

## Syntax 5: Assignment 5

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### I. Introduction

*Ambiguous.*

The aim of this paper is to consider the syntax of sluicing in both English and German, to establish the exact syntax of a sluice, to determine whether or not there is structure in the silence, and to establish the identity condition that must be fulfilled in order for sluicing to take place. We will consider the relevant data at hand, and then use our observations to determine the optimal identity condition for sluicing.

### II. The Basics of Sluicing

Sluicing is an ellipsis process that requires the presence of a constituent question that contains a *Wh*-phrase, and that results in the elision of all of the information contained within that constituent question, with the exception of the *Wh*-phrase. Sluicing can be characterized (in its most basic form) in the following sentences.

1. Somebody just left. -- Guess who just left.
2. Somebody just left. -- Guess who \_\_\_ .

This pair of sentences shows one of the standard contexts in which sluicing can take place, and the sentence that results from such elision. Sluicing is authorized not only by *who*, but by a whole host of *Wh*-phrases. This is apparent from the following example.

3. He is writing (something), but you can't imagine {what/why/where/how/how fast/to whom/  
for whom/with whom} \_\_\_ .

Sentence 3 makes it quite clear that sluicing can be licensed by any number of *Wh*-words. Moreover, it shows that the remnant left behind after sluicing is a *Wh*-phrase rather than a *Wh*-word. This is illustrated by the number of prepositional phrases that are accepted as remnants.

Now that we have considered the basic context of sluicing, we ought to consider three issues that are typically considered with respect to ellipsis processes. Namely, can sluicing go backwards, is it bounded, and does it obey island constraints. When asking if an ellipsis process can go backwards, we are trying to determine whether the elision site can be found before the antecedent.

4. I don't know when \_\_\_ , but I know that he went to Australia.

The fact that this sentence is grammatical illustrates the fact that sluicing can go backwards. We can now consider whether or not sluicing is bounded, for which we ought to consider a sentence in which the antecedent and the gap can have one or more clauses between them.

5. Somebody just went surfing, and Elise heard that Sam wanted to know who \_\_\_ .

Since it is evidently grammatical to have a full clause between the antecedent and the clause in which the elision is found, we must conclude that sluicing is unbounded. This leaves us with the question of whether or not sluicing obeys island constraints.

6. My friend went scuba diving near a reef, but there was only one other person who knew which reef \_\_\_ .

Since the elision site can grammatically be found within a relative clause, it seems a fair indication that sluicing does not obey island constraints.

In short, sluicing is a process in which all of the information contained in a constituent question, with the exception of the *Wh*-phrase, gets elided under some type of identity condition (to be discussed later) with its antecedent. In addition to which, we know sluicing to be an unbounded process that is able to go backwards, and which does not obey island constraints.

### III. Two Possible Approaches

Now that we have examined sluicing in its most basic form, we ought to consider the ways in which we could account for it from a theoretical standpoint. There are two theories that we will entertain throughout this paper.

**Hypothesis A:** The apparently isolated WH remnant in a sluicing construction is in fact a CP, most of which has been deleted (or otherwise rendered unpronounced) under some condition of identity with an antecedent clause.

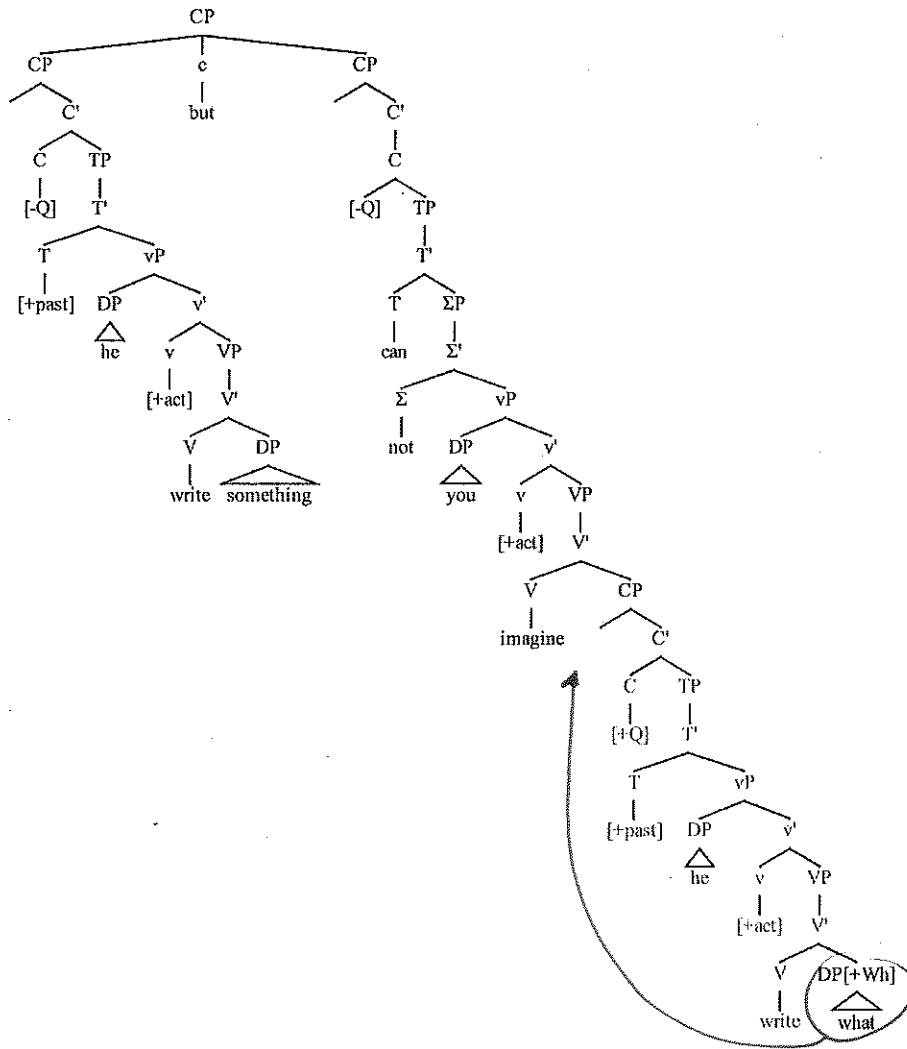
**Hypothesis B:** The WH remnant is just a WH phrase (DP, PP, ...), appearing as an argument to an appropriate predicate. It is not a CP and there is no structure in the silence.

