The Domain of Formal Matching in Sluicing

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ABSTRACT:

This paper is concerned with the role of syntax in the licensing of sluicing in English. It amends and provides new support for a proposal made by Rudin (2019) in which syntax plays a crucial but circumscribed role – crucial in that antecedents are required; circumscribed in that matching with an antecedent holds only with respect to a proper subpart of the elided clause – its argumental core. [1]

It seems undeniable that semantic and pragmatic factors (especially those involving the interplay among focus, givenness and relevance) play a central role in the licensing of ellipsis (see, for instance, Tancredi 1992, Rooth 1992: 10–13, Heim 1997: 9, Hardt 1999, Fox 1999, Merchant 2001, 2018). Whether or not there is a role for syntax seems less clear. That said, there exists a stubborn body of evidence suggesting that, for ellipses of the sluicing type at least, a purely formal condition of syntactic isomorphism is also required. Sluicing is possible, it seems, only if an antecedent phrase can be identified in the local discourse context whose syntactic composition parallels, in certain respects, that of the clause to be elided. The observations which suggest this conclusion center principally or exclusively on argument structure parallelism: sluicing can proceed only if there is an antecedent constituent in the local discourse context whose argument structure matches point for point the argument structure of the targeted clause. In particular, the two must be parallel with respect to voice and with respect to the fine detail of certain (semantically vacuous) selectional properties (Levin 1982, Chung et al. 1995, 2011, Merchant 2005, Chung 2006, 2013, Lasnik and Funakoshi 2018, Anand, Hardt, and McCloskey 2021).

The empirical generalizations which support these theoretical claims have not

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been challenged, as far as we know, and their validity has been further confirmed in the large-scale corpus-study reported on in Anand, Hardt, and McCloskey 2021. Nor has there been to date a successful re-statement of those generalizations in non-syntactic terms, as far as we are aware.

The conclusions those generalizations suggest, however, seem to be at odds with an equally substantial body of evidence which documents striking mismatches in other aspects of clausal structure between the elided clause in a sluicing construction and its apparent antecedent. These are mismatches, both formal and interpretive, in dimensions such as tense, modality and polarity, among others (Fiengo and May 1994, Merchant 2001, Yoshida 2010, Kroll and Rudin 2018, Kroll 2016, 2019, Rudin 2019, Vicente 2019, de Vries 2020, Anand, Hardt, and McCloskey 2021, Landau (2022)). Such findings make it difficult to maintain that sluicing is subject to a requirement of morphosyntactic isomorphism across the entire elided constituent, even though the observations about argument structure parallelism suggest the need for just such a requirement.

Deniz Rudin (2019), building on earlier suggestions by Sandra Chung (2013), proposes a resolution of this apparent paradox by linking the formal condition on sluicing with contemporary conceptions of how clauses are composed. The border between the domain in which parallelism requirements are imposed and those in which they are not, corresponds exactly to the border between the 'first phase' (in Ramchand's 2008 term) of clausal composition – that concerned with the syntactic expression of argument structure – and later phases. Rudin proposes that the morphosyntactic isomorphism requirement inspects only 'first phase' material, which he identifies with the syntactic category vP. This is why argument structure is subject to such stringent matching requirements in sluicing, while other aspects of clause structure are not.

In this paper we extend and modify Rudin's proposal. First, we present several new bodies of evidence, based on small clause and copular structures, which further support the general approach of restricting parallelism requirements to a subdomain of the structure elided. We show, in addition, that this new evidence requires a generalized notion of the parallelism domain which cannot be captured by reference to a particular syntactic category; we provide instead a definition that incorporates both syntactic and semantic criteria. Finally, we demonstrate that this more general definition allows us to capture a certain class of copular pseudo-sluices, in the process modifying Rudin's definition of isomorphism in crucial ways.

We deal only with English, but our claims are intended to be general; hopefully further investigation will test and refine those claims beyond English.

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1. SMALL ANTECEDENTS. Among the new phenomena brought to light in the corpus-annotation project described by Anand, Hardt, and McCloskey (2021) were instances of sluicing in which an antecedent for the sluice can be readily identified but in which that antecedent consists only of a 'small clause'. The three examples in (1), all involving small clause complements to perception verbs, are typical:[2]

(1) a. The bodies were discovered just before 1 a.m. when an employee of the shop happened to drive by, noticed [lights still on] almost three hours after closing time and went inside to see why.   [72082]

b. "When you see me [smiling on the weekend], you'll know why."[96338]

c. It remains to be seen if the GOP candidates can crawfish away from previous environmental positions quickly enough to keep the environment from becoming a wedge issue. So next time you see [a Republican planting a tree], you don't have to ask why.   [141467]

For these examples, the antecedents indicated by square brackets in (1) were identified, along with the paraphrases in (2):

(2) a. … and went inside to see why [lights were still on]

b. … you'll know why [I'm smiling]

c. … you don't have to ask why [that Republican is planting a tree]

The noteworthy characteristic of such examples is that the only structure shared between the ellipsis site and the antecedent context is the small clause. However, if the syntactic and semantic composition of the elided clause, in its pre-ellipsis state, must proceed as it would in the absence of ellipsis, that clause, in examples like (1), must include at least the verb to *be* and a specification of tense and/or modality (*why lights still on* is not a well-formed question in English). In the antecedent context, however, the small clause is the complement of a perception verb and the TP which most immediately includes the small clause includes the perception verb and its associated higher functional structure. None of this material figures in the clause elided by sluicing. Such cases, then, seem to pose a substantial challenge for any condition of syntactic identity calculated for the entire elided constituent.[3]

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[2]In citing examples, we often indicate the apparent antecedent by way of square brackets and we identify elided content by way of square brackets and a grayed-out font. Examples cited from the annotated dataset described in Anand, Hardt, and McCloskey 2021 (such as (1a)) are tagged with a unique numerical identifier. See that paper for further detail on the source of such examples and further information about the methodology used in their collection and annotation.

[3]They also pose obvious difficulties for a condition which demands strict semantic identity, calculated at the TP-level, between the elided constituent and an antecedent. If, however, the clause *an employee … noticed lights still on* presupposes *there were lights still on*, then the local context update triggered by the first conjunct of (1a) will entail that there were lights still on. In that

While we believe that these annotation decisions were correct, the examples in (1) involve perception verb complements, which have a number of special properties. In addition, a reviewer points out that these examples could possibly be construed as non-isomorphic sluices – as having, that is, pre-ellipsis structures involving copula clauses of one kind or another – an interpretation which is perhaps more plausible for (1a) than for the other two. The interaction with sluicing we see in (1) is not, however, restricted to such cases. Small clauses of various types occur in a wide range of contexts and when we examine the behavior of sluicing in such contexts, the same conclusions emerge as are suggested by (1). We return to the general issue of 'non-isomorphic' sources for sluices in the final section of the paper, where we show how they can be integrated into the general theoretical framework defended here. Having such a framework in place will in turn hopefully give us a better sense than we have at present for when it is appropriate to appeal to such sources and when it is not. For now, consider the examples in (3).[4]

(3) a. I want this junk out of here. I don't care when, but I want it out of here at some point.

     b. We made all of our employees contribute money to the campaign, but we didn't specify how much.

     c. CONTEXT: *You are discussing with a colleague what the course requirements are in your graduate introduction to syntax. You say*:
         I have the students write a series of literature-reviews. How many is up to them, but each student has to have written at least 20,000 words by the end of the quarter.

     d. Wheeler still considers early treatment appropriate in some cases. The next question on his team's research agenda is: Under what conditions?

     e. With the campaign on hold – and who knows for how long – Biden is left without any regular way to make his case to the electorate.

