The Domain of Matching in Sluicing

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1 INTRODUCTION

In this paper we revisit a much-discussed issue in the theory of ellipsis by defending a particular proposal about how the antecedence condition on sluicing should be understood. That proposal extends and modifies one made by Deniz Rudin (2019). Its specific goals are (i) to add to the evidence supporting the existing proposal, (ii) to present a body of evidence which provides a new kind of support for the general approach and (iii) to argue that that new evidence also requires a natural and interesting generalization of the proposal. Rudin's discussion and the arguments presented here both grow out of a large-scale annotation project (the Santa Cruz Ellipsis Project) which identified and annotated 4,700 naturally occuring instances of sluicing in English (see Anand and McCloskey (2015), Anand et al. (2020)). We draw on the findings of that project here but in addition add some new observations. We deal only with English (beyond some brief observations) but we intend the proposal developed to be a claim about how sluicing works in general and our hope is to provoke further investigation which will test that claim.

The section which follows reviews some theoretical background and also some relevant findings from the annotation project.

2 BACKGROUND

ONE

It is a matter of active debate in the first place whether sluicing in fact requires a linguistic antecedent and in the second place what form such a requirement, if real, should take. The urge to be rid of antecedence conditions in general, on grounds of theoretical parsimony, is strong (see Ginzburg and Sag (2000) for a particularly forceful and influential discussion), but there remains a body of evidence which is hard to reconcile with that theoretical urge. One of the principal goals of our annotation project was to assess that evidence against a large body of naturalistic data.

In the dataset that then emerged, 99.7% of embedded sluices and 96.8% of root sluices have clearly identifiable antecedents. Closer analysis suggests that the observed difference between root and embedded cases is primarily attributable to a greater tolerance in root contexts for conventionalized uses of fragment WH-phrases (such as *what next*, *so what*, *how much* or, ironically, *guess who*) which mimic the properties of true sluices; see Anand et al. (2020) for a full discussion.

Close analysis also revealed no challenge to what seems to be the principal (perhaps the only) evidence for the existence of an antecedence condition on sluicing – the evidence which suggests that the elided clause in a sluice must be parallel in its argument structure with some clause in the local discourse context. Consider (1):

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

Ellipsis fails in such cases – apparently because of a failure of parallelism between the inchoative structure of the only available antecedent and the transitive structure of the elided clause (assuming that (1) has *who changed all the rules* as its pre-ellipsis structure).

Examples like (1) represent just one strand of a larger pattern of observation which suggests that congruence of argument structure between elided content and an antecedent clause is crucial for well-formedness in sluicing interactions (Merchant (2005)). Lori Levin (1982) established that with respect to the dative alternation in English, argument structure choices made in the antecedent must match those made in the sluiced clause:

(2) a.   He served the soup, but I don't know to who(m).
    b.   He served some of the guests, but I don't know what.

Otherwise, sluicing fails:

(3)   *He served the soup, but I don't know who(m).

In addition, it has been known at least since Merchant (2001) that sluicing, unlike VP-ellipsis, does not tolerate voice mismatches (Chung (2006), AnderBois (2011)).

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

The kind of parallelism requirement suggested by such cases might in principle be syntactic or semantic, but subsequent discoveries suggest a central role for syntax. Chung (2006, 2013) observes the contrasts in (5) – (7). In (5), there is no ellipsis:

(5) a. They're furious but it's unclear who they're furious at.
    b. The UN is transforming itself, but what it is transforming itself into remains unclear.

The option not to strand the preposition but to raise the containing PP (the 'pied piping' option) is of course also available. In that circumstance, sluicing is unproblematic and the outcomes are as in (6):

(6) a. They're furious but it's unclear at who/who at.
    b. The UN is transforming itself, but into what remains unclear.

Sluicing from the structures in (5), however, is impossible, as seen in (7).

(7) a. *They're furious but it's unclear who.
    b. *The UN is transforming itself, but what remains unclear.

The stark contrast between (6) and (7) seems to turn on a syntactic quirk. WH-movement may carry along the (semantically vacuous) preposition, lifting it out of the ellipsis-site; or it may target the WH-phrase alone, stranding a preposition within the ellipsis site which has no counterpart in the antecedent context. This circumstance, it seems, is fatal:

(8)   CHUNG'S GENERALIZATION: A preposition can be stranded in a sluicing ellipsis site only if it is matched by an identical preposition in the antecedent.