These two theories make quite different claims, both about the structure that sluicing takes place in, as well as the content (or lack thereof) of the elision site.

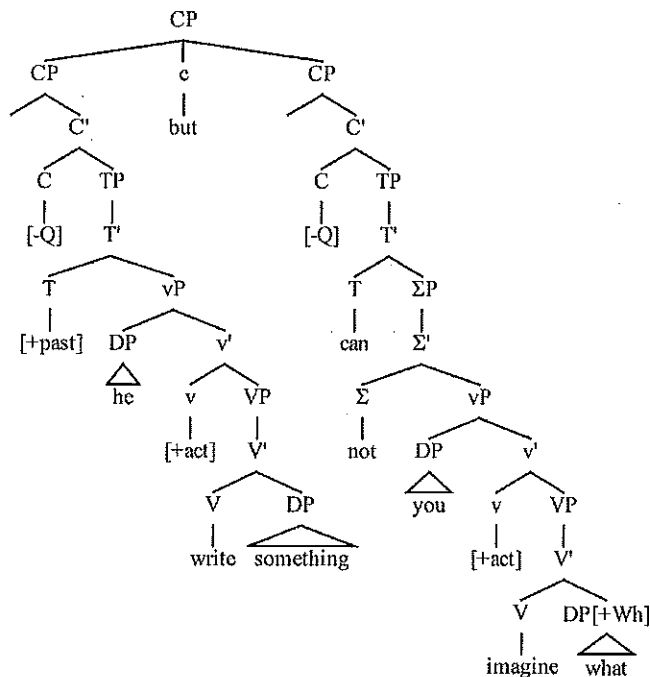
We can clearly see the way in which these two theories differ if we consider the way in which a single sentence would be derived by each. The derivations that we will consider correspond to the following sentence.

1. He wrote something, but you cannot imagine what.

Under Hypothesis A, the derivation would be as follows.



However, under Hypothesis B, the derivation would be as follows.



These two claims are incredibly different. To start with, Hypothesis A makes the assertion that the constituent in which the sluicing takes place is a CP, while Hypothesis B makes the assertion that it can be either a DP or PP. In addition to which, Hypothesis A asserts that there is structure within the elision site that either gets deleted or goes unpronounced, while Hypothesis B asserts that there is no structure below the +*Wh*-DP, nor is there any elision site to speak of.

There is much evidence that will bear on the choice between these two hypotheses. We will begin by considering the type of constituents in which sluicing takes place, to determine whether it is able to happen in a DP, PP, or CP. We will then consider whether or not there are any arguments for the presence of structure within the elision site, looking specifically at the issue of case within the *Wh*-remnants left behind after sluicing.

**Identity Condition:**

In the end, we will settle on the following identity conditions for sluicing. The first is the identity condition between the *Wh*-phrase and an indefinite DP in a non-dominating CP antecedent, and the second is the identity condition between the deleted material and the sluice antecedent itself. We use “sluice” to refer to the CP in which the deletion operation occurs.

**Hypothesis for *Wh*-word identity condition:** This identity condition stands between a WH phrase in a sluiced clause and an indefinite DP in a non-dominating clause. There needs to be syntactic identity with respect to DP complexity and syntactic features such as [+animacy]. A DP is complex if it isn't

unary branching down to its terminal nodes. The WH-phrase is licensed to be distinct from its antecedent with respect to [+/- definite] and [+/-WH] features.

**Identity Condition for the Deletion:** Everything below SPEC CP of the sluice must be in strong syntactic identity with its antecedent, unless the case-licensing head of the [+WH] DP is not in SPEC CP and is not overt in the antecedent. If this is the case, sluicing is licensed, although the case-licenser of the [+WH] DP must be overt in the sluice. *Very dense. Some examples might help.*

#### IV. What does Sluicing Target? *Tell what "target" means.*

It is apparent that sluicing targets a verbal complement that contains a *Wh*-phrase. However, it is unclear whether that complement merely *contains* a *Wh*-phrase, or whether it *consists* of a *Wh*-phrase. This is an important question to ask due to the fact that it bears on whether the target of sluicing is a DP, PP, or CP. And as such, it bears on which of our two theories is more apt to account for the process itself.

The best way to determine the type of verbal complement that sluicing is concerned with is to consider a few examples of grammatical and ungrammatical attempts at the process.

1. \*I wonder {the time | the answer | the question}.
2. I wonder {what time it is | what the answer is | what Ben asked | who's coming}.
3. Ben wanted to ask something. I wonder what.
4. Abby said someone's coming to dinner. We all wonder who.

Sentences 1 and 2 make apparent the fact that *wonder* is a verb that takes a CP complement. This is illustrated by the fact that sentence 1 is rendered ungrammatical because *wonder* is followed only by a DP, whereas its grammatical counterpart in sentence 2 contains a verbal complement that is a full CP. If we then turn our attention toward sentences 3 and 4, we can see that sluicing can target the verbal complement of *wonder*, which we have determined takes a CP complement. This seems to suggest that sluicing necessitated the presence of a full CP that contains a *Wh*-phrase, rather than just a *Wh*-phrase itself. This is seen yet again in the following pair of sentences.

5. Which problems are solvable {is / \*are} not clear.
6. Some of these problems are solvable, but which ones {isn't / \*aren't} clear.