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circumstance, examples of the general form in (1) meet the pragmatic condition on the licensing of sluicing developed by Kroll (2019) in her study of polarity-reversal under sluicing (a TP α may be elided if and only if the existential closure of $[\![\alpha]\!]$ expresses a proposition which is maximally salient and which is entailed by the local discourse context). It is less clear, however, that an equivalent presupposition holds of the causative cases involving *make* and *have* as selectors of the crucial small clause.

   In a closely related observation, an anonymous reviewer suggests that the relation between antecedent and elided content for cases such as (1) might be viewed in terms of the relation of Strawson entailment, as defined by von Fintel (1999).

   All of these questions merit close study. However since our focus here is on a claimed formal, or syntactic, constraint on sluicing, rather than on semantic-pragmatic constraints on elided content, we will not pursue them further here.

   [4]Example (3d) is a slightly adjusted version of an example from the annotated dataset already referred to – example 115760.

It is clearly possible to have a small clause-internal merge site for *when* in (3a) (as in *When do you want this junk out of here?*), but the paraphrase *I don't care when I want this junk out of here* is bizarre and is at odds with the actual interpretation – which can be paraphrased as *I don't care when this junk* MODAL *get out of here*. The term MODAL here identifies cases (which are extremely numerous) in which the interpretation of the elided clause contains a modal of vague or ambiguous force or flavor (see Anand, Hardt, and McCloskey 2021 for discussion of such cases).

Similarly in (3b), the interpretation of the sluice is not: *We didn't specifiy how much we made our employees contribute to the campaign*, but rather something along the lines of: *we didn't specify how much our employees* MODAL *contribute*, where crucial properties of the modal are once again under-determined but appropriate to context. Equally clearly, the meaning of the elided clause in (3c) does not include the embedding causative verb *have* or its external argument; if it did, the interpretation would be the bizarre: *how many reviews I have them write is up to them.* (3d) involves an adjectival small clause and once again it is crucial that neither the verb which selects that small clause (*consider*) nor its external argument (*Wheeler*) be part of the elided content. The question that the research team will investigate has to do with the conditions under which early treatment might be appropriate, not the conditions under which Wheeler might come to have some opinion. (3e), finally, is perhaps clearest of all, involving, as it does, an absolute phrase headed by a use of *with* which selects a verbless small clause (see, for instance, Ishihara 1982). In a case such as this, it is inconceivable that the item which selects the small clause (presumably *with*) could be part of the elided content and there seems to be no candidate TP at all in the antecedent context whose content could match that of the clause elided under sluicing. All that is shared, once again, between the antecedent context and the elided clause is the small clause itself (*the campaign on hold*). The ellipsis-site, of course, includes other elements: at least a circumstantial possibility modal with future orientation (something like *might* or *could* or *will*). But that element has no counterpart anywhere in the antecedent context.[5]

All of these cases have a similar character. In each, the only structure shared between the discourse context and the elided material is a small clause, which denotes a property of eventualities. The predicate which embeds that small clause in

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[5] A reviewer observes that the large majority of instances of substantive mismatches in sluicing seem to involve adjunct WH-phrases (*why* and *how* especially). Assessing the significance of this possibility is complicated by the fact that adjunct sluices, especially *why*-sluices, are overwhelmingly more frequent than other types quite generally (see Anand, Hardt, and McCloskey 2021: e75, especially Table 1, for evidence and discussion). Degree sluices introduced by *how*, like that in (3e), represent the second most common type after *why*-sluices. It is not obvious, then, that adjunct WH-phrases are over-represented among well-formed examples involving substantive mismatch.

the antecedent context, along with its external argument (if there is one), plays no role in the interpretation of the ellipsis; nor does any functional structure which appears above that embedding predicate. The clause elided by sluicing, meanwhile, has the shared small clause as its predicational core, but – assuming it is subject to the same structure building and selectional restrictions as overt material – the rest of its extended projection has no counterpart at all (matching or non-matching) in the antecedent context. That extended projection includes both semantically potent items, such as those expressing modality and/or tense, and elements often thought to lack semantic content, such as the copula. The meaning of the unmatched functional material is under-specified but appropriate to the discourse context.[6]

These observations are in harmony with the general thrust of Rudin's (2019) proposals, since they reinforce the surprising conclusion that, if there actually is a requirement of *syntactic* antecedence in sluicing, it must hold only over a proper subpart of the elided clause and not of its entirety. As it now stands, however, Rudin's vP-level isomorphism condition does not actually allow these cases. In the section which follows, a revision of that condition is developed which covers both the cases that originally motivated it and the results of the present discussion. With the amended condition in hand, we then consider two additional phenomena which also then fall into place theoretically.

2. THE ISOMORPHISM CONDITION. Rudin's (2019) proposals make explicit reference to the syntactic category vP, enforcing strict identity within its limits but allowing formal and interpretive mismatches in higher regions of the extended projection. In revising and extending the condition in light of the new observa-

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[6]One might avoid the text conclusion by claiming that the instance of C which licenses sluicing may directly select small clause complements. This is of course technically possible. But, as stressed by Yoshida (2010) in a related but distinct context, such proposals give up on the central commitment of the compose-then-delete family of analyses – that elided structures are composed and interpreted in the same way as pronounced structures. The core problems are also untouched on this approach – what is the source of tense and modality in the elided clause? Syntactic issues also arise: if the case-licensing of subject nominals depends on elements of the extended clausal projection (finite T, say), it is unclear how subject WH-phrases would be Case-licensed in their absence.

One might also resist the text conclusion by holding that all of the small clauses in (3) and (1) have fully articulated, but necessarily silent, extended projections. The plausibility or implausibility of such a line of analysis is probably different for the different kinds of embedding predicates (more plausible for absolutive *with*, say, than for others). But the general approach risks giving up the important analytical and theoretical gains won by reduced-complement analyses of causative and perception constructions in particular (among many others, see Folli and Harley 2007 and Wurmbrand 2003). Such a response would in addition leave untouched the data concerning allowed mismatches in the inflectional domain – legal mismatches (formal and interpretive) in polarity, tense, and modality.

tions made here, we need, then, a theoretical concept which will bring together under a single rubric small clauses of various types and the maximal verbal projection within a clause. Given that a major theme of research on small clauses, at least since the 1980's, has been their close kinship with the thematic core of a full verbal clause,[7] this is hardly a revolutionary move. We are dealing in all cases with bare predicational complexes – phrases which include a lexical head (verbal, prepositional, adjectival or nominal) in composition with all of its arguments, external and internal. Call this an 'argument domain'.

One might then frame this definition in purely syntactic terms. In a very influential line of research initiated by John Bowers (1993), small clauses and 'verb phrases' are taken to be maximal projections of a functional head PRED; that head is assumed to mediate the composition of a predicative expression (the complement of PRED) with a DP which saturates it (the specifier of PRED). Working within that tradition, one would simply identify an 'argument domain' as an instance of PREDP.

Ora Matushansky (2018), however, argues that appeal to such a head is unnecessary and unwelcome in contemporary contexts; she maintains that the independent arguments for the existence of such a head are weak. Reasonable theories of semantic composition do not require the mediation of a syntactic head for the final compositional step in the building of a small clause, while on the syntactic side, the transition from X-Bar Theory to Bare Phrase Structure means that a head may host multiple specifiers. The subject of the small clause can therefore be taken to occupy the outermost specifier position of the predicate itself. The need to postulate a PRED head thus drops away and the category of the small clause is that of its predicate – as was argued to be necessary by Stowell (1981) on the basis of selectional distinctions not easily captured in a PREDP framework (Stowell 1981, 1983, 1995). On this view, there is no unifying syntactic category to which all small clauses belong; the task of defining 'argument domain' in (3), therefore, cannot be as simple as identifying a syntactic category to which it corresponds. Matushansky urges instead that argument domains (including small clauses) be viewed as XP's which result from the last thematic merge to the extended projection of a lexical head (V, A, P, or N). We build on this intuition in proposing the definition in (4); we will, in turn, argue in section 4 that our resulting system can furnish an indirect argument against PREDP based on the isomorphism condition for ellipsis.[8]

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[7]See Chung and McCloskey 1987, for instance, and Citko 2011 for a perceptive overview. See also Svenonius 1994, Heycock and Kroch 1999, Bowers 2001, den Dikken 2006, Citko 2008 and especially Citko 2011: 751–755 and Basilico 2003.

