatical theories. Given an ellipsis site that could potentially mean a large variety of different things, interpreters use common-sense pragmatics to weed out many interpretations of the sluice that are highly implausible, despite being technically grammatical in terms of grammatically possible structural relations between antecedents and ellipsis sites. Listeners know that when speakers choose to elide content, they are assuming that their interlocutors will be able to recover the meaning of the ellipsis site on the basis of what they've said—this follows quite simply from completely general pragmatic notions, like the cooperative principle (Grice 1975). If in a given elliptical construction an ellipsis site that perfectly matches the antecedent yields a plausible interpretation, it would seem quite uncooperative for a speaker to utter that construction with the intention of it being interpreted as an imperfect match, in the absence of very strong contextual factors militating against a perfectly-matching interpretation. I express this principle as follows:[26]

(44) PRAGMATIC PRINCIPLE OF ELLIPSIS INTERPRETATION:[27]
      If a perfectly antecedent-matching ellipsis site yields an interpretation that is plausible in context, that interpretation should be strongly preferred to interpretations generated via imperfectly antecedent-matching ellipsis sites.

This pragmatic principle is of course not a full theory of the pragmatics of ellipsis interpretation, though it goes a long way toward explaining the unavailability of mismatches in most normal contexts; I consider the development of a formal pragmatics of ellipsis interpretation to be far outside

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[26]There may be finer-grained distinctions at work than the principle in (44) suggests. Take, for example, the following asymmetry (Pranav Anand, p.c.):

(1) a. **I need to get some gas.** Can you tell me how ⟨~~I can get some gas~~⟩?
     b. ? **I need to get some gas.** Can you tell me where ⟨~~I can get some gas~~⟩?

The judgments here are subtle, but if this asymmetry is genuine, then more needs to be said than what I've said in this section. It is not entirely clear whether or not the account presented here is satisfactory—this empirical terrain is complex and largely unexplored. It may be that the best account of the distribution of modal mismatches is a syntactic account that assumes covert modality, such as Bhatt (2000); it may be a semantic account involving modal subordination, such as Brasoveanu (2010); these facts may also find a purely pragmatic explanation—Kroll's (2016) work on the felicity of sluices is a promising foray in that direction. I leave a fuller exploration of these facts to future work.

[27]A comparable principle was proposed previously by Merchant (2010), in the context of a discussion of syntactic, semantic, and pragmatic varieties of ellipsis. To quote his own summary of his generalization from the end of his paper:

> …the basic intuition is that when there is a parallel syntactic antecedent available, it must be used (leading to the case and voice effects discussed). When a script is available, its modes must be used. When none is available, then and only then can other mechanisms (for case assignment, etc.) be used, and then and only then is the semantic ellipsis device triggered.

In this context, a 'script' refers to a pragmatically available though unarticulated prompt of the kind that allows us to understand an utterance of "uptown, please" upon entering a taxi to be implicitly answering the question, "where would you like to go?"

the scope of this paper. I refer the interested reader to Kroll (2016) and Kroll and Rudin (2017). In the account developed in those papers, a sluice is only felicitous if the ellipsis site is a uniquely salient entailment of the local context. That account could be thought of as an account of the recoverability of the elided content of sluices: an interpretation will only be available for a sluice if it is a uniquely salient contextual entailment at the time of utterance. Christopher Tancredi (p.c.) points out that, as we saw in (23), often various interpretations are available for modal (and other) mismatches under sluicing, making 'unique salience' seem perhaps to be too strong a condition on the recoverability of sluices. Nonetheless, that for an interpretation to be available for a sluice, the elided content must be a salient contextual entailment, whether unique or not, is a promising and *prima facie* sensible idea, with a clear connection to the long history of work on the role givenness plays in ellipsis.