The fact that the effect described in (8) centers on 'case-marking' prepositions suggests that syntactic, rather than semantic, parallelism is what is at issue.[1]

These observations are critical. If sluicing is licensed solely by discourse-pragmatic factors such as givenness and relevance to a question under discussion, and if a phrase is given (in the typical case) when it recapitulates material in the linguistic record, most elided phrases will appear to have antecedents even if the concept 'antecedent' plays no role in ellipsis, beyond the role it may independently play in the theory of givenness. But such a reductionist view leaves unexplained cases which fail because argument structure congruence fails – (1), (3), (4), or (7). At present, no purely discourse-pragmatic account of such contrasts seems to be available. Sluicing is licensed, it seems, only when an antecedent can be retrieved from the local discourse context and a calculation of parallelism successfully run between the phrase retrieved and the phrase to be elided. See Lasnik and Funakoshi (2018) for an important overview and similar conclusions.

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[1]A complete understanding of (3) also requires an understanding of (8), since, alongside the derivation with mis-matched argument structures (where the source for (3) would be *He served the soup but I don't know who he served the soup*), a derivation whose starting point would have matched argument-structures (*He served the soup but I don't know who he served the soup to*) must also be blocked.

For these reasons, a long tradition of investigation holds that sluicing is possible only in the presence of an antecedent clause which is parallel to the clause targeted for elision in being composed from the same set of lexical choices (the same numeration in the sense of Chomsky (1995)) composed in the same way (Ross (1967: 5.135, p. 348), Wasow (1972), Williams (1977), Fiengo and May (1994), Rooth (1992), Heim (1997), Rudin (2019)).

TWO

This conclusion, though, seems to be at odds with the fact that compositional parallelism between antecedent and elided material does not always hold in well-formed instances of sluicing. Merchant (2001: §1.3, 19–25) documents a broad range of such failures and concludes from them that purely structural (as opposed to interpretive) approaches to the parallelism requirement cannot be maintained – a conclusion which sets the scene for his Revised Focus Condition (pp 26–37). Many additional cases have been documented since then (for an overview see, for instance, Vicente (2019)). The second goal of the annotation project was to provide a more comprehensive map than has so far been available of the range of possible mismatches in form and in interpretation between antecedent and elided clauses in sluicing. The present paper draws on those results (for an overview, see (Anand et al., 2020: §3.3, pp 13–20)) and adds additional observations. The focus throughout will be on interpretive, rather than formal, mismatches.

Among the more striking results to emerge from the annotation work was the prevalence of cases in which the antecedent and the elided clause differ in polarity – see Kroll and Rudin (2018), Rudin (2019), Kroll (2016, 2019), Anand et al. (2020: §3.3.3, pp 16–18) and Yoshida (2010) for an earlier discussion. Some examples of this type require the kind of careful pragmatic staging discussed by Kroll; others are judged routinely acceptable even in the absence of such staging.[2]

(9) a. 'Listen, about last night. I know it sounds like I'm obsessing over what happened to Dominic. But [it's not just that].'
        I could see her in the mirror, watching me from the doorway. 'What, then?'

        The Witch Elm, Tana French, Viking, p. 307

    b. [We'll win the game] or know the reason why!
        And when we win the game, we'll buy a keg of booze!

        I Want to Go Back to Ohio State.

    c. [Republicans can not compete with Clinton] at this level of the game. They don't know how . . .   [132033]

In (9a) and (9c), the antecedent is negative and the elided clause is positive; in (9b), the

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[2]In citing examples, the apparent antecedent is occasionally indicated by way of square brackets and elided content is indicated by way of square brackets and a grayed-out font. Examples cited from the annotated dataset (such as (9c)) are tagged with a unique numerical identifier. We owe (9b) to Deniz Rudin via Margaret Kroll.

antecedent is positive but the elided clause is negative.[3]

The annotation work also brought to light many well-formed instances of mismatch in tense, modality and finiteness. It was already well known from Merchant's work (see especially Merchant (2001: 22-25)) that the elided clause could differ from its apparent antecedent in finiteness, but such differences are not clearly significant in semantic terms. Mismatches in tense and modality, on the other hand, have been less investigated and less discussed. Many, in addition, involve substantial differences in meaning between the elided clause and its apparent antecedent. Anand et al. (2020: 13–16) review these findings; the examples in (10) and (11) are representative. Those in (10) have circumstantial necessity modals in the antecedent context; in (11), the antecedent modal is epistemic *must*.[4]

(10) a. She distanced herself from President Obama's heavily criticized comments about how ISIS is "contained," arguing that "it cannot be contained, [it must be defeated]." (How is still anyone's guess, in either party.) [F47]

b. This was a problem that [string theory had to solve], but for a long time it was not clear how. [F40]

(11) a. She tried to imagine his long, sensitive fingers cleaning and oiling a gun. She understood that he must be surviving, more or less, but she couldn't figure out how.