[8]The understanding presented in (4) is very close to the notion of 'sentence radical' from Krifka 1989: 90. See also Langacker's (1974) 'eventive core'.

(4)   ARGUMENT DOMAIN

XP is the *argument domain* of an extended projection E if and only if it is the most inclusive projection in E which denotes a property of eventualities (is of type $<\epsilon, t>$).

The assumptions central to (4) are standard. The concept of 'extended projection' is the familiar one, which originates with Grimshaw 2005 and which undergirds a great deal of current research on clausal syntax. We assume in particular that an extended projection E is a sequence of heads (whose order is fixed, at least for a particular language), each of which projects the complement of its immediate predecessor. The initial members of E are functional (closed class) heads, but its final element is a lexical (open class) head – the 'main verb' in a standard verbal clause in English. Much of what we think of as clausal syntax (case, agreement, movement, constituent order, interpretation) is determined by combinatorial properties of the items which constitute E. It is a crucial property of this conception that the final element in the sequence E be an open-class head (or perhaps an acategorial root preceded by a categorizing head) whose selectional properties determine the argumental core of the clause (on this, see Grimshaw 2005: 7 and especially Williams 2009).

The definition in (4) also presupposes an event-based semantics of a now familiar kind, including the idea that verbal phrases denote properties of eventualities, as do small clauses. The compositional process then results in a shift in semantic type when functional elements above the vP-domain (aspect, polarity, tense, modals and so on) are folded in. The definition in (4) picks out the largest such constituent and so captures Matushansky's intuition that small clauses (and also vP) are the result of the final thematic merge. Consider, by way of illustration, the three examples in (5):

(5)   a.   Smith might have [t expected a promotion].
       b.   They must really want [this stuff out of here].
       c.   There must have been [three thousand people on that march].

The definition in (4) picks out the bracketed constituents in (5) as argument domains. In (5a) the extended projection terminates with the main verb *expect* and vP is the largest constituent of type $<\epsilon, t>$ within that extended projection. In (5b) and (5c) the most inclusive extended projection terminates with the verbs which select small clause complements (*want* in (5b), main verb *be* in (5c)); the lower extended projection (selected by the final element of the first) consists of the small clause itself and, since it too is of type $<\epsilon, t>$, it is an argument domain by (4). In cases such as (5b) and (5c), then, the extended projection of the small clause is coterminous with its argument domain.

With this much in place, what we need in order to capture the observations made so far is a condition which demands strict isomorphism between the argument domain of a clause targeted for elision by sluicing and a matching constituent accessible in the local discourse context. We define that condition in (6).[9] Given that the presence or absence of particular lexical items (selected prepositions, for instance) seems to be crucial in the licensing calculus, (6) follows a long tradition (including at least Ross 1967: 5.135, p. 348, Wasow 1972, Williams 1977 and especially Fiengo and May 1994) in requiring between an argument domain and its antecedent both token-identity of lexical items and parallel composition.

(6)   SYNTACTIC ISOMORPHISM CONDITION
   a.   The TP-complement of WH-C may be elided only if the lowest head in its extended projection projects or selects an argument domain XP which meets the condition in b.:
   b.   There is a phrase YP in the discourse context, such that for each pair of heads <a, b> in $\mathcal{H}$, the set of heads targeted for elision in XP, there is a pair of heads <a', b'> in YP such that:
       (i)   LEXICAL IDENTITY: a and a' are tokens of the same lexical item, b and b' are tokens of the same lexical item, and
       (ii)   STRUCTURAL IDENTITY: the path in XP between a and b is the same as the path in YP between a' and b'.

(6) formally captures the intuition that elided material and antecedent must be formed from the same set of lexical choices composed in the same manner.[10] As restricted by its first clause, it correctly permits all of the cases considered by Rudin (in which the elided vP is matched by a vP in the antecedent), but crucially it will also be satisfied when the argument domain is a small clause, as in the cases considered in the previous section.

Example (3e), for instance, has the schematic structure seen in (7):

(7)   With [$_{XP}$ the campaign on hold] – and who knows for how long [the campaign MODAL be [$_{XP}$ t on hold]] – …

Here, the elided clause contains an argument domain – the small clause headed by

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[9]A non-innocent simplification in (6) is that it entirely sets aside one of the most disturbing provisions found in all such proposals: the clause which allows any two elements paired in an anaphoric linkage to count as counterparts – to allow, that is, for what Fiengo and May (1994) call 'vehicle change' effects. Rudin (2019) is not so lax.

[10]In his analysis of sluicing to implicit verbal arguments, Bruening (2021) modifies identity calculations for sluicing to consider maximal projections, not heads. We briefly discuss differences between that approach and the present one in footnote 13.

the preposition *on* and selected by main verb *be*. Because it is selected by *be*, this small clause is in turn the complement of the final element of the higher extended projection (TP). It also has as an appropriately matching constituent in the immediate discourse context – the small clause complement of *with*. The condition in (6) is thereby satisfied. Note that this proposal allows us to capture the presence of an unmatched copular verb in the elision site via precisely the same logic that Rudin uses to capture the presence of the unmatched MODAL element, and we thus predict that certain vPs (but not argument domains) may mismatch between antecedent and elided clause. We return to the ramifications of this flexibility shortly.

In the case of (8a), the structure is roughly as in (8b):

(8) a. I have the students write a series of literature-reviews. How many is up to them

b. [$_{CP}$ how many [[$_{TP}$ the students MODAL [$_{vP}$ write t]]] is up to them.

Here, the argument domain of the elided clause is the vP and there is an appropriately isomorphic vP in the antecedent context – the vP complement of causative *have*.[11]

In (9) below, we articulate (8) a bit more closely. The argument domains in each clause are bounded by rectangles, and the heads within each that correspond are underlined, while those outside of the argument domain are marked in gray (we also mark the WH phrase and its correlate in gray).

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[11]When the argument domain of the lower extended projection is calculated, the selecting verb *have* cannot be included because *have* and the head of the small clause are in different extended projections. Of course one can also calculate the argument domain of the higher extended projection, the one which terminates with causative *have*. It is the availability of this possibility which allows for cases like (i):

(i)   They had us read all of *Ulysses*; I have no idea why.

in which the ellipsis site includes an occurrence of causative *have* and it, along with its argument domain, is matched in the antecedent.