The idea that semantico-pragmatic factors which are highly sensitive to context have a role to play in the acceptability of elliptical interpretation is an old one, going back at least to the work of Rooth (1992), Tancredi (1992) and Heim (1997), all of whom explore the notion that ellipsis may be possible only under strictly stronger conditions than those under which deaccenting is possible. Such a system works along quite similar lines to the system outlined here: the acceptability of an ellipsis is determined by structural restrictions on relations between antecedent and ellipsis site, supplemented by the more general meaning-related considerations that govern the possibility of deaccenting. The acceptability of deaccenting is generally taken to be determined by whether or not the deaccented material is given—a notion that has been treated as a strict semantic one (e.g. by Schwarzschild 1999 and Büring 2016), but which is often treated as a somewhat looser pragmatic or information-structural notion as well (for a recent overview, see Vallduví 2016). It might well be that givenness, in some form or another, is indeed a relevant factor in determining the availability of a particular interpretation of a sluice, though it's hard to see how a strict semantic conception like Schwarzschild's GIVENNESS could allow the kind of mismatches observed for sluicing.

What is crucial for my purposes here is this: the fact that left-peripheral mismatches are possible when strict matching between antecedent and ellipsis site results in an implausible interpretation demonstrates to us that such mismatches are grammatically possible; that such mismatches do not seem to be available interpretations for ellipsis constructions in which strict matching between antecedent and ellipsis site results in a perfectly plausible interpretation is a fact about the pragmatics of the availability of elliptical interpretations, not a fact about the grammar of ellipsis identity. The distinction between these two different approaches to studying ellipsis may also explain the very stark differences between deletion-based approaches and inference-based approaches to ellipsis. Purely grammar-internal deletion-based approaches may overreach by trying to explain the unavailability of interpretations which are properly ruled out by the pragmatics of ellipsis recovery in context, whereas purely inferential non-grammatical approaches to ellipsis may overreach by dismissing the syntactic grammar of ellipsis due to an over-narrow focus on the pragmatics of recoverability.

I've proposed here an account of the syntactic component of sluicing—my primary concern has been to develop a syntactic conception of the identity condition on sluicing that is capable of generating all grammatical cases, while ruling out cases that are strictly impossible, as mismatches in the verbal domain seem to be. That mismatches above the verbal domain are sometimes acceptable and sometimes not, I argue, is not a problem to be solved within the grammar of sluicing; rather, understanding exactly what pragmatic factors influence the availability of different interpretations in different contexts should be taken to be a research program of acute interest to elliptologists.

3.2 Phonological Grammar and Verum Focus

A class of unacceptable mismatches has been pointed out to me by Christopher Tancredi (p.c.). Consider the following cases:

(45) There were 5 people at the party, and the food disappeared rather quickly. However, **John, Mary and Sue ate nothing.** That makes me wonder who #<~~ate~~>.

(46) There are fewer people here than there were just a minute ago, so it must be the case that someone left. **John didn't leave**, so who #<~~left~~>?

These sluices are unacceptable, but are not clearly ruled out on the basis of the pragmatic reasoning above—the indicated interpretations of the ellipsis sites are allowed by the syntactic identity condition I've proposed, there are no more faithful matches that are plausible in context, and the indicated interpretations are perfectly plausible in these contexts—in fact, the context for the sluice in (45) entails that somebody ate, and the context for the sluice in (46) entails that somebody left.

I believe that the explanation for both of these cases has to do with verum focus. Consider the following variants of (45) and (46):

(47) There were 5 people at the party, and the food disappeared rather quickly. However, John, Mary and Sue ate nothing. That makes me wonder who DID (eat).

(48) There are fewer people here than there were just a minute ago, so it must be the case that someone left. John didn't leave, so who DID?

Each of the (unacceptable) ellipsis sites in (45) and (46) contrast with their antecedents in terms of polarity, making them excellent candidates for hosting verum focus, as (47) and (48) demonstrate. Both examples are degraded without verum focus. I argue that this explains the unacceptability of the sluices in (45) and (46). In an extremely interesting recent paper, Bennett et al. (2015) discuss interactions between verum focus and Irish responsive ellipsis. The conclusion that the data they discuss lead them to is that verum focus is unelidable for phonological, not syntactic or semantico-pragmatic, reasons. If this is indeed the case, the explanation for Tancredi's observations in (45) and (46) might well lie neither in the syntax of ellipsis identity nor in the pragmatics of the acceptability of elliptical interpretations, but rather in the domain of phonological grammar—an understudied aspect of the grammar of ellipsis.[28]

4 Conclusion

In this paper I've put forward two proposals.