    Dinner at the Homesick Restaurant, Anne Tyler, Vintage Books, p. 71.

b. so he takes gravity instead as an 'endeavor,' capable of being certified 'mathematically' but itself now requiring a cause. But [this cause must somehow bridge the intervening spaces]. How?

    McMullin (1989: 294)

In the case of (10), the elided clause is understood as including a possibility modal like *could* or *might*, rather than the necessity modal of the apparent antecedent; for the two cases in (11), interpretations in terms of a simple past (in (11a)) or simple present (in (11b)) are also often available.[5] To confirm such intuitions, we consulted 25 native speakers of English (16 students of linguistics; 9 non-linguists) about their understanding of (11a) in an informal experiment conducted via email. Asked to provide possible paraphrases of

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[3](9c) may in addition involve a mismatch in finiteness, but that is not the only possible analysis.

[4]For (10a) one might instead assume that the antecedent is *it cannot be contained*, in which case this would be another example of polarity reversal. Probably all of these possibilities co-exist.

[5]We note in this regard that paraphrases for such examples which contain the modal of the apparent antecedent are degraded, particularly for the epistemic uses in (11); indeed, this kind of judgment of degradation was a key method for locating modality mismatches in our annotation process. We leave open here to what extent this is the result of pragmatic factors (such as relevance of the modal for the sluiced question) and grammatical constraints (such as restrictions on embedding of epistemic modals); see Anand and Hacquard (2013), Hacquard and Wellwood (2012) and references cited there for further discussion. These factors, whatever they are, are surely relevant for determining actually available interpretations for examples such as (10) and (11). Note, though, that if there were an antecedence condition which demanded item for item identity at the TP-level, sluices such as those in (10) and (11) should be as degraded as their overt counterparts. This is not what we observe.

the elided material in (11a), 20 offered the paraphrase: *he was surviving*; of those 20, 4 offered an additional possibility – a paraphrase involving a possibility modal (*he could be surviving* or *he might be surviving*). A different group of 4 respondents offered the paraphrase with *could* or *might* as their sole or primary understanding of the ellipsis. Of those four, one offered *he was surviving* as an additional possibility. Only one of the 25 respondents offered a paraphrase involving the modal of the antecedent clause (*must*).

Any framework which demands syntactic or semantic identity at the TP-level will find it difficult to accommodate the range of possible interpretations observed in such cases. It is also difficult to see how a theory committed to item-by-item parallelism between an elided TP and an antecedent TP can be maintained. The primary reading of (11a) involves matching *must* in the antecedent with a simple past in the ellipsis site; the secondary reading involves matching a necessity modal (*must*) with a possibility modal (*might* or *could*). Only the least favored reading (offered by one of 25 consultants) is predicted.

Notice that an appeal to under-specification and a looser requirement of nondistinctness between antecedent and elided clause (as in Ranero (2019)) will not be useful here. The mismatched elements in (11) – epistemic *must* and the simple past of the majority reading – are fully specified, syntactically and semantically. Sluicing proceeds despite the mismatch.[6]

It is in the face of such observations that Chung (2013: 30–31) and Rudin (2019) suggest that, in sluicing, compositional parallelism with an antecedent is not required of the entire elided content (that is, at the level of TP); strict identity is enforced only over a sub-domain of the elided content – the argumental core of the clause, taken here to be *v*P.

The strength of this proposal is that it resolves the apparent dilemmas laid out above – there is an antecedence requirement and it enforces argument structure congruence down to the level of detail that Chung's Generalization suggests is needed. For content expressed in the extended clausal projection above *v*P, however, requirements are weaker – whether or not ellipsis can proceed depends on the interplay among focus, givenness, relevance to a QUD in the sense of Roberts (2012, 2010) and the limits of accommodation (Fox (1999)). The morphosyntactic matching condition which is the focus of the present paper represents, then, one tier of a two-tier theory of ellipsis licensing (as in Rooth (1992) and Heim (1997) for VP-ellipsis). The *v*P-level parallelism condition has the effect of sharply narrowing the space of licensing relationships that would otherwise be permitted, blocking in particular all of those categorized above as failures of 'argument structure congruence'.