(9)

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                         vP
                ┌─────────┴─────────┐
               DP                   v′
                │          ┌─────────┴──────────┐
                I       v_have                  vP
                                       ┌─────────┴─────────┐
                                      DP                   v′
                                   ┌───┴───┐       ┌────────┴────────┐
                              the students  v_act              VP
                                                          ┌──────┴──────┐
                                                        write          DP
                                                                    ┌───┴───┐
                                                                 a . . . reviews
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                         CP
                ┌─────────┴─────────┐
              DP_1                  TP
            ┌───┴───┐       ┌─────────┴─────────┐
          how many        DP_2                  T’
                        ┌───┴───┐       ┌─────────┴─────────┐
                  the students  T_pres                     vP
                                                  ┌──────────┴──────────┐
                                                 t_2                    v′
                                                              ┌─────────┴────────┐
                                                            v_act               VP
                                                                         ┌───────┴──────┐
                                                                       write           t_1
```
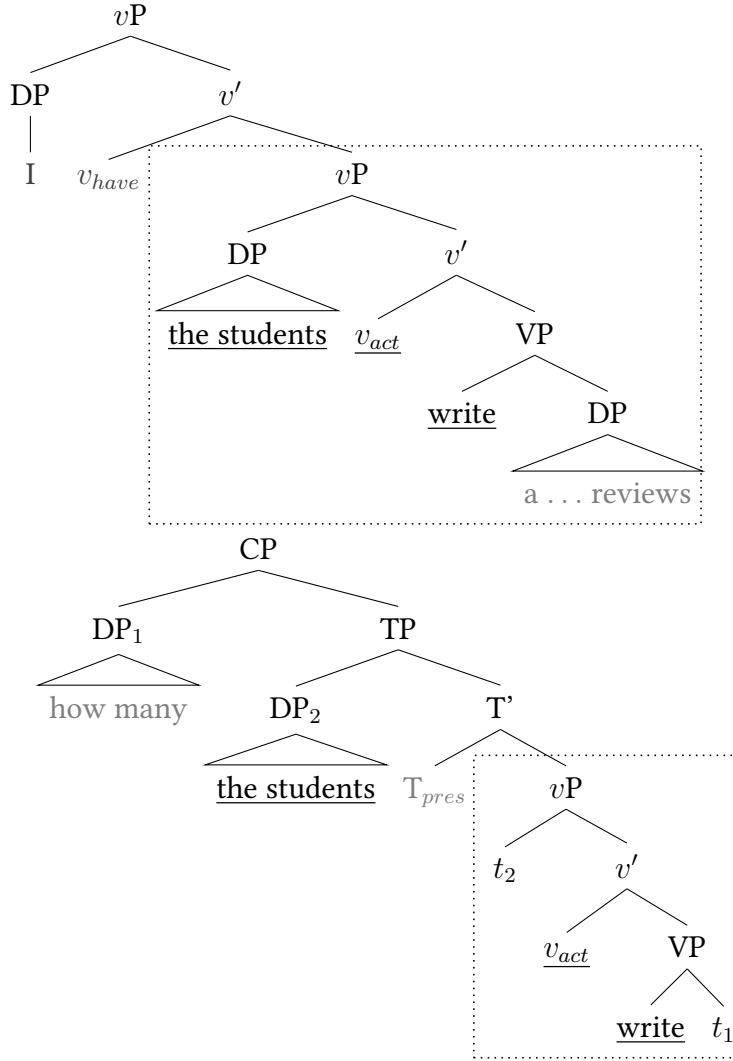
(8a), then, with the structure and interpretation indicated in (8b), satisfies the syntactic matching condition of (6). The ultimate well-formedness of such examples will then turn on whether conditions governing givenness, relevance to a QUD, discourse coherence and so on are satisfied with respect to the (entire) elided clause in its discourse context. Mismatches in voice, however, have no path to well-formedness. For an example like (10):

(10)   *All the rules around here have changed, but I just can't work out who.

it is difficult to see what pragmatic considerations might be sufficient to explain

the degree of felt ill-formedness. In such a case, however, there will be no way to meet the isomorphism condition in (6). Within the elided clause, the argument domain, according to the definition in (4), must be the transitive structure built around *change* – it is the largest sub-part of the extended projection which is of type $<\epsilon, t>$. It will necessarily then include the transitive-causative light verb which introduces the agent-causer argument. But the only available matching constituent is an unaccusative structure which, by the same reasoning, must include the unaccusative light verb which introduces no external argument. These are distinct lexical items and matching fails at the level of lexical identity.

By exactly similar reasoning, active-passive mismatches such as that in (11a):

(11) a. *It's important to establish when he was robbed and, more important, who.

  b. It's important to establish when he was robbed and, more important, who robbed him.

will fail on syntactic grounds, no matter how well they fare with respect to a condition grounded in semantic or pragmatic concerns – the argument domain within the elided clause must contain the transitive light verb, which is crucially distinct from the light verb which is characteristic of passive structures.

It is natural, in the context of (6), to assume that the terminal nodes of the ellipsis site are marked for non-pronunciation in the phonological component (see Bennett, Elfer, and McCloskey 2019 for references and arguments). In the context of multi-occurrence theories of movement, it is also natural to assume that only phrases which are fully contained in the ellipsis site are so marked. A phrase is in turn 'fully contained' within a constituent α if and only if all of its occurrences are within α. Material raised out of the constituent targeted for ellipsis will not be so marked and (6) will have no jurisdiction over them. As a consequence, they will not be required to have a counterpart in the antecedent argument domain. This is the basis for what has been termed 'sprouting' – instances of sluicing where the remnant wh-phrase lacks a syntactic correlate in the (apparent) antecedent TP (in Rudin's account, which assumes that movement involves distinct objects connected in a chain, tails and intermediate members of chains are not subject to identity restrictions).[12] The familiar contrasts related to sprouted PP's in (12) then fall into place.

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[12]Lower occurrences of moved phrases will be eliminated by the mechanisms which regulate non-pronunciation of lower occurrences in general. For a more detailed discussion of how (6) does its work here, see Rudin 2019: 258 and 269-70.

(12) a.   They're furious but it's unclear at who(m).
     b.   They're furious but it's unclear who at.
     c.   *They're furious but it's unclear who.

In (12a) the PP *at whom*, having undergone WH-movement, is not fully contained within the ellipsis site and is therefore not marked for elision and is not subject to the requirements of (6). The fact that it has no counterpart in the antecedent context therefore does not count against it. If (12b) involves pied piping and a subsequent internal re-ordering, the calculation of well-formedness proceeds exactly as in the case of (12a).[13] In (12c), however, there is an item within the argument domain of the elided clause (namely the possibly semantically vacuous preposition *at*) which has no counterpart in any argument domain in the local discourse context and the example has no path to well-formedness. This combination of assumptions thus yields an account of what has been called Chung's Generalization (Chung 2006, Chung, Ladusaw, and McCloskey 2011, Chung 2013) – the observation that a preposition can be stranded in a sluicing ellipsis site only if it is matched in the antecedent by an identical preposition in an identical web of syntactic relations.[14]

3. STRANDED PREPOSITIONS. This combination of assumptions also now gives rise to new expectations. Since formal isomorphism is required only within the argument domain, non-argument prepositional phrases merged above vP should be

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[13]If the preposition is not marked for elision – in virtue, say, of being, in some sense, focus-marked – the account in (6) is compatible with analyses (such as that in Ross 1969) in which the stranded preposition survives elision in place.