The first proposal is a novel way of assessing syntactic identity, that I believe can supplant the role semantic identity conditions have commonly been taken to play in the well-formedness of sluicing.

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[28]Of course, there are potential non-phonological explanations available here as well. See, for instance, the discussion of circumstances under which VPE is preferred to sluicing (and vice versa) in Takahashi and Fox (2005).

The crucial innovation of this proposal is to take the relevant grain size of identity to be individual deleted heads, not entire deleted constituents. Enforcing syntactic identity deleted head by deleted head is rigid enough to rule out ungrammatical syntactic mismatches in voice and argument structure, and to capture the generalization that ellipsis sites must contain no lexical material not present in their antecedents, but is flexible enough to evade criticisms that were fatal to conditions enforcing syntactic identity at the level of the entire deleted constituent.

The second proposal has to do with a novel empirical generalization: that an extremely broad variety of mismatches above the verbal domain are possible under sluicing, in stark contrast to the total impossibility of syntactic mismatches within the verbal domain. These data can be captured with the proposal that the domain of identity for sluicing is the 'eventive core', or highest event-introducing vP phase, of the elided TP: in order for sluicing to be grammatical, deleted heads originating within this vP phase must be anteceded by structure-matching correlates. In other words, the identity condition that governs the well-formedness of sluices is evaluated over a proper subpart of the deleted constituent. Such a restriction makes good on early attempts to explain within syntactic theory the privileged status of certain elements of the clause (Langacker 1974).

The worldview that results from adopting these two proposals can be restated in the following way: the identity condition that governs sluicing is fundamentally syntactic, but that doesn't mean that considerations of meaning have no role to play in the acceptability of sluices. Mismatches are strictly impossible within the eventive core, but available in principle above it—the availability of a particular interpretation in a particular context is conditioned by a wide variety of subtle pragmatic factors. This is both a prediction of the theory at hand and a robust fact about the empirical landscape. Better understanding the factors that make an interpretation available or unavailable in a given context, then, becomes an exciting avenue for future research; what's completely clear is that an account of the role of syntax in the grammaticality of sluicing should not rule such mismatches out.

This paper has been concerned exclusively with sluicing, but I believe that the proposals presented here could be profitably applied to other well-studied forms of ellipsis, such as Verb Phrase Ellipsis (VPE). I conclude with a brief remark on how such an extension might proceed.

Of particular interest is the idea that the domain of identity for ellipsis can be strictly smaller than the ellipsis site. One immediate connection this suggests is to the phenomenon of voice mismatches under VPE Merchant (2013b). One way to account for the possibility of voice mismatches is to take VPE to delete only the VP, not the entire verbal domain, allowing for the Voice head to avoid identity requirements by virtue of not being inside the ellipsis site. This is the analysis Merchant pursues. Another strategy, however, would be to take VPE to delete the entire verbal domain, but to take the domain of identity in VPE, just as in sluicing, to be strictly smaller than the ellipsis site. It's not clear at first glance which of these approaches would be preferable—the latter would require us to give up the justification of the privileging of the eventive core in terms of its association with objective content.

The idea that the eventive core is privileged above higher material in ellipsis identity could also be brought to bear on a variety of problems brought to light in recent literature on verb-stranding VPE. For instance, McCloskey (2017) discusses the possibility of mismatches in tense morphology under responsive ellipsis in Irish, which follows straightforwardly from an extension of my second proposal to VPE.

I leave a fuller investigation of the appropriateness of applying the ideas presented here to VPE to future work.

References

AnderBois, Scott. 2014. The semantics of sluicing: Beyond truth conditions. *Language* 90:887–926.

Barker, Chris. 2013. Scopability and sluicing. *Linguistics and Philosophy* 36:187–223.

Barros, Matthew. 2014. Sluicing and identity in ellipsis. Doctoral Dissertation, Rutgers.

Bennett, Ryan, Emily Elfner, and Jim McCloskey. 2015. Prosody, focus and ellipsis in Irish. Ms., University of California, Santa Cruz.

Bhatt, Rajesh. 2000. Covert modality in non-finite contexts. Doctoral Dissertation, University of Pennsylvania.