In all of the examples of (9)–(11) the *v*P-level parallelism requirement is clearly met and

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[6]Mark de Vries (2020) points out that similar mismatches are found in Dutch. He cites (i):

(i)   Ik wil dit best   doen,   maar ik weet niet hoe.
        I   want this indeed do.NON-FIN but   I   know not how
        'I indeed want to do this but I don't know how.'

and points out that the saliently available interpretation implies the presence of a modal like 'can' in the ellipsis site – not present in the antecedent clause. Rudin (2019: 271) reports similar observations for German, citing Andreas Walker.

their well-formedness is expected. It will fall therefore to the discourse-based condition to provide an understanding of the range of interpretations that they allow. We cannot develop that theory in this brief paper, but it is worth pointing out that at least in the case of (11), the rich tradition of work on the semantics and pragmatics of epistemic *must* provides many promising leads, having to do especially with how its 'weakness' is to be understood and the closely related question of what entailment relations it suppports.[7]

Standing back a little, though, the single most important property of this overall view may be that it provides an additional source for the inherent non-determinism of ellipsis, one based on novel (but unpronounced) lexical content. Viewed as a problem to be solved, ellipsis resolution is one which often permits multiple solutions. Theoretical discussion of these kinds of facts has often focused on how the choice among multiple available antecedents can give rise to ambiguity. But the examples in (11) crucially do not involve a choice between multiple candidate antecedent TP's, and so theories which enforce syntactic or semantic identity at the TP-level are ill-equipped to model their interpretive flexibility.

3   SMALL ANTECEDENTS

The annotation project also brought to light examples of a type which does not seem to have been discussed before but which is important for the issues we are concerned with here. These are cases 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 (12), all involving small clause complements to perception verbs, are representative.

(12) 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]

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[7]See especially Karttunen (1972), Kratzer (1991), von Fintel and Gillies (2001), Lassiter (2016), Portner (2009), Giannakiodou and Mari (2016), and Goodhue (2017). Unsurprisingly, the theory of *must* has consequences for the precise character of the discourse-based conditioned. For instance, according to the classical, or 'strong' theory of the semantics of *must* argued for by von Fintel and Gillies (2001), *must (p)* entails *p* and therefore *possible (p)* (and the weakness of *must* is the result of an evidential presupposition). The local context update triggered by a use of epistemic *must* will therefore entail both *p* and *possible (p)*. When we combine this proposal with the logic of Kroll's (2019) treatment of polarity reversals under sluicing, we expect the two principal readings of examples like (11a). In contrast, Lassiter (2016) argues for a weaker probabilistic semantics for *must p* that does not entail *p*, deriving the apparent strength of *must p* from pragmatic competition. Coupled with this semantics, Kroll's pragmatic licensing condition would require a contextual entailment from *must p* to *p*, thus predicting that we should be able to construct scenarios where an apparent antecedent containing *must* cannot license a simple past in the ellipsis site; see Del Pinal and Waldon (2019) for some inspiration.

The project annotators identified the antecedents indicated by square brackets in (12) – small clauses all – and supplied the paraphrases in (13):

(13) 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, if these decisions are correct, 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 guise, must proceed as it would in the absence of ellipsis, that clause, in examples like (12), 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). Such cases, then, pose a substantial challenge for a condition of syntactic or semantic identity calculated at the level of the elided constituent.

We believe that the annotators were correct in their decisions about these cases, but the issues that need to be resolved in reaching that conclusion can be subtle. Fortunately though, once the imagination has been stimulated by the corpus data, it is not difficult to construct new examples which are less encumbered by possible confounds. Consider the examples in (14).[8]

(14) 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.

It is clearly possible to have a small clause-internal merge site for *when* in (14a) (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 is one which emerged in our annotation practice to tag the many examples in our data-set (703 to be exact) in which the interpretation of the elided clause contained a modal of vague or ambiguous force or flavor (see the discussion of (11a) in the previous section).

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[8]Example (14d) is a slightly adjusted version of an example from the annotated dataset – example 115760.

Similarly in (14b), 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 underdetermined but appropriate to context. Equally clearly, the meaning of the elided clause in (14c) 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*. (14d) 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. (14e), 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.

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 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 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.[9] The meaning of the unmatched functional material is underspecified but appropriate to the discourse context.

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[9]One might avoid the text conclusion by claiming that the C which licenses sluicing may directly select small clause complements. This is of course technically possible. But, as stressed by Yoshida (2010), 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 (14) and (12) have fully articulated, but necessarily silent, extended projections. Our own assessment is that the empirical and theoretical gains that have been won by reduced-complement analyses should not be so easily given up (among many others, see Folli and Harley (2007), Wurmbrand (2003)). Such a response would in addition leave untouched the concerns of section 2 – legal mismatches in polarity, tense, and modality.