[14]Bruening's (2021) important recent study of implicit arguments and their interaction with sluicing also assumes a syntactic condition like that in (6). It too assumes that implicit arguments do not appear in syntactic representations. It also assumes, however, that implicit arguments involve the presence of syntactic heads – heads which adjoin to the lexical verb and have an important role in both the licensing and the interpretation of implicit arguments (determining, for instance, whether they are interpreted as narrow-scope indefinites or as definite-like, in the sense explored by Fillmore (1986)). The postulation of such heads is incompatible, given the head-based definition of isomorphism in (6), with the well-formedness of examples such as (12a) and many similar, since the crucial licensing head will appear in the antecedent but not in the ellipsis-site. For this reason, Bruening proposes to restrict identity calculation to maximal projections, arguing that, for example, active-passive mismatches involve the lack of a correspondent for a PassP phrase.

Ultimately these issues have less to do with how sluicing is computed than with how implicit arguments are to be analyzed – an important topic, but well beyond the scope of the present paper. We note, though, that the general approach advocated here is not incompatible with Bruening's system for implicit arguments. While we have assumed that predicates with and without implicit arguments are token identical, to be in conformity with Bruening's syntax for implicit arguments, we could define $\mathcal{H}$ of (6) to ignore heads which do not project (namely, those heads that license implicit arguments).

free of any matching requirement. We therefore expect to encounter (if all other conditions are met) well-formed exceptions to Chung's Generalization for non-argument prepositional phrases.

The annotation project described earlier (Anand, Hardt, and McCloskey 2021) unearthed a range of examples of exactly this type. In these cases (17 in all), annotators postulated a stranded preposition within a sluiced clause which lacks any counterpart in the antecedent clause. All such cases involve non-argument-marking prepositions. (13) and (14) present some representative examples (for embedded and root sluices respectively).

(13) a. "The board believes that a 'one-size-fits-all' approach to financial market regulation is inappropriate," Phillips said. "A particular market's characteristics determine whether government regulation is necessary, and if so, what form [government regulation is necessary IN]"   [138195]

b. When the officer asked me about her, I remembered meeting her but I couldn't say what date [I MET her ON].   [F38]

c. Decker was weaned in the world of investing by his father, who had also been a mutual fund manager. (Decker won't say which firm [his father had been a mutual fund manager AT]).   [89932]

(14) a. 'Hey, you work at Salomon? I have a friend who works at Salomon.' 'Really? What group [DOES THAT friend work at Salomon IN]?'[105278]

b. "Particularly when Jim, Pete, Andre and I play, it doesn't matter where, what surface [Jim, Pete, Andre and I play ON]," he said of Sampras, Agassi and Jim Courier.   [199504-12373]

c. "The first thing he said was so interesting that [he thought it was a period piece]," Scardino recalled. "I said 'What period [do you think it is a piece FROM]?' He said, 'Nineteen ninety-one.' '   [195676]

Of the 17 examples discovered, two were judged to be less than fully acceptable by the annotation team ((14c) was one of those – judged to be of 'medium' acceptability).

This complex of facts falls within the range of understanding given the proposals developed here. The extremely sharp contrast between the examples of (13) and (14) on the one hand and those, like (15), which originally motivated Chung's Generalization, provides dramatic confirmation of the divide which, in the calculus of antecedence for sluicing, separates the argument domain from other aspects of clausal organization.

(15) a. *He is very loyal, but I don't know who.
b. *The UN is transforming itself, but what remains unclear.

If the Isomorphism Condition is a hard constraint, the full unacceptability of cases like (15) is understood, as demonstrated earlier. Examples such as those in (13) and (14), by contrast, pass muster with respect to the isomorphism condition since it is not at all concerned with material outside the argument domain. Such examples however will inevitably involve movements from within non-argument PP's, movements that will give rise to characteristically weak Adjunct Island violations of the kind seen in (16):

(16) a. ?What form is government regulation necessary in?
     b. ?What date did you meet her on?
     c. ?What group does your friend work at Wells Fargo in?
     d. ?What period do you think this is a piece from?

If sluicing then applies to such structures, we should expect that the island-amnestying effect (Ross 1969, Chung, Ladusaw, and McCloskey 1995, Merchant 2001, among many others) should be in play, reducing the felt degree of unacceptability. Our understanding of how the island amelioration effect for sluicing interacts with the (already weak) adjunct island condition remains limited, but it seems reasonable to expect that such examples should be found in natural settings (unlike those in (15)), that they should be interpretable, and that they should not be judged fully acceptable or fully unacceptable by all speakers on all occasions. This seems to be exactly what we observe in the existence and status of examples like those in (13) and (14).

    We take it to be a strong argument in favor of the proposal in (6) that it provides a way of understanding such a complex array of facts, and in particular that it provides an understanding of the extremely stark contrast between the ways in which argument PP's and adjunct PP's behave under sluicing.[15]

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[15]A reviewer suggests that some examples of the type we discuss here could be analyzed as 'non-isomorphic' copular sluices of the kind we discuss in the section which follows. Such an analysis, however, is not available for the cases in (13) and (14), none of which have paraphrases in terms of *it be* which express what the sluice in fact expresses:

(i)   a. *... and if so what form it should/might be
      b. *... but I couldn't say what date it was.
      c. *... Decker won't say which firm it was.

(ii) a. *... What group was it?
      b. *... what surface it was.
      c. *... What period is it?

Appeal to possible cleft sources for the well-formed examples in (13) and (14) is not a useful analytic move here, since such sources are also available for the examples which originally motivated Chung's Generalization, but they are not repaired by the availability of this source:

4. Yᴇᴛ Sᴍᴀʟʟᴇʀ Aɴᴛᴇᴄᴇᴅᴇɴᴛs. Finally, there is a third new prediction to explore.

The treatment of sprouting in (6) interacts with the treatment of small clauses adopted earlier in a very particular way. Consider structures like (17), involving small clause complements to *be*:

(17) a. $[_{TP} \ldots \, be \; [_{SC} \, DP \quad XP \,]]$
   b.   There were $[_{SC}$ two thousand people on that march $]$.
   c.   Two thousand people were $[_{SC} \; t$ on that march $]$.