Brasoveanu, Adrian. 2010. Structured anaphora to quantifier domains. *Information and Computation* 208:450–473.

Büring, Daniel. 2016. *Intonation and meaning*. Oxford: Oxford University Press.

Chomsky, Noam. 2001. Derivation by phase. In *Ken Hale: A life in language*, ed. by M. Kenstowicz, 1–52. Cambridge, MA: MIT Press.

Chung, Sandra. 2005. Sluicing and the lexicon: The point of no return. In *BLS 31: General Session and Parasession on Prosodic Variation and Change*, ed. by Rebecca T. Cover and Yuni Kim, 73–91. Berkeley, CA: Berkeley Linguistics Society.

Chung, Sandra. 2013. Syntactic identity in sluicing: How much and why. *Linguistic Inquiry* 44:1–44.

Chung, Sandra, William Ladusaw, and James McCloskey. 1995. Sluicing and logical form. *Natural Language Semantics* 3:239–282.

Chung, Sandra, William Ladusaw, and James McCloskey. 2011. Sluicing(:) between structure and inference. In *Representing language: Essays in honor of Judith Aissen*, ed. by Rodrígo Gutiérrez-Bravo, Line Mikkelsen, and Eric Potsdam, 31–50. Santa Cruz, CA: UCSC Linguistics Research Center.

Culicover, Peter W., and Ray Jackendoff. 2012. Same-except: A domain-general cognitive relation and how language expresses it. *Language* 88:305–340.

Dayal, Veneeta, and Roger Schwarzschild. 2010. Definite inner antecedents and wh-correlates in sluices. In *Rutgers working papers in linguistics*, ed. by P. Staroverov, D. Altshuler, A. Braver, C. Fasola, and S. Murray, volume 3. New Brunswick, NJ: LGSA.

Dowty, David. 1991. Thematic proto-roles and argument selection. *Language* 67:547–619.

Elliott, Patrick, and Yasutada Sudo. 2016. E-type readings of quantifiers under ellipsis. In *Proceedings of Sinn und Bedeutung 20*, ed. by Nadine Bade, Polina Berezovskaya, and Anthea Schöller, 217–234. Tübingen: University of Tübingen.

Fiengo, Robert, and Robert May. 1994. *Indices and identity*. Cambridge, MA: MIT Press.

von Fintel, Kai. 1993. Exceptive constructions. *Natural Language Semantics* 1:123–148.

Gajewski, Jon. 2008. Npi *any* and connected exceptive phrases. *Natural Language Semantics* 16:69–110.

Ginzburg, Jonathan, and Ivan Sag. 2000. *Interrogative investigations: The form, meaning and use of English interrogatives*. Stanford, CA: CSLI Publications.

González-Vilbazo, Kay, and Luis López. 2012. Little *v* and parametric variation. *Natural Language and Linguistic Theory* 30:33–77.

Grice, Paul. 1975. Logic and conversation. In *Syntax and semantics 3: Speech acts*, ed. by P. Cole and J. Morgan, 41–58. Cambridge, MA: Academic Press.

Heim, Irene. 1997. Predicates or formulas? evidence from ellipsis. In *Proceedings of SALT 7*, ed. by Aaron Lawson. Stanford, CA: Stanford University.

Kaufmann, Magdalena. 2012. *Interpreting imperatives*, volume 88 of *Studies in Linguistics and Philosophy*. Dordrecht: Springer Netherlands.

Klein, Wolfgang. 1985. Ellipse, fokusgliederung und thematischer strand. In *Ellipsen und fragmentarische ausdrücke*, ed. by Reinhard Meyer-Hermann and Hannes Rieser, 1–24. Tübingen: Niemeyer.

Klima, Edward. 1964. Negation in english. In *The structure of language*, ed. by J. Fodor and J. Katz, 246–323. Upper Saddle River, NJ: Prentice Hall.

Kroll, Margaret. 2016. Polarity reversals under sluicing. Ms., University of California, Santa Cruz.

Kroll, Margaret, and Deniz Rudin. 2017. Licensing and interpretation: A comprehensive theory of sluicing. In *Proceedings of NELS 47*, ed. by Andrew Lamont and Katerina Tetzloff, volume 2, 177–190. Amherst, MA: University of Massachusetts, Amherst, Graduate Student Linguistics Association.