Sentences 5 and 6 serve to show that in a case in which there is a CP that contains a plural *Wh*-phrase, the verb must agree with the CP, rather than the *Wh*-phrase. This is indicative of the fact that the

complements of these verbs are CPs rather than DPs, as verbs in English must agree with the element that is found in the subject position, and as *clear* takes a complement that later raises to fill its subject position, in cases such as these, the verb agrees with the constituent that originated as its complement. This is further indication that sluicing targets a full CP. *Not really clear.*

If we are correct in our assessment and sluicing does indeed target a CP, then the verbal complement that is targeted by sluicing does not *consist* of a *Wh*-phrase, but rather *contains* one. This is an important distinction to make, as it is one argument in favor of Hypothesis A, and one against Hypothesis B.

*What does that mean?*

If we were to assume Hypothesis B is true, we would need to make some unfavorable claims to account for these facts. Given that *wonder* takes a CP-complement that is +Q, we would have to say that *wonder* permits a DP-complement that is +WH in sluicing contexts. This is odd because we know from example (4) that it can't take a DP complement that is -WH. This phenomenon would thus both push against the normal syntactic form of *wonder* and require very particular circumstances to do so.<sup>1</sup> The examples at (6) and (7) show that it is not possible to have just any WH-phrase in the sluicing clause---it would be ungrammatical for *I wonder \*who* to immediately follow in (6) and *We all wonder \*what* in (7). The last two examples, (8) and (9) highlight that T does not inherit the phi-features of the WH-phrase in the sluicing clause. We already know that *wonder* selects embedded questions, (5). So we can either say that *wonder* is the kind of verb which selects multiple kinds of complements optionally or we can say that there are two kinds of *wonder* verbs which select different kinds of the complement. At this point, there is no empirical difference, though we might have a theoretical preference to have more lexical entries for "wonder" rather than optionality of complements. However, we will have to have a semantic filter that makes the correct predictions with respect to animacy for the *Wh*-word and its correlate. This latter fact is true for Hypothesis A as well as B.

## V. Case Assignment and Sluicing

We will now consider the ways in which the issue of case bears on our view of sluicing. Specifically, if the *Wh*-phrase that remains after sluicing takes place originated in a CP containing full

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<sup>1</sup> There is another interesting consequence to making the *Wh*-word a DP complement of *wonder*. If it is a normal [+WH] DP, we would expect it to be able to raise if embedded in a WH-question clause:

*Intensely  
argument.*

\*"Bob kicked a ball yesterday, but I'm not sure which I know."

This clearly isn't the case. Although this won't bear on Hypothesis B if the *Wh*-word is claimed to be an adjunct (as Hypothesis B will eventually have to say), this can be seen as an additional reason for claiming that the *Wh*-word could not be a DP complement.

syntactic structure, <sup>e</sup> then we would expect ~~that~~ each and every DP argument within that CP to receive case. If we take this to be true, then the *Wh*-remnant ought to display the case for which it was specified. Determining whether or not these remnants display case, and the way in which they do, will pertain to the decision of one hypothesis over the other. Hypothesis A maintains that the elision site is within a CP and has structure, and therefore should be able to account for the presence of case markings, be they inherent or structural, as assigned within that CP. Alternatively, Hypothesis B maintains that there is no CP, and no structure in the silence, and consequently, should be able to account for inherent case or structural case, but only case as assigned within the clause of the verb to which the *Wh*-phrase is a complement. While the way in which case assignment interacts with sluicing ~~are~~ <sup>is</sup> the focus of this section, we must first elaborate on our theory of case assignment.

We know case to be a morphological property that functions differently language to language. That being said, there are a few facts that hold across languages. Case is a property that affects DPs. There are two types of case: structural and inherent. Structural case is the type of case that is assigned to a DP based on its syntactic position, whereas inherent case is dependent on the DP's semantic relationship to the verb.

Here are some of the assumptions we are making about case:

#### Our Current Theory of Case Assignment

- T assigns case to the highest DP in its structure, this element can then move up to Spec T in languages like English, but doesn't need to in languages like Italian
- little *v* assigns dative case to the specifier of VP
- accusative case is either default or assigned by the V to its complement
- genitive case is either assigned by the Poss D head to the spec of DP<sub>[POSS]</sub>, or is assigned to the spec of DP<sub>[POSS]</sub> not by any head, but by a process that can see that DP
- verbs and prepositions have the ability to assign inherent case to their complements

*Pretty good summary.*

An important question is when does case apply. For inherent case, there seems to be a decent answer. Inherent case needs to apply early in the derivation in order to occur before subject raising. Subject raising seems intimately tied up with NOM case. Subject raising can raise up a complement of an inherent case marking V or P. The complement that raises should get NOM, but that DP retains its inherent case. A DP needs to get case during the derivation, and once it gets case, it keeps that case with it. So inherent case must be early enough to be on the DP before NOM case would attach. A possible really nice answer is that inherent case is in the semantics in the deep structure. This would help explain the order with respect to NOM case. This would also provide a natural answer as to why

inherent case is so tied up with specific predicates and their complements and relates meaningfully to the semantics of that predicate. *All pretty reasonable, except for the bit about semantics.*

When structural case applies is a difficult question. It needs to apply about the time that subject raising applies. There's also a possible question about whether different structural cases apply at different times, especially in regard to genitive case. Genitive case works differently under our story than NOM, DAT, or ACC. All three of those seem to be assigned by a particular head probing downward. But genitive is either a head probing upward or a general area constraint. One might even question whether or not genitive is inherent or structural case, but then one could look at examples like (15) and see that that's not the case. *or after.*

(15) A car is parked on the lawn, and we don't know {whose / \*who / \*whom}.

*This is a trick. NP<sub>CP</sub> is clearly involved in (15).*

You need semantic identity only varying in respect to the existential vs the *Wh* element. Both the existential and the *Wh* element are scoping over the same element. But the structure can vary, as in (15), such that in the sluiced CP, the *Wh* element is genitive. Since the semantic identity is the important thing, genitive must be a structural case. It's important to note the differences with genitive case as compared with the other structural cases, but there's no empirical reason as to say they occur at different times. *OVER*

So when does structural case get assigned? It needs to be after inherent case to get the facts noted earlier about inherent case subjects. But A-bar movements can take the NOM or ACC DP and raise it to some higher point. Even when it raises up, it still keeps its structural case. So, structural case seems to be happening between A and A-bar movement. *That seems clear.*

In English, case is not particularly apparent, except in the form of pronouns and *Wh*-words. We do not seem to have inherent case in English, so we can only look to the structural case for insight. This bears crucially on the decision between Hypothesis A and Hypothesis B. In Hypothesis A, structural case allows us to understand the exact structural position of the indefinite and the *Wh*-word in their respective clauses. In both hypotheses, knowing the case allows one to better understand the linkage between the anaphor and antecedent.