What kinds of sluicing should such structures support? The small clause complement of *be* is an argument domain and the clause which immediately contains it should be elidable as long as there is an appropriate antecedent of the form required by the Isomorphism Condition of (6). But elements moved out of TP are not targeted for elision and are not under the jurisdiction of (6); as we saw earlier, this is how there can be 'sprouting'. That being so, if the predicative XP of (17a) moves out of the clause which is to be elided, only the constituent which remains (the subject DP) will be required to have a counterpart in the discourse context. What we expect then is that there should be instances of sluicing in which an antecedent is readily identifiable but consists only of a nominal. The interpretation of the sluice, however, should imply the presence of a copula in the ellipsis site, with its associated functional superstructure. The wh-phrase of the sluice should supply the predicate for the small clause and the antecedent nominal should correspond to its subject.

Cases of this type are in fact common – at least 23 instances are attested in the annotated dataset already referred to. A representative sample is given in (18) and (19).

(18) a.   Bradley said that he has not shut the door to [a presidential race], though he would not say when [that presidential race MODAL BE].   [176498]
   b.   The doctors anticipate [a full recovery] for me, but they really don't know when [that recovery MODAL BE].   [76117]
   c.   He averaged nearly 30 points a game, and the compensation was all right: [a salary] somewhere in the $35,000 to $90,00 range – he won't say how much [that salary WAS] – plus expenses, the use of a car and a house.   [84065]
   d.   The Forest Service eventually agreed to the proposal, and Wood came

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(iii) a.   He is very proud, but I don't know what [it is that he is very proud of].
   b.   *He is very proud, but I don't know what.

The crucial contrast between argument-marking prepositions and adjunct-marking prepositions persists.

up with [a site] that seemed acceptable to the tribes. He won't reveal exactly where [that site IS], except to say that the location is easy to protect from pot hunters.   [173508]

The examples in (19) represent a notable subgroup of the general type. Here the ellipsis site expresses an existential proposition; again, the only structure shared by the ellipsis site and the antecedent context is a nominal – an indefinite which serves as the pivot of the existential in the elided clause. Among the clearer examples are those in (19):

(19) a.   [A cut] appears almost certain this year; the question is how soon [THERE MODAL BE a cut], and by how much [THERE MODAL BE a cut].   [15811]
    b.   Even the most conservative voices in the state seem resigned to the prospect of [a long costly court battle]. To what end [MODAL THERE BE a long costly court battle]?   [135056]

These are the copular 'non-isomorphic' sluices of recent discussions. They have come to prominence, in particular, in the long-running effort to assess apparent exceptions to Merchant's (2001) 'Preposition Stranding Generalization' and more recently in work which argues that the apparent island-amnestying property of sluicing is an illusion (Erteschik 1973, Rodrigues, Nevins, and Vicente 2006, van Craenenbroeck 2010b, Gribanova 2013, Barros 2014, Barros, Elliott, and Thoms 2014). Luis Vicente (2019: 4.1) provides a lucid overview of the phenomenon and the issues that it raises, the burden of which is that it is unclear how such cases can be assimilated to what he calls 'isomorphic sluicing' – sluicing of the more familiar type, in which the relation between elided material and the form of the antecedent seems more transparent. In fact, as a reviewer emphasizes, such copular sources have been problematic for years for any theory of ellipsis identity which includes a syntactic component. Under the account developed here, however, the existence of these cases is expected rather than anomalous. The elided clauses in (18) and (19) will have the pre-elision and pre-movement structures shown schematically in (20) and (21) respectively:

(20) a.   [$_{TP}$ T be [$_{SC}$ that presidential race [$_{PP}$ when]]]
    b.   [$_{TP}$ T be [$_{SC}$ that recovery [when]]]
    c.   [$_{TP}$ T be [$_{SC}$ that salary [how much]]]
    d.   [$_{TP}$ T be [$_{SC}$ that site [where]]]
(21)   [$_{TP}$ T be [$_{SC}$ a cut [how soon]]]

The relevant argument domain in each case is the small clause complement of *be*. But in all such cases, the predicate of the small clause has been raised by WH-

movement out of the TP which is to be elided and it is therefore exempt from any identity or parallelism requirements. The subject of the small clause must meet those requirements, though, and in the examples of (18) and (19) it does so in virtue of its relation with the nominal antecedent.

It is worth attending closely to how the requirements in (6) are satisfied in such cases, since they rely on some details whose importance may not be obvious at first blush. Let us consider (20a), which has the structure in (22) after movement. We have noted that because the PP containing the WH-phrase has moved outside the TP, it is exempt from identity requirements. This leaves only the DP in the argument domain, and hence the heads in $\mathcal{H}$ as indicated.

(22)   [$_{PP}$ when] C [$_{TP}$ T be [$_{SC}$ that presidential race t]]
          $\mathcal{H}$ = {that, presidential, race}

The corresponding YP in the antecedent for this argument domain is simply the DP marked below:

(23)   he has not shut the door to [$_{DP}$ a presidential race]

With this YP, the heads in $\mathcal{H}$ have matches in the antecedent, satisfying both lexical and structural identity (the determiners *a* and *that* correspond despite being lexically non-identical, a fact that follows from indexation conditions; see fn. 9 for discussion).

However, note that this argument rests crucially on Matushansky's claim that small clauses are not in fact headed by a null functional head PRED. Were such a head to exist, the structure of the elided clause would be the following:

(24)   [$_{PP}$ when] C [$_{TP}$ T be [$_{PREDP}$ [that presidential race] [PRED t]]]
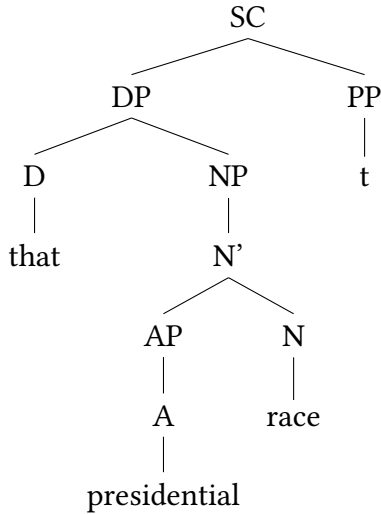 $\mathcal{H}$ = {that, presidential, race, PRED}

But there is no counterpart to PRED in the antecedent (23), which conspicuously lacks the predicational conditions that motivate PRED. Thus, we would expect examples like like (18) and and (19) to be impossible, as they would have no way of satisfying the lexical identity clause of the isomorphism condition in (6). The existence of these examples is, then, an additional argument for the position Matushansky advocates.

There is, however, a potential 'residue' of PRED in (22), namely the small clause SC node itself. A classical graph isomorphism constraint would require an argument domain and its YP counterpart in the antecedent to be identical, with each node n in the argument domain possessing a counterpart $m(n)$ in YP. Since SC comprises the argument domain, under a graph isomorphism condition, it would be subject to this matching requirement. But for the cases in (20), unlike the previ-

ous instances where the antecedent was a small clause, the sc node does not have a match in the antecedent, and ellipsis should therefore not be licensed. Rudin's condition, however, requires (lexical) identity only for the *heads* in the argument domain, correctly excluding the sc node from consideration.[16]

However, the structure in (22) is still problematic under Rudin's account when it comes to computing structural identity. To appreciate this, consider (25), a more articulated representation of the argument domain found in (22):

(25)