Langacker, Ronald. 1974. Movement rules in functional perspective. *Language* 50:630–664.

McCloskey, James. 2017. Ellipsis, polarity, and the cartography of verb-initial orders in Irish. Ms., University of California, Santa Cruz. Available online at http://ohlone.ucsc.edu/~jim/PDF/vso-2017.pdf.

Merchant, Jason. 2001. *The syntax of silence: Sluicing, islands, and the theory of ellipsis*. Oxford: Oxford University Press.

Merchant, Jason. 2005. Revisiting syntactic identity conditions. Talk given at UC Berkeley workshop on ellipsis, October 2005.

Merchant, Jason. 2006. Why no(t)? *Style* 20:20–23.

Merchant, Jason. 2010. Three kinds of ellipsis. In *Context-dependence, perspective, and relativity*, ed. by Francois Recanati, Isidora Stojanović, and Neftalï Villanueva, 1–52. Berlin: Mouton de Gruyter.

Merchant, Jason. 2013a. Polarity items under ellipsis. In *Diagnosing syntax*, ed. by Lisa L.-S. Cheng and Norbert Corver, 441–462. Oxford University Press.

Merchant, Jason. 2013b. Voice and ellipsis. *Linguistic Inquiry* 44:77–108.

Portner, Paul. 2004. The semantics of imperatives within a theory of clause types. In *Proceedings of SALT 14*, ed. by Robert B. Young, 235–252. Evanston, IL: Northwestern University.

Potsdam, Eric. 1998. *Syntactic issues in the english imperative*. New York: Garland Publishing Co.

Rappaport, Malka, and Beth Levin. 1988. What to do with theta-roles. In *Thematic relations*, ed. by Wendy Wilkins, 7–36. New York: Academic Press.

Reinhart, Tanya. 1991. Elliptic conjunctions: Non-quantificational LF. In *The Chomskyan turn*, ed. by Asa Kasher, 360–384. Hoboken, NJ: Blackwell.

Rooth, Mats. 1992. Ellipsis redundancy and reduction redundancy. In *Proceedings of the Stuttgart Ellipsis Workshop*, ed. by Steve Berman and Arild Hestvik. Stuttgart: University of Stuttgart.

Ross, John Robert. 1969. Guess who? In *Proceedings of the Fifth Regional Meeting of the Chicago Linguistic Society*, ed. by Robert Binnick, 252–286. Chicago: University of Chicago.

Rudin, Deniz, and Nick Kalivoda. in prep. Swiping and prosody: A case study in the phonology of ellipsis. Ms., University of California, Santa Cruz.

Sag, Ivan. 1976. Deletion and logical form. Doctoral Dissertation, MIT.

Schwarzschild, Roger. 1999. GIVENNESS, AVOIDF and other constraints on the placement of accent. *Natural Language Semantics* 7:141–177.

Takahashi, Shoichi, and Danny Fox. 2005. MaxElide and the re-binding problem. In *Proceedings of SALT 15*, ed. by Efthymia Georgala and Jonathan Howell, 223–240. Los Angeles: University of California, Los Angeles.

Tancredi, Christopher. 1992. Deletion, deaccenting, and presupposition. Doctoral Dissertation, MIT.

Thoms, Gary. 2015. Syntactic identity, Parallelism and accommodated antecedents. *Lingua* 166:172–198.

Vallduví, Enric. 2016. Information structure. In *The Cambridge handbook of formal semantics*, ed. by Maria Aloni and Paul Dekker. Cambridge: Cambridge University Press.

Wasow, Thomas. 1972. Anaphoric relations in English. Doctoral Dissertation, MIT.

Williams, Edwin. 1977. Discourse and Logical Form. *Linguistic Inquiry* 8:101–139.

Yoshida, Masaya. 2010. Antecedent-contained sluicing. *Linguistic Inquiry* 41:348–356.

Zanuttini, Raffaella. 2008. Encoding the Addressee in the syntax: Evidence from English imperative subjects. *Natural Language and Linguistic Theory* 26:185–218.