In German, case is overtly marked on all DPs, not just pronouns. German has structural as well as inherent case. This is very useful for understanding the relation between the *Wh*-phrase and its correlate. The only way to understand the inherent case facts about German under Hypothesis B is to posit that the *Wh*-phrase must be an additional complement to the verb in some sort of ternary branching structure. Under Hypothesis A, you don't need to posit anything else because the structure



Could someone case be assigned by the  $D_{[PASS]}$  head  
pointing downward?

will be the same. Time to get to the core of this case data.

## VI. Looking at some more data

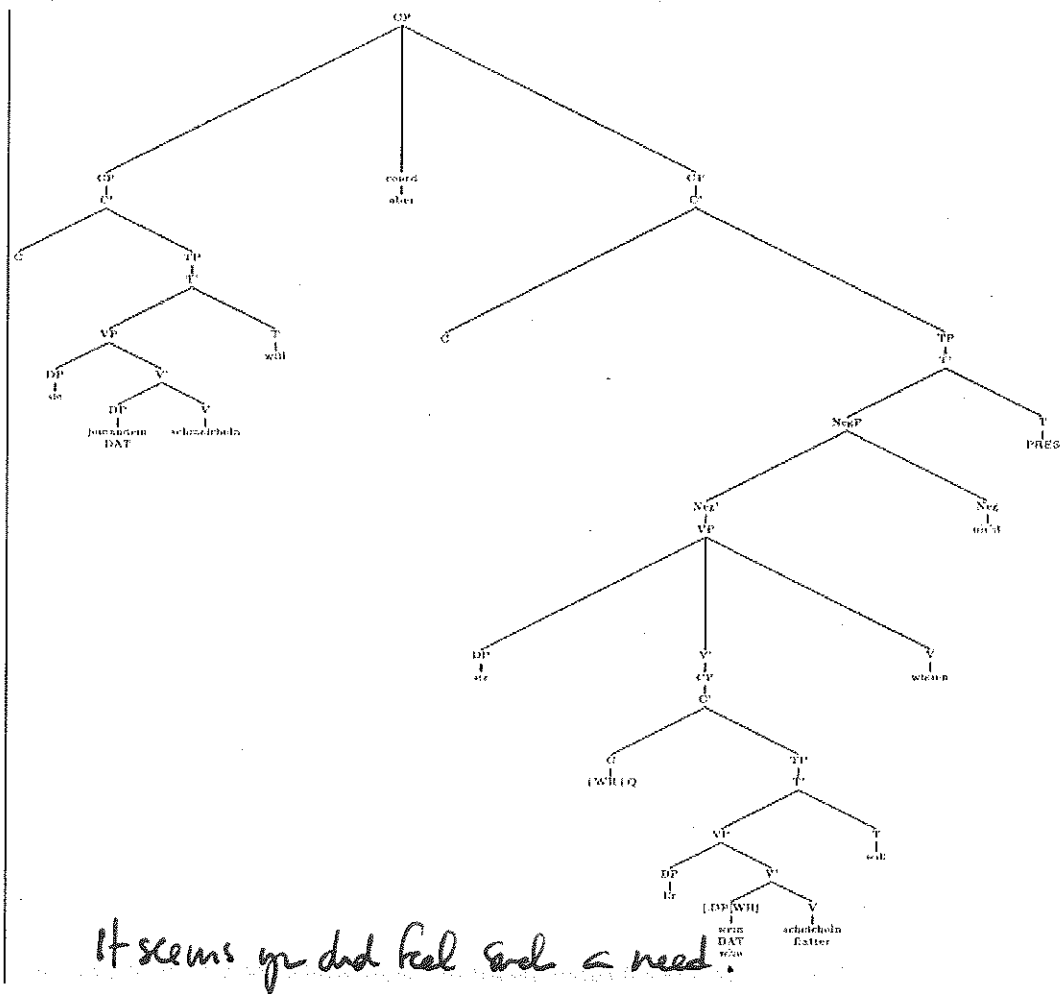
Set B:

- (7) Er will jemandem schmeicheln, aber sie wissen nicht {wem / \*wen}.  
*He will someone*[DAT] *flatter*, but they know not who [DAT / \*ACC]
- (8) Er will jemanden loben, aber sie wissen nicht {\*wem / wen}.  
*He will someone*[ACC] *praise*, but they know not who [\*DAT / ACC]
- (9) Sie wissen {die / \*der} Antwort nicht.  
*They know the* [ACC / \*DAT] *answer not*.

Sentences (7) and (8) exemplify sluicing in German. In both examples, we see almost identical clauses containing an ellipsis site. These clauses differ in the case of the WH pronoun *wen* versus *wem*. *Wem* is the dative form, while *wen* is the accusative. This difference stems from the morphological case assigned by the verb.

German has overt case markings, making this phenomenon more evident. The verb *schmeicheln* in (7) requires its object in the Dative, while the verb *loben* requires its object in the accusative. As shown in example (9), *wissen* requires the accusative case. This generates a problem if we are to assume that the WH pronoun is the full DP complement of *wissen* in (7) which is selecting for an object in the dative form.