```
                            SC
                   ┌─────────┴─────────┐
                  DP                   PP
             ┌─────┴─────┐              │
             D          NP              t
             │           │
           that         N'
                   ┌─────┴─────┐
                  AP           N
                   │           │
                   A          race
                   │
             presidential
```

Informally speaking, the structural identity condition simply requires that the items in the elided clause's argument domain and its correspondent YP in the antecedent be arranged identically. For structures without movement there are many equivalent ways of formalizing that constraint. In a classical graph isomorphism constraint, the requirement would be that for any two nodes n_1 and n_2 in the argument domain connected by an edge in the tree, $m(n_1)$ and $m(n_2)$ are likewise connected by an edge. Rudin's own formulation in terms of domination chains, provided below for argument domains, is the transitive closure of that condition (since edges in a constituent tree simply reflect the immediate domination relation):

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[16] Appeal to the small clause structures of (23) may nevertheless seem excessively elaborate here. One might maintain instead that in such cases the DP of the elided clauses of (23b) and (23c) is itself the argument domain of the clause and that in such cases the isomorphism requirement is satisfied in virtue of its relation with the overt DP in the antecedent context. Assessing the viability of this alternative will involve assessing whether the 'bare DP' analysis of existentials is appropriate for such cases and the related but independent question of whether or not DP can ever, by itself, constitute an 'argument domain'.

(26)   Ellipsis of a TP is licensed only if it contains an argument domain XP
        such that there is a phrase YP in the discourse context, such that for each
        head x targeted for elision within XP, there is a head y in YP, x and y are
        tokens of the same lexical item and are dominated within XP and YP by
        identical series of immediately dominating heads.

Looking at (25), Rudin's condition means that the antecedent should, for example,
contain a token of *presidential* with the domination chain that starts with AP and
ends with an SC node. That is, because the SC is the argument domain, an SC node
dominates all heads in the argument domain, and hence an SC node should also
dominate all the heads in the DP in YP. As there is no such dominating node in the
antecedent, elision should be blocked because of a lack of structural identity.

In contrast, the structural identity condition in (6) does not require us to con-
sider the SC node. Instead, like Rudin's own lexical identity condition, it is for-
mulated solely in terms of the heads in XP. Thus, the requirement is that, for any
pair of heads a and b in $\mathcal{H}$ that are targeted for elision, the path between a and b
be mirrored in the antecedent YP. In (22), this means that we are looking at the
paths between *that*, *presidential* and *race*. None of the paths between these nodes
traverse the topmost SC node, and all of them are identical in the corresponding
DP in the antecedent YP. Crucially, paths that traverse the SC node would only be
relevant if the argument domain contained material outside of the DP, which is
not the case. And so the structural identity condition in (6) is met, predicting the
well-formedness of the structures in (20).[17]

This much, of course, does not provide a full understanding of the phenomenon
of 'non-isomorphic' sluicing. Attention must now focus on how such cases meet
pragmatic requirements and how they show the particular range of interpretive
possibilities that they do. But the strength of the proposal defended here is that it
provides a framework in which commonplace examples like (18) and (19) no longer
seem *sui generis* and no longer deserve to be called 'non-isomorphic'. Rather, they
take their place as one natural part of a well-defined typological landscape.[18]

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[17] A further prediction is that there should be examples in which the subject of the small clause is
extracted and in which only the predicate must be matched under ellipsis. Stockwell (2021) argues
that such cases are in fact attested, though they are admittedly difficult to find and to construct.

[18] Among the issues that remain is how we should treat sluices which derive from clefts, on which
see Rosen 1976, Merchant 2001, van Craenenbroeck 2010a, and Barros 2014. The general scheme
defended here will incorporate such cases if the focused phrase and the WH-clause together form a
small clause, as seems entirely plausible on independent grounds (the sequence of focused phrase
and WH-clause is a constituent and a complement of *be*; the WH-clause is standardly analyzed as
being predicated of the focused phrase). Extending the definition of 'argument domain' in (4) to
include such cases will be a challenging and interesting project and one which surely needs to be
undertaken for reasons that are entirely independent of ellipsis.

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5. CONCLUSION. We have been concerned in this paper with a long-standing puzzle concerning the role of syntax in licensing sluicing in English. The puzzle is that strict matching with an antecedent seems to be required for argument structure properties of the elided clause, while mismatches with the antecedent are easily tolerated in other aspects of clause structure (polarity, tense, modality, finiteness). We have provided new kinds of evidence for Rudin's (2019) solution to this puzzle, according to which formal matching is required only for that subdomain of the clause which is concerned with the expression of argument structure. Properties of the elided clause expressed outside that domain are subject to no such requirement and are free to diverge from those of the antecedent to the extent permitted by pragmatic and semantic calculations. Syntax leaves the matter open.

The new kinds of evidence we have brought to light force in turn a new understanding of the relatively small domain in which formal isomorphism is enforced, one which is cross-categorial and which corresponds closely to the intuitive notion of a 'predicative core' or the 'complete functional complex' familiar from work in binding theory.

The overall account which then emerges is in the tradition of so-called 'two-tier' approaches to the general problem of ellipsis licensing and resolution. Within this tradition, a condition of syntactic isomorphism acts to restrict the space of ellipses which are allowable on purely pragmatic grounds (see, for instance, Tancredi 1992, Rooth 1992: 10–13, Heim 1997: 9). In his initial presentation of the idea, Rooth emphasizes that the two conditions, being distinct, may have different domains of application, arguing in particular that for VP-ellipsis in English the condition which assesses pragmatic appropriateness has access to a more inclusive domain than that which is inspected by the condition of syntactic isomorphism. This is also the picture which emerges from our discussion of sluicing.

Such theories are open to the charge that they are insufficiently parsimonious (why two conditions rather than one?). In addition, the technical devices that must be appealed to in defining the isomorphism condition are elaborate enough that scepticism about them is clearly in order. There are also real concerns about the extreme non-locality of the interaction between ellipsis site and antecedent – syntactic interactions do not in general span such distances.

We entirely recognize the force of such concerns. But to develop more parsimonious alternatives, we must first understand what work the existing proposals do and what descriptive responsibilities an alternative or successor theory will inherit. If something along the lines of (6) survives such scrutiny, then an inter-

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A remaining mystery concerns cases of 'ignorance' or 'indifference' sluices with disjunctive antecedents (among many others see AnderBois 2011, AnderBois 2014, Barros 2014, and Fusco 2019), which remain as recalcitrant on this view as they always have.

esting research path opens out – what is it about the eventive core of a clause (Ramchand's (2008) 'First Phase Syntax') that makes it privileged, how should it be represented, and why should ellipsis (along with, perhaps, binding theory) be particularly concerned with it?

REFERENCES.

Anand, Pranav, Daniel Hardt, and James McCloskey. 2021. The Santa Cruz sluicing dataset. *Language* 97:e68–e88.
DOI: https//doi.org/10.1353/lan.2021.0009.

AnderBois, Scott. 2011. Sluicing as anaphora to issues. In *SALT XX: Proceedings of Semantics and Linguistic Theory XX*, ed. by Dan Li and David Lutz. Ithaca, NY: Cornell University, CLC Publications. Available at: http://elanguage.net/journals/salt/issue/view/220.

AnderBois, Scott. 2014. The semantics of sluicing: Beyond truth conditions. *Language* 90:887–926. DOI: https//doi.org/10.1353/lan.2014.0110.

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

Barros, Matthew, Patrick Elliott, and Gary Thoms. 2014. There is no island repair. Ms., Rutgers University, Heinrich Heine Universität Düsseldorf, NYU. Available on LingBuzz. URL: https://ling.auf.net/lingbuzz/002100.