These observations are very much in harmony with the general thrust of Rudin's (2019) proposals, since they strongly reinforce the surprising conclusion that, if there actually is a requirement of 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, an amendment to that condition is proposed which allows both for the cases that originally motivated it and for the results of the present discussion. With the amended condition in hand, two other phenomena are considered (one new, one better known) which also then fall within the range of understanding.

4   THE ISOMORPHISM CONDITION

Rudin's (2019) proposals were developed against the background of the kind of data we reviewed in section 2; they are therefore designed to enforce strict identity within vP but to allow mismatches (formal and interpretive) within the inflectional layer of the elided clause. Given that the presence or absence of particular lexical items seems to be crucial – particularly for the group of effects called here Chung's Generalization, as stated in (8) above – the condition is defined as an item-for-item matching condition over the vP domain. The effect is to enforce argument structure congruence strictly, but to allow flexibility under ellipsis in other aspects of clausal organization and interpretation. The revised (and somewhat simplified) statement of the isomorphism condition in (15) assumes the same approach to the data of section 2 but also generalizes the crucial part of the definition in order to deal with the small clause examples of section 3.[10]

(15)   SYNTACTIC ISOMORPHISM CONDITION
   a.   The TP-complement of WH-C may be elided only if it is the extended projection (in the sense of Grimshaw (1991)) of an argument domain – XP – which meets the condition in b.:
   b.   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 nodes.

The term 'argument domain' in (15) is intended syntactically – its extension is a set of syntactic expressions, a set which includes small clauses of various types and also the maximal verbal projection of full clauses. These are, then, bare predicational complexes – phrases which include a lexical head (verbal, prepositional, adjectival or nominal) in composition with all of its arguments, external and internal. Given that a major theme

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[10]A non-innocent simplification in (15) 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.

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,[11] the amendment proposed here is, in theoretical terms, a natural generalization of Rudin's proposal.

One might then frame the definition of 'argument domain' 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 the 'argument domain' of (15) with PREDP.

Ora Matushansky (2018), however, has argued that appeal to such a head is unnecessary in the context of recent theoretical developments; she argues further 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 (15), therefore, cannot be as simple as identifying a syntactic category to which it corresponds.

The alternative view urged by Matushansky (in terms of the parallel processes of syntactic and semantic composition) is built into the definition of 'argument domain' presented in (16):[12]

(16)   ARGUMENT DOMAIN
         XP is an *argument domain* iff it is the result of the last thematic merge to the extended projection of a lexical head (V, A, P, or N).

A 'thematic merge' in turn is an application of MERGE which results, on the semantic side, in the introduction of a thematic restriction such as AGENT(x, e) (where e is a variable over eventualities and x is a variable over participants in e). The requirement that the crucial application of MERGE be the last one to introduce such a restriction ensures that the phrase thereby constructed will correspond to a property of eventualities that meets the thematic restrictions of the corresponding lexical head.

Going farther in precision than (16) goes at present would take us far from our central purpose. We will be content with (16) as it stands, then, because it seems clear enough

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[11]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).

[12]The understanding presented in (16) is very close to the notion of 'sentence radical' from Krifka (1989: 90). See also Langacker's (1974) 'eventive core'.

to allow the discussion to go forward usefully. Before proceeding to the details, though, it may be worth pointing out that this conception of the 'argument domain' is very close to the Complete Functional Complex of classical Binding Theory (Chomsky (1981, 1986), also Charnavel and Sportiche (2016)) – with the important difference that the CFC for Binding Theory must include a 'subject'.[13]

Given (16), the isomorphism condition in (15) will correctly permit all of the cases involving mismatches in the extended projection above vP (in polarity, tense and modality). But, in contrast to Rudin's (2019) restriction of argument domains to vPs alone, it will crucially also be satisfied in the small clause cases discussed in the previous section – in (12) and in (14). In (14e), for instance, the shared argument domain is headed by the preposition *on* and an appropriately matched XP forms the argumental core of which the elided clause is an extended projection:

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

The ultimate well-formedness of such examples will then turn on whether conditions governing givenness, relevance and so on are satisfied with respect to the (entire) elided clause in its discourse context.

It is natural, in the context of (15), to assume that the terminal nodes of the ellipsis site are marked for non-pronunciation in the phonological component (see Bennett et al. (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 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 (15) 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 material lacks a syntactic correlate in the (apparent) antecedent TP.[14] The familiar contrasts related to sprouted PP's in (18) then fall into place.