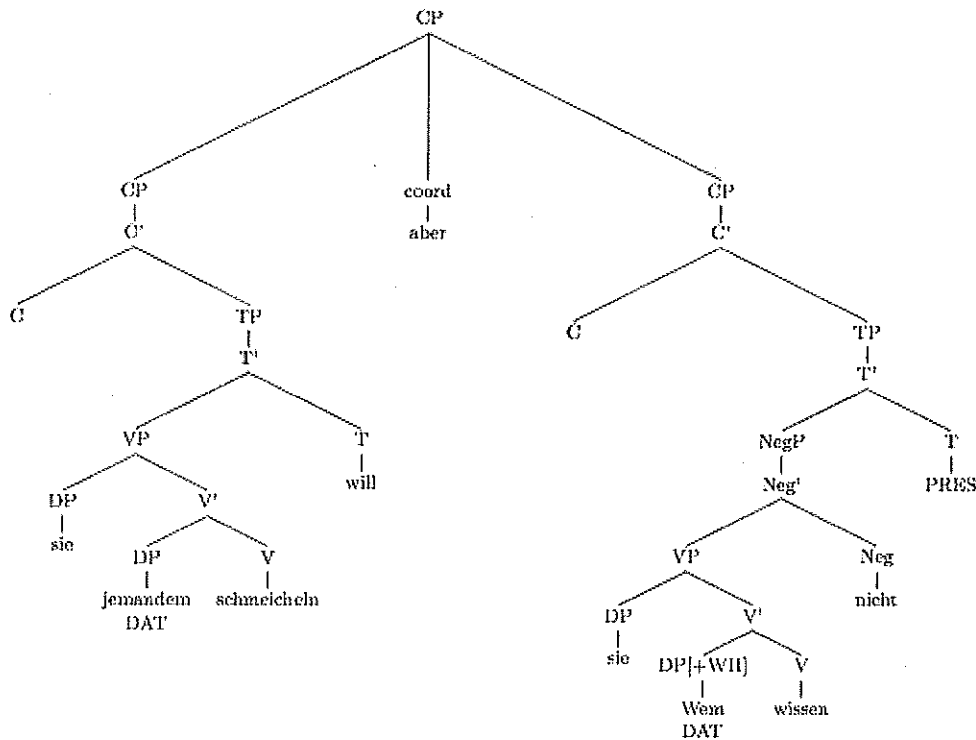
Under Hypothesis A, this issue is accounted for due to *wissen* selecting for a CP complement, within which the WH pronoun is found. Said pronoun correlates to the indefinite DP in the antecedent clause, *jemandem*. The dative case is able to be assigned to the pronoun due to its selection by *schmeichel*,<sup>n</sup> which as we know requires its object to have the dative case. Through the sluicing process, everything in a syntactic position other than Spec CP gets elided, or goes unpronounced, leaving only the pronoun *wem* in the dative form assigned by the verb. The deep structure of (7) is displayed below which is interchangeable with (8) with the exception of the node terminations.



*It seems you did feel such a need.*

From here, the +WH phrase moves to the specifier of CP and everything else gets elided. At this point, I feel no need to go into other syntactic movements the German language requires within said CP. In order to reach the surface structure, an obligatory raising operation in German occurs within the two root clauses, pulling a constituent to spec CP (this being the subject in both cases). If T is empty, the highest verb within its clause raises to fill the empty position, then finally moving into C. In order for *nicht* to appear in the right-most position, it seems some kind of extraposition has occurred within the derivation.

Under Hypothesis B we would assume the deep structure as follows:



Hypothesis B could account for the phenomenon displayed in examples (7) through (9) if we add the following to the theory: In German we see that the morphological case in the antecedent clause determines the case of the *Wh*-phrase in the sluice ---the sluiced phrase must mirror the morphological case of the indefinite DP in the antecedent clause, when it does not the result is an ungrammaticality, (7) and (8). Sluicing is sensitive to the selectional requirements of verbs, e.g., *wissen* which takes a complement with ACC case, (12). In German, the selectional requirements of the verb with an indefinite DP as its argument trumps the selectional requirements of the verb with a *WH*-phrase as its argument in the sluice.

more discussion of that.

Our observation about the extraposition of the *Wh*-phrase in the German data tells us one of two things:

1) that [+WH] DPs can be extraposed in German, or 2) that the [+WH] DP is not a complement of the predicate selecting the sluice and does not undergo extraposition. Because DPs aren't usually extraposed in German to our knowledge, we shouldn't consider the idea of an adjoined [+WH] word a much more desperate solution than a claim that [+WH] DPs can be extraposed. After all, if one was to claim that Hypothesis B needs to treat the *Wh*-phrase as if it had CP properties, this might concede too much to the view that it is a CP, undermining the differences between Hypotheses A and B. That said, making the *Wh*-phrase an adjunct would be the same as claiming that there is no selectional relationship between the predicate that, in Hypothesis A, selects the sluiced clause and the *Wh*-phrase left in the

I think this was written since the key out.

sluice. From the point of view of the semantics, this is almost impossible to accept.

Making a DP an adjunct introduces a case-licensing issue. We don't normally have bare DP adjuncts because all DPs require structural case from some head. For this reason, we argue that the WH-phrase in the sluice, if it has an indefinite correlate that is case-licensed, by virtue of that is case-licensed in the sluice; if there is no indefinite correlate that is case-licensed then, the WH-phrase must be licensed by a head in the sluice. *I think you might have lost me.*

If we were to claim on these grounds that the *Wh*-phrase is adjoined to the maximal projection of the main predicate in the clause introduced by the coordinator (or the matrix clause of the second sentence), the German data would still present a problem for Hypothesis B. On the one hand, the *Wh*-phrase would be lower than the NEG structurally in example (), when it clearly needs to be higher to predict the right word order. We equally can't claim that the NEG is adjoined to TP, because sometimes the *Wh*-word ends up in SPEC TP. We would need a lowering operation to get it there. Therefore, we will be forced to claim that the WH-phrase in the sluice is always right-adjoined to the complement of T---this is just what happens in sluicing we will have to say.