Basilico, David. 2003. On the topic of small clauses. *Linguistic Inquiry* 34:1–35.

Bennett, Ryan, Emily Elfer, and James McCloskey. 2019. Prosody, focus, and ellipsis in Irish. *Language* 95:66–106.
DOI: https//doi.org/10.1353/lan.2019.0012.

Bowers, John. 1993. The syntax of predication. *Linguistic Inquiry* 24:591–656.

Bowers, John. 2001. Predication. In *The handbook of contemporary syntactic theory*, ed. by Mark Baltin and Chris Collins, 299–333. Malden, MA: Blackwell Publishing.

Bruening, Benjamin. 2021. Implicit arguments in English double object constructions. *Natural Language and Linguistic Theory* 39:1023–1085.
DOI: https//doi.org/10.1007/s11049-020-09498-4.

Chung, Sandra. 2006. Sluicing and the lexicon: The point of no return. In *Proceedings of the Thirty-First Annual Meeting of the Berkeley Linguistics Society*, ed. by Rebecca Cover and Yuni Kim, 73–91. Berkeley: University of California, 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 Rodrigo Gutiérrez-Bravo, Line Mikkelsen, and Eric Potsdam, 31–50. Santa Cruz: California Digital Library eScholarship Repository. Available at https://escholarship.org/uc/item/0vf4s9tk.

Chung, Sandra, and James McCloskey. 1987. Government, barriers and small clauses in modern Irish. *Linguistic Inquiry* 18:173–237.

Citko, Barbara. 2008. Small clauses reconsidered: Not so small and not all alike. *Lingua* 118:261–295.

Citko, Barbara. 2011. Small clauses. *Language and Linguistics Compass* 5/10:748–763.

van Craenenbroeck, Jeroen. 2010a. Invisible last resort: A note on clefts as the underlying source for sluicing. *Lingua* 120:1714–1726.

van Craenenbroeck, Jeroen. 2010b. *The syntax of ellipsis: Evidence from Dutch dialects*. Oxford Studies in Comparative Syntax. Oxford and New York: Oxford University Press.

den Dikken, Marcel. 2006. *Relators and linkers: The syntax of predication, predicate inversion and copulas*. Cambridge, MA: MIT Press.

Erteschik, Nomi. 1973. On the nature of island constraints. Doctoral dissertation, MIT.

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

Fillmore, Charles. 1986. Pragmatically controlled zero anaphora. In *Proceedings of the Twelfth Annual Meeting of the Berkeley Linguistics Society*, ed. by Vassiliki Nikiforidou, Mary VanClay, Mary Niepokuj, and Deborah Feder, 95–107. Berkeley: University of California, Berkeley Linguistics Society.

von Fintel, Kai. 1999. NPI licensing, Strawson entailment, and context dependency. *Journal of Semantics* 16:97–148.

Folli, Raffaella, and Heidi Harley. 2007. Causation, obligation, and argument structure: On the nature of little v. *Linguistic Inquiry* 38:197–218.

Fox, Danny. 1999. Focus, parallelism and accommodation. In *SALT IX: Proceedings of Semantics and Linguistic Theory IX*, ed. by Tanya Matthews and Devon Strolovitch, 70–90. Ithaca, NY: Cornell University, CLC Publications.

Fusco, Melissa. 2019. Sluicing on free choice. *Semantics and Pragmatics* 12:1–20. DOI: http://dx.doi.org/10.3765/sp.12.20.

Gribanova, Vera. 2013. Copular clauses, clefts, and putative sluicing in Uzbek. *Language* 89:830–882. DOI: https//doi.org/10.1353/lan.2013.0074.

Grimshaw, Jane. 2005. Extended projection. In *Words and structures.*, CSLI Lecture Notes 151, 1–74. Stanford, CA: CSLI Publications.

Hardt, Daniel. 1999. Dynamic interpretation of Verb Phrase ellipsis. *Linguistics and Philosophy* 22:187–221.

Heim, Irene. 1997. Predicates or formulas? Evidence from ellipsis. In *SALT VII: Proceedings from Semantics and Linguistic Theory VII*, ed. by Aaron Lawson, 197–221. Ithaca, NY: Cornell University, CLC Publications. DOI: https://doi.org/10.3765/salt.v7i0.2793.

Heycock, Caroline, and Anthony Kroch. 1999. Pseudocleft connectedness: Implications for the LF interface. *Linguistic Inquiry* 30:365–397.

Ishihara, Roberta. 1982. A study of absolute phrases in English within the Government Binding framework. Doctoral dissertation, University of California, San Diego.

Krifka, Manfred. 1989. Nominal reference, temporal constitution and quantification in event semantics. In *Semantics and contextual expression*, ed. by Renata Bartsch, Johan van Benthem, and P. von Emde Boas, 75–115. Dordrecht, The Netherlands: Foris Publications.

Kroll, Margaret. 2016. Polarity reversals under sluicing. In *Proceedings of Sinn und Bedeutung 21*. Edinburgh: School of Philosophy, Psychology and Language Sciences, University of Edinburgh.
DOI: https://semanticsarchive.net/Archive/DRjNjViN/index.html.

Kroll, Margaret. 2019. Polarity reversals under sluicing. *Semantics and Pragmatics* 12. DOI: http://dx.doi.org/10.3765/sp.12.18.

Kroll, Margaret, and Deniz Rudin. 2018. Identity and interpretation: Syntactic and pragmatic constraints on the acceptability of sluicing. In *NELS 47: Proceedings of the Forty Seventh Annual Meeting of the North East Linguistic Society*, ed. by Andrew Lamont and Katerina Tetzloff, volume Volume Two, 177–190. Amherst: University of Massachusetts, Graduate Student Linguistic Association.

Landau, Idan. 2022. Force mismatch in clausal ellipsis. Ben-Gurion University of the Negev.

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

Lasnik, Howard, and Kenshi Funakoshi. 2018. Ellipsis in transformational grammar. In *The Oxford handbook of ellipsis*, ed. by Jeroen van Craenenbroeck and Tanja Temmermann, Oxford Handbooks, 46–74. Oxford and New York: Oxford University Press.

Levin, Lori. 1982. Sluicing: A lexical interpretation procedure. In *The mental representation of grammatical relations*, ed. by Joan Bresnan, 590–654. Cambridge, MA: MIT Press.

Matushansky, Ora. 2018. Against the PredP theory of small clauses. *Linguistic Inquiry* 50:63–104.

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

Merchant, Jason. 2005. Revisiting syntactic identity conditions. Presented at the Workshop on Identity in Ellipsis, UC Berkeley, October 8, 2005.

Merchant, Jason. 2018. Verb-stranding predicate ellipsis in Greek, implicit arguments, and ellipsis-internal focus. In *A reasonable way to proceed: Es-*

says in honor of Jim McCloskey, ed. by Jason Merchant, Line Mikkelsen, Deniz Rudin, and Kelsey Sasaki, 229–270. Santa Cruz: University of California eScholarship Repository. Available at https://escholarship.org/uc/lrc_mccloskey.

Ramchand, Gillian Caitriona. 2008. *Verb meaning and the lexicon.* Number 116 in Cambridge Studies in Linguistics. Cambridge and New York: Cambridge University Press.

Rodrigues, Cilene, Andrew Nevins, and Luis Vicente. 2006. Cleaving the interactions between sluicing and P-stranding. In *Romance linguistics and linguistic theory 2006*, ed. by Danièle Torck and W. Leo Wetzels, Current Issues in Linguistic Theory 303, 175–198. Amsterdam: John Benjamins.

Rooth, Mats. 1992. Ellipsis redundancy and reduction redundancy. In *Proceedings of the Stuttgart Ellipsis Workshop*, ed. by Steve Berman and Arild Hestvik, volume 340 of *Arbeitspapiere des Sonderforschungsbereichs*, 1–26. Heidelberg: Universität Stuttgart.

Rosen, Carol. 1976. Guess what about? In *NELS 6: Proceedings of the Sixth Annual Meeting of the North East Linguistic Society*, ed. by A. Ford, J. Reighard, and R. Singh, 205–211. Montreal, Quebec: Montreal Working Papers in Linguistics.

Ross, John R. 1967. Constraints on variables in syntax. Doctoral dissertation, MIT. Published as *Infinite Syntax!.* Norwood, NJ: Ablex (1986).

Ross, John R. 1969. Guess who? In *CLS 5: Papers from the Fifth Regional Meeting of the Chicago Linguistic Society*, ed. by Robert Binnick, Alice Davison, Georgia Green, and Jerry Morgan, 252–286. Chicago IL: Chicago Linguistic Society.

Rudin, Deniz. 2019. Head-based syntactic identity in sluicing. *Linguistic Inquiry* 50:253–283.

Stockwell, Richard. 2021. Small clause predicates and sluicing. Ms., Oxford University.

Stowell, Timothy. 1981. Origins of phrase structure. Doctoral dissertation, MIT.

Stowell, Timothy. 1983. Subjects across categories. *The Linguistic Review* 2:285–312.

Stowell, Timothy. 1995. Remarks on clause structure. In *Small clauses*, ed. by Anna Cardinaletti and Maria Teresa Guasti, volume 28 of *Syntax and Semantics*, 271–286. San Diego and New York: Academic Press.

Svenonius, Peter. 1994. Dependent nexus: Subordinate predication structures in English and the Scandinavian languages. Doctoral dissertation, University of California, Santa Cruz.

Tancredi, Chrisropher. 1992. Deletion, deaccenting and presupposition. Doctoral dissertation, MIT.

Vicente, Luis. 2019. Sluicing and its subtypes. In *The Oxford handbook of ellipsis*, ed. by Jeroen van Craenenbroeck and Tanja Temmerman, Oxford Handbooks in Linguistics, chapter 20, 479–503. Oxford and New York: Oxford University Press.

de Vries, Mark. 2020. An exploration of multiple sluicing in Dutch. Paper presented to the Workshop on Ellipsis, Leiden University, January 24th, 2020.

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

Williams, Edwin. 1977. Discourse and logical form. *Linguistic Inquiry* 8:101–139.

Williams, Edwin. 2009. There is no alternative to cartography. In *Alternatives to cartography.*, ed. by Jeroen van Craenenbroeck, Studies in Generative Grammar 100, 361–374. Berlin and Boston: Mouton de Gruyter.

Wurmbrand, Susanne. 2003. *Infinitives: Restructuring and clause structure.* Number 35 in Studies in Generative Grammar. Berlin: Walter de Gruyter.

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