(18) 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 (18a) 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 (15). The fact that it has no counterpart in the antecedent context therefore does not count

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[13]It is tempting to speculate that this difference reflects the role of the CFC in regulating binding relations. The principal role played by the subject requirement in definitions of the CFC for binding is to ensure that the relevant domain contain a potential binder for anaphors and pronouns.

[14]Lower occurences 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 (15) does its work here, see (Rudin, 2019: 258 and 269-70).

against it. If (18b) involves pied piping and a subsequent internal re-ordering, the calculation of well-formedness proceeds exactly as in the case of (18a).[15] In (18c), however, there is an item within the argument domain of the elided clause (namely the 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 Chung's Generalization.

It also gives rise to a prediction. Since isomorphism is required only within the argument domain, non-argument prepositional phrases merged above a *v*P argument domain should give rise to exceptions to Chung's Genericalization as stated in (8), though as we discuss momentarily, they may run afoul of independent restrictions on movement.

First though, some data: our annotation work unearthed examples of exactly the type just described. In these cases (17 in all), there is a stranded preposition within a sluiced clause which has no counterpart in the antecedent – they are, in that sense, analogous to (7) and exceptions to Chung's Generalization as stated in (8). All involve non-argument-marking prepositions. (19) and (20) present some representative examples. (for root and embedded sluices respectively).

(19) a. He says [America was once a better place] and that he knows it because he was there. What decade [was America a better place IN]?   [138872]

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

c. "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]

d. "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]

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

b. 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]

Of the 17 examples uncovered, two were judged to be less than fully acceptable by annotators ((19d) 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 very sharp contrast between the examples of (19) and (20) on the one hand and those, like (21), which originally motivated Chung's Generalization provides strong confirmation of the divide which, in the calculus of antecedence for sluicing, separates the

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[15]If the preposition is not marked for elision – in virtue, say, of being, in some sense, focus-marked – the account in (15) is compatible with analyses (such as that in Ross (1969)) in which the stranded preposition survives elision in place.

argument domain from other aspects of clausal organization.

(21) a. *He served the soup, 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 (21) is understood, as demonstrated earlier. Examples such as those in (19) and (20), by contrast, pass muster as far as the isomorphism condition is concerned. But they involve preposition-stranding movements from within non-argument PP's, movements that will give rise to (characteristically weak) Adjunct Island violations of the kind seen in (22):

(22) a. ?What decade was America a better place in?
b. ?What group does your friend work at Wells Fargo in?
c. ?What period do you think this is a piece from?
d. ?What date did you meet her on?

If sluicing then applies to such structures, we should expect that the island-amnestying effect (Ross (1969), Chung et al. (1995), Merchant (2001), Barros et al. (2014) 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 weak island condition is quite limited, but it seems reasonable to expect that such examples should be found in natural settings (unlike those in (22)), that they should be interpretable, and that they should not be judged fully acceptable by all speakers on all occasions. This seems to be exactly what we observe in the existence and status of examples like those in (19) and (20).

5   YET SMALLER ANTECEDENTS

The treatment of sprouting in (15) interacts with the treatment of small clauses adopted earlier in a very particular way. Consider small clause complements to *be*:

(23) a. [TP ... *be* [SC DP   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 is its extended projection should be elidable as long as there is an appropriate antecedent of the form required by the Isomorphism Condition. But elements which moved out of TP are not targeted for elision and are not under the jurisdiction of (15) (this is, as we saw earlier, how there can be 'sprouting'). That being so, if the predicative XP of (23a) 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.

In fact, such cases are common – at least 23 instances are attested in our annotated dataset. We present a representative sample in (24) and (25).

(24) 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 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 (25) represent a notable sub-group 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. Among the clearer examples are those in (25):

(25) 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. The existence of such cases first came to light 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 (Rodrigues et al. (2006), van Craenenbroeck (2010b), Gribanova (2013), Barros (2014), Barros et al. (2014)). Vicente (2019: 4.1) provides a lucid overview of the phenomenom and the issues it raises, the burden of which is that it is unclear at best 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 is more transparent. But the existence of these cases is expected rather than anomalous in the system articulated here. The elided clauses in (24) and (25) will have the pre-elision and pre-movement structures shown schematically in (26) and (27) respectively:

(26) 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]]]

(27)   [$_{TP}$ 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 matching requirement. The subject of the small clause must meet that requirement, though, and in the examples of (24) and (25) it does so in its relation with the nominal antecedent.[16] Note that it is now crucial that Matushansky is correct that small clauses are not in fact headed by a null functional head PRED. If there were such a head between the subject and the predicate of the small clauses in (26) and (27), it would have no counterpart in the antecedent context when sluicing applies and examples like (24) and (25) should be impossible. There is in these observations, then, an additional argument for the position Matushansky advocates.