What is important is that Hypothesis A doesn't have to make any of these terrible concessions. Because the *Wh*-phrase ultimately inhabits the SPEC position of a CP, it can be extraposed as other CPs are in German. It thus doesn't have to claim that there is such a thing as DP adjuncts, doesn't undermine the semantic relationship between the *Wh*-phrase and the predicate that selects its CP. It can also get structural and inherent case from a predicate identical in some sense to the antecedent of the sluice. This fact bears upon the identity condition of sluicing. *Nice summary of argument.*

#### Set C:

- (10) Somebody's car is parked on the lawn, and we don't know {whose / \*who / \*whom}.
- (11) Somebody parked their car on the lawn, and we don't know {\*whose / who /\*whom}.
- (12) A car is parked on the lawn, and we don't know {whose / \*who /\*whom}.
- (13) Er meinte, er haette geholfen, aber wir wissen nicht {\* wen / wem}.

*He claimed he had helped, but we know not who* [\*ACC / DAT]

The verb 'helfen' requires a Dative object.]

In set C we see a similar occurrence as set B. Sluicing has taken place in the above set of examples leaving behind the same WH remnant, varying only in case. In English, we do not have overt case in the same way German does. Luckily, in examples (10) through (12) we can see case in the different forms of the animate WH pronoun *who*: the demonstrative *whose*, nominative *who*, and accusative *whom*. The sentences possess a complete CP coordinated with a CP which seems to have something missing

(under hypothesis A), or the previous CP plays a very important role in the selectional features of the main verb *know* (hypothesis B). This is evident in what form of *who* is able to appear to the right of *know*. Under hypothesis A, these WH marked pronouns originate further down in the derivation and are able to receive their case markings from T or V in the embedded clause. In Hypothesis B, there will be a similar identity condition between the *Wh*-phrase in the sluice and the semantic features of the target indefinite in its antecedent. However, the mechanism through which such identity would have to be applied would be much more arcane than the one predicted by Hypothesis A. Taking the data set, let us apply it to each hypothesis separately:

#### Hypothesis A:

As we saw in examples (7) and (8) hypothesis A shows that the different forms arise from the difference in the DP correlate within the antecedent clause. In example (10), we see the indefinite full DP 'somebody' as specifier of POSS. This DP is the correlate of the WH pronoun. At this point, I believe it is necessary to declare animacy in the pronoun. For instance, 'somebody' must correspond with a +animate pronoun, and when this pronoun is a WH pronoun, 'who' is demanded. However, when in the phrase "something is parked in the driveway, but we don't know what," we see that the indefinite DP, *something* has the -animate feature, therefore selecting the inanimate WH pronoun 'what' as its correlate. This is a necessary distinction due to ungrammatical sentences such as "\*Somebody parked their car on the lawn, and we don't know what." Because *somebody* requires a +animate pronoun, and *what* has the -animate feature, it is not a compatible WH pronoun.

In (10), we see that the forms 'who' and 'whom' are marked ungrammatical. This is due to the placement of the corresponding DP in the antecedent phrase. Since it is specifier of D, the only form of 'who' that is licit in such a position is the genitive. Thus taking the form 'who', merging with POSS and generating 'whose'. Neither 'who' nor 'whom' could be produced in such a position to the location of the correlate. An oddity found in these examples is the absence of the NP from the DP. Moreover, we have found this absence to be obligatory:

- \* Somebody's jacket is on the chair, and we don't know whose jacket.
- Somebody's jacket is on the chair, and we don't know whose.
- \*Somebody's bed needs to be made, and we don't know whose bed.
- Somebody's bed needs to be made, and we don't know whose.

I think these judgments are incorrect. The stranded *xxx* are just *free*, as long as the post-wh NP is unaccented.

In our theory of sluicing, everything within the specifier of the CP is safe from deletion. In the case of possessives, that means the NP selected by POSS would be inside the safety DP. With that being said, the elision of the NP cannot occur within the sluicing operation, but NPE is instead prompted by sluicing after its application.

This is important, because if correct, the elided NPs are due to NPE and have nothing to do with sluicing.

In (11) we see 'somebody' filling an entire DP and possessing the +animate feature. Because the correlate DP is given nominative case by T, the same will be given to the WH pronoun. This is due to their positions in the structure being identical. If we were to include the elided material at spell out we would read "Somebody parked their car on the lawn, and we don't know who *parked their car on the lawn*." At deep structure, we distinguish 'who' as the highest DP in the embedded clause, thus it is given the nominative case by T. Once the +WH DP moves to spec CP, the rest of the material either gets deleted or goes unpronounced but the case on the pronoun survives. Note that both *whose* and *which* are ungrammatical alternatives for the *Wh*-phrase. The generalization that seems to be relevant in this data is that complex DPs (DPs that are not simply unary branching down to their terminal nodes) can only be represented by *Wh*-phrases like *which* and *whose*. Non-complex DPs, like *somebody* and *something*, which are unary branching down to their terminal nodes can only be represented by *Wh*-phrases like *who* and *what* in the sluice. This appears to be a syntactic constraint on the relationship between the *Wh*-phrase in the sluice and its corresponding indefinite DP.

over

Example (12) contains a new occurrence, where the indefinite DP 'a car' is the correlate of the complex DP headed by POSS with the WH specifier 'who'. 'Whose' is genitive in case, but does not have a genitive correlate. This demonstrates that when an indefinite determiner selects for NP, POSS with a WH specifier is a valid correlate. Also, the WH determiner 'which' is a compatible pronoun, seeing as it is able to take an NP complement: "A car is parked on the lawn, and we don't know which *car is parked on the lawn*." When we encounter an indefinite determiner within the correlate of a sluice, the WH phrase must contain a determiner, thus excluding full DP pronouns. For instance, "A car is parked on the lawn, and we don't know {*whose/which/\*what/\*who/\*whom*}. The ungrammaticalities arise from the WH pronoun occupying the entire DP, thus destroying the NP which is vital to the connection between correlates. This also might bear on another viable syntactic constraint on sluicing: it seems that if the [+WH] DP in the sluice doesn't syntactically correspond to an overt indefinite DP in its antecedent clause (excepting, of course, the obligatory [+/-WH] differences and the differences in determinacy), the case-licensing head of the DP must be overt in the sluice. Because POSS is the case-licensing head of the DP in SPEC DP position, and there is no POSS in the antecedent, POSS is obligatory in the sluice.

We might find some support for this in sluicing with PP structures. Consider the *Wh*-phrase in the sluice of *Kirk is afraid, but I don't know of what* and *\*Kirk is afraid, but I don't know what*---in the former it is licensed by a preposition whereas in the latter it is not.<sup>2</sup> It would not be out of line to make the same argument for *whose* in (12) *A car is parked on the lawn, but we don't know whose*---the

<sup>2</sup> *Kirk is afraid of something, but I don't know what* is grammatical, however, the structure of the antecedent clause in this example is distinct from that of *Kirk is afraid, but ...*---there is a prepositional phrase in the antecedent.

Do you people still make this gross mistake?  
Do you know how much it pisses me off?

Let's talk about this.

Somebody  $\rightarrow$  who  
Something  $\rightarrow$  what

vs 'which' and 'whose'

Notice that 'which' is a D which allows a complement:  
which truck

'whose' is a Genitive form, probably a DP+D,  
which also allows a complement:  
whose truck

'who' and 'what' are like ordinary pronouns (he, you, she, etc)  
and they don't allow complements.



?

That seems unlikely.

WH-phrase is licensed by the head of DP, that is, POSS in the sluice. Even though there is no corresponding POSS head in the indefinite correlate, *a car*, the facts are accounted for by the fact that *a car* is a viable correlate for *whose*, evidenced by (12). A similar story can be said to account for (12) for *Somebody's car is parked on the lawn, and we don't know whose*---POSS licenses *whose* in the 'whose car'. It just so happens that in this example there is a POSS head in the correlate *somebody's car*.

Sentence (13) again exemplifies sluicing in German. In this case, the embedded clauses are coordinated, the first of which being the antecedent clause. In (13) there is no overt indefinite correlate. However, we are able to deduce that 'wen' directly correlates with the person which *er haette geholfen*. The verb 'help' requires a +animate dative complement. In the antecedent clause this complement is covert, thus being indefinite and allowing for the +animate dative 'wen' to correlate to the missing complement of 'geholfen'.

Apparently it doesn't require one overtly.

Hypothesis B:

For Hypothesis B there are two options available with respect to the internal structure of *whose*: no structure whatsoever aside from the POSS head and *whose* in SPEC DP; there is some structure in the silence and that structure is contained within the DP *whose*. The first approach ignores the fact that POSS-structures in English are characterized as [<sub>DP</sub> DP POSS NP]. The second approach concedes that there may indeed be structure in the silence of sluicing (only so far as there is structure in the WH-phrase in the sluice). If there is structure, then we want to say that it is elided via NPE as opposed to a null complement because *whose* does not just appear in any context---there are restrictions on the distribution of *whose*! For instance,

"Whose are you taking to the party?"

is only grammatical if there is a linguistic or pragmatic antecedent corresponding to the thing that is possessed. This is because syntactically *whose* consists of a D head, POSS, with a DP specifier headed by the +WH word, and an NP complement. If there is no expressed NP complement to the DP argument of "know," that DP argument would seem to be syntactically ill-formed. If we were to claim that no NP complement of Poss is present in this DP, we would be stretching some of the stronger constraints in our grammar in order to account for one syntactic phenomenon.

So it looks like there is NP ellipsis.

Returning to the feature identity between the *Wh*-phrase and its antecedent, this is easily accounted for in Hypothesis A. If the sluiced CP corresponds syntactically to the CP antecedent of the sluice, these features will be predicted to remain the same for the *Wh*-phrase in the sluice insofar as it is syntactically the same as its indeterminate antecedent barring [+WH] features and the determinacy. This is made

possible because CP in the sluice is in identity with the CP antecedent containing the indeterminate in question. For Hypothesis B on the other hand, there has to be some kind of a magical connection between the adjunct *Wh*-phrase in the second clause and the indeterminate DP in its antecedent. The same identity condition, identity of syntactic features, will exist between them, but there is no CP context within which these constraints are established in the sluice. The [+WH] DP must borrow them from its DP antecedent without being in a CP that shares syntactically identical properties with an antecedent clause. This would require magic that Hypothesis A does not require.

SET D:

- (17) \*It wasn't clear his idea.
  - (18) Somebody had called, but it wasn't clear who.
  - (19) The correct approach wasn't clear.
  - (20) \*It wasn't clear the correct approach.
  - (21a) One of these approaches is correct, but which is not clear.
  - (21b) One of these approaches is correct, but it is not clear which.
  - (22) \*With Bob wasn't clear.
  - (23) \*It wasn't clear with Bob.
- She went swimming with someone, but ...
- (24) With whom wasn't clear.
  - (25) It wasn't clear with whom.

The following section delves into the argument in favor of Hypothesis A and shows based on the data given in this section that Hypothesis B is weaker than Hypothesis A.

We can understand why example (17) is ungrammatical for at least two reasons. One reason being that the dummy *it* only surfaces when there is a CP complement that it can reference, which, of course, is different than the weather *it*, as the following examples illustrate.

- (1) It will rain in Gotham City.
- (2) It wasn't clear if the Joker was telling the truth.
- (3) It was obvious that Batman will save the day.

Example (1) shows that *it* can refer to some type of weather, (exactly how the *it* works with weather is not relevant, although interesting) while examples (2) and (3) show that the dummy *it* must refer to a CP complement, but not a DP, such as example (17) “\*it wasn't clear his idea.” The second reason may be attributed to the fact that SpecTP has an EPP feature which requires the highest phrase (DP, CP...) to raise to SpecTP. However, that EPP feature can be satisfied if there is an overt dummy subject such as the dummy *it*, which can refer to any CP.

Additionally, the dummy *it* can also be seen in example (18) “...but *it* wasn't clear *who*.” This example is interesting for several reasons, the first reason is that it pertains to Hypothesis B; if we were

*probably reference has nothing to do with it, but rather we have a dummy pronoun related to a CP in some way - subject position*

*I don't think that is reference.*

Be careful. Do dummies refer to anything?

to not concede the point that the WH phrase is a DP argument of its predicate, then how would Hypothesis B exclude the ungrammatical example in (17)? The second reason is related to the fact that dummy *it* only surfaces when there is a CP that it can reference and that dummy *it* cannot refer to anything else. Therefore, examples (18), (21b) and (25) are grammatical with the dummy *it*, precisely because the argument of the appropriate predicate has a CP structure and is not just a DP. Specifically, this seems to rule in favor of Hypothesis A, rather than Hypothesis B.