This much is barely a beginning in the effort to fully understand the phenomenon of 'non-isomorphic' sluicing. Attention must now focus on how it is that such cases meet discourse requirements and the clearly related question of why they show the limited range of interpretive possibilities that they do. In addition, the assumptions just outlined predict that there should be cases just like those in (24) and (25) except that they involve extraction of the subject of the small clause rather than its predicate. If such cases exist, they have not so far been observed.[17]

These questions all represent substantial challenges; but they are surely the right kinds of questions to ask. Meanwhile it seems reasonable to maintain that it is a strength of the framework defended here that it provides a framework in which commonplace examples like (24) and (25) 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.

6   CONCLUSION

In this paper we have amended, and provided additional support for, Rudin's (2019) proposals about the licensing of sluicing. The core idea is that a requirement of morphosyntactic structure-matching plays a relatively limited, but nevertheless crucial, role in the licensing of sluicing: formal matching is assessed only over a proper subpart of the elided clause, that concerned with the expression of core argument structure properties. The additional

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[16]Appeal to the small clause structures of (26) may seem excessively elaborate here. One might maintain instead that in such cases the DP of the elided clauses of (26b) and (26c) 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'.

[17]A related and equally important question centers on the possibility of sluices which derive from clefts, on which see Rosen (1976), Merchant (2001), van Craenenbroeck (2010a), Barros (2014). The general scheme defended here might incorporate such cases if the focused phrase and the WH-clause together form a small clause, as seems entirely plausible on independent grounds. Extending the definition of 'argument domain' in (16) to include such cases would be a challenging and interesting project.

evidence presented here centers mainly on cases in which the antecedent for sluicing is strikingly small, but nevertheless required. When syntactic conditions are so limited in their purview, many important properties of sluices (their polarity, modality and tense, for example) depend on purely pragmatic and semantic calculations. Syntax leaves the matter open.

From a certain standpoint, the shrinking of the domain subject to syntactic isomorphism may appear odd, or even counterintuitive. However the facts suggest that such a shift is needed. In addition, it is worth noting that a similar kind of asymmetry is characteristic of an important tradition in the investigation of ellipsis – one which argues for a division of theoretical labor in which a condition of syntactic isomorphism acts alongside a fundamentally pragmatic condition to restrict the space of possible ellipses (see, for instance, Tancredi (1992), Rooth (1992: 10–13), Heim (1997: 9)). The framework articulated here is squarely within this tradition. In his initial presentation of the idea, Rooth stresses that the two conditions, being distinct, may have different domains of application. He argues, in particular, that the condition which assesses pragmatic appropriateness frequently inspects a significantly larger domain than the one that the narrow syntactic condition has access to.

Nevertheless, it should be acknowledged that the invocation of a syntactic 'argument domain' in the licensing of ellipsis raises a host of provocative questions for syntactic theory (non-locality perhaps most provocatively of all). Some may see these provocations as reason enough to push towards an entirely pragmatic or semantic view of the licensing of sluicing. If such a view can be developed in a way which deals successfully with the observations reviewed in section 2, that would represent a welcome step towards theoretical parsimony. Hopefully the data and the arguments presented here can serve as an encouragement to look the relevant issues squarely in the face.

If something along the lines of (15) survives such a scrutiny, further questions arise. We need to understand why the predicative core of a clause (what Gillian Ramchand (2008) has called 'First Phase Syntax') should be privileged, how it should be represented, and why at least some ellipsis processes (along with other domains such as, perhaps, binding theory) should be concerned with it.

REFERENCES

Anand, Pranav, and Valentine Hacquard. 2013. Epistemics and attitudes. *Semantics and Pragmatics* 6:1–59. DOI: http://dx.doi.org/10.3765/sp.6.8.

Anand, Pranav, Daniel Hardt, and James McCloskey. 2020. The Santa Cruz sluicing dataset. To appear in *Language*. Available for download at: https://babel.ucsc.edu/SCEP/Downloads.

Anand, Pranav, and Jim McCloskey. 2015. Annotating the implicit content of sluices. In *Proceedings of the Ninth Linguistic Annotation Workshop*, LAW IX '10, 178–187. Denver, Colorado, USA: Association for Computational Linguistics.
URL: https://www.aclweb.org/anthology/W15-1600/.

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. LSA and CLC Publications. Available at: http://elanguage.net/journals/salt/issue/view/220.

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

Barros, Matt, Patrick Elliott, and Gary Thoms. 2014. There is no island repair. 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.

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, Massachusetts: Blackwell Publishing.

Charnavel, Isabelle, and Dominique Sportiche. 2016. Anaphor binding – what french inanimate anaphors show. *Linguistic Inquiry* 47:35–87.

Chomsky, Noam. 1981. *Lectures on government and binding*. Dordrecht, The Netherlands: Foris.

Chomsky, Noam. 1986. *Knowledge of language*. New York: Praeger.

Chomsky, Noam. 1995. *The minimalist program*. Cambridge, Massachusetts: MIT Press.

Chung, Sandra. 2006. Sluicing and the lexicon: The point of no return. In *BLS 31, Proceedings of the Thirty-First Annual Meeting of the Berkeley Linguistics Society*, ed. by Rebecca Cover and Yuni Kim, 73–91. Berkeley California: Department of Linguistics, UC Berkeley.

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, 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.

Del Pinal, Guillermo, and Brandon Waldon. 2019. Modals under epistemic tension. *Natural Language Semantics* 27:135–188.

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

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

von Fintel, Kai, and Anthony Gillies. 2001. Must . . . stay . . . strong! *Natural Language Semantics* 18:351–383.

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, New York: Cornell University, CLC Publications.

Giannakiodou, Anastasia, and Alda Mari. 2016. Epistemic future and epistemic *must*: Non-veridicality, evidence, and partial knowledge. In *Mood, aspect, and modality revisited: New answers to old questions*, ed. by Joanna Błaszczak, Anastasia Giannakidou, Dorota Klimek-Jankowska, and Krzysztof Migdalski, 75–117. Chicago, Illinois: U. Chicago Press.

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

Goodhue, Daniel. 2017. Must ϕ is felicitous only if ϕ is unknown. *Semantics and Pragmatics* 10.14. DOI: http://dx.doi.org/10.3765/sp.10.14.

Gribanova, Vera. 2013. Copular clauses, clefts, and putative sluicing in Uzbek. *Language* 89:830–882.

Grimshaw, Jane. 1991. Extended projection. Published 2005 in *Words and Structures*, Stanford, California: CSLI Publications: 1–74.

Hacquard, Valentine, and Alexis Wellwood. 2012. Embedding epistemic modals in English: A corpus-based study. *Semantics and Pragmatics* 5:1–29. DOI: http://dx.doi.org/10.3765/sp.5.4.

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, New York: 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.

Karttunen, Lauri. 1972. *Possible* and *must*. In *Syntax and semantics, Volume One*, ed. by John Kimball, 1–20. New York and San Diego: Academic Press.

Kratzer, Angelika. 1991. Modality. In *Semantics: An international handbook of contemporary research*, ed. by Arnim von Stechow and Dieter Wunderlich, 639–650. Berlin: Mouton de Gruyter.

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, Massachusetts: GLSA.

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.

Lassiter, Daniel. 2016. *Must*, knowledge. and (in)directness. *Natural Language Semantics* 24:117–163.

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

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

McMullin, Ernan. 1989. The explanation of distant action: Historical notes. In *Philosophical consequences of Quantum Theory – reflections on Bell's Theorem*, ed. by James T. Cushing and Ernan McMullin, 272–302. South Bend, Indiana: University of Notre Dame Press.

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.

Portner, Paul. 2009. *Modality*. Oxford Surveys in Semantics and Pragmatics. Oxford and New York: Oxford University Press.

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

Ranero, Rodrigo. 2019. The eventive core is *not* special in ellipsis: A reply to Rudin 2018. MS., University of Maryland.

Roberts, Craige. 2010. Ellipsis and retrievability. Manuscript, Department of Linguistics, The Ohio State University. Text of a Presentation at the University of Chicago, March 4, 2010.

Roberts, Craige. 2012. Information structure: Towards an integrated formal theory of pragmatics. *Semantics and Pragmatics* 5:1–69.

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: New Jersey: 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 Illinois: Chicago Linguistic Society.

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

Stowell, Timothy. 1981. Origins of phrase structure. Doctoral dissertation, Massachusetts Institute of Technology.

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, Chris. 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, Massachusetts Institute of Technology.

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

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.