What if we were to assume Hypothesis B given this data? (17) shows that DPs can't get assigned Case from *clear*, and this is so most likely because *clear* has no external argument. By Burzio's generalization, predicates with no external arguments can't assign Case to their complements. This is a problem for Hypothesis B if the WH-phrase is a complement of the predicate, but it certainly isn't a problem for B if all WH-phrases in the sluice originate in right-adjoined position to the complement of T--with normal restrictions on the licensing as discussed in earlier sections. This, of course, would inherit all of the weaknesses mentioned earlier. We would also require an A-movement operation from the adjunct position to the SPEC TP position, and we would be claiming that predicates like "clear" don't take any arguments. Supposing the *Wh*-phrase were a complement, we would have to say that it does not require structural case so as to allow the expletive insertion to occur in SPEC TP. This would be to claim that not all DPs require structural case, which would tear the moral fabric of the syntax we are adhering to. If there is an option that does not require us to make exceptions to the more stringent requirements in our syntactic theory, we should adopt them.

That's a bit hysterical.

SET E:

- (26) Wir glaubten nicht, dass Elke das Auto repariert haette.  
we believed not, that Elke the car repaired had.
- (27) \*Wir glaubten nicht, dass Elke repariert haette das Auto.
- (28) Wir haben nicht gewusst welches Auto Elke repariert hat.
- (29) \*Wir haben nicht welches Auto Elke repariert hat gewusst.
- (30) \*Wir haben welches Auto Elke repariert hat nicht gewusst.
- (31) Welches Auto Elke repariert hat haben wir nicht gewusst.  
Dass Elke ein Auto repariert hat, haben wir gewusst, aber ...
- (32) Wir haben nicht gewusst welches.  
We have not known which.
- (33) \*Wir haben nicht welches gewusst.
- (34) \*Wir haben welches nicht gewusst.
- (35) Welches haben wir nicht gewusst.

The following section pertains to data from German, in which this section very clearly favors

Hypothesis A over Hypothesis B. The data shows that there is a phenomenon of CP extraposition, or 'heavy shift,' of the CP complement to adjoin to a higher element in the syntax. What's more, the only element that can move due to extraposition in German is the CP and not a DP for the following reasons. We know that this is some type of extraposition, because the normal word order for German has the verbal elements coming last, such that the word order is SOV. <sup>in embedded clauses.</sup> Moreover, we know this to be true, because of examples like (26) '*Wir glaubten nicht, dass Elke das Auto repariert haette,*' in which this example very clearly exemplifies the normal SOV order. Also, German is a V2 language, in which it states that there can be almost any element preceding the verb, so long as the verb is coming 'second' in the syntax. To account for this phenomenon, we have assumed that the highest verbal element raises due to ~~TC~~ movement, and that SpecCP has an EPP feature which can allow for almost any element to appear before the verb. Furthermore, we know <sup>assumedly TC EPP feature is on C.</sup> that the extraposition is due to a CP moving, and not a DP, such as the ungrammatical example in (27) *\*Wir glaubten nicht, dass Elke repariert haette das Auto* illustrates, because if extraposition allowed for DP movement, then example (27) should be grammatical, but crucially it's not grammatical; this is a problem for Hypothesis B. Additionally, we know that the CP must move and not remain *in situ*, because the ungrammatical example (29) *\*Wir haben nicht welches Auto Elke repariert hat gewusst* shows this to be the case. Also, it's definitely moving to an adjunct position and not to something like SpecTP, because example (30) *\*Wir haben welches Auto Elke repariert hat nicht gewusst* demonstrates that this cannot be the case, too. However, it is not to say that the CP cannot move to SpecCP, because there is an EPP feature on SpecCP which can allow for almost anything to appear in its specifier. We know that the CP can move to SpecCP, because example (31) *Welches Auto Elke repariert hat haben wir nicht gewusst* which clearly shows that the CP *Welches Auto Elke repariert hat* is in SpecCP, while the subject *wir* is in SpecTP and the highest verbal element *haben* is in C. Finally, it can be noted that sluicing can occur in the CP extraposition site even though it has moved. In fact, examples (32) *Wir haben nicht gewusst welches* and (35) *Welches haben wir nicht gewusst* illustrate that although the CP has moved, either due to extraposition or movement to SpecCP, sluicing can still occur within the clause. Therefore, Hypothesis A would have to be correct and not Hypothesis B, because extraposition only moves CP structures and the EPP for the 'anything constituent' is only in SpecCP and not SpecTP.

*Nicht das ansed.*

A.

(36) I know he has a picture of somebody, but I don't know { who }

*Is this another part?*

{ of whom }

{ \*a picture of whom }

There are never indefinites like *a picture* in the sluice clause because it is impossible for pied-piping to spread the WH-features beyond P.

*How does this relate to the hypotheses under investigation?*

- (37) I don't know { who he has a picture of }  
          { of whom he has a picture }  
          { \*a picture of whom he has }

B.

- (38) Who are you going to do away with?  
      \*With whom are you going to do away?  
(39) What will we have to make do with?  
      \*With what will we have to make do?  
(40) Which plot did the FBI get wind of first.  
      \*Of which plot did the FBI get wind first?

*This part seems to be lacking discussion!*

- (41) Bill's planning on doing away with one of his relatives, but we don't know (\*with) which.  
(42) We'll have to do with some kind of beer for our punch, but I don't know (\*with) which kind.  
(43) The FBI got wind of one of the many plots to smoke draft cards, but I can't remember (\*of) which.

C.

- (44) She was dancing, but I don't know with whom.  
(45) She was dancing, but I don't know who with.

\*She was dancing with someone, but I don't know who with.  
\*She was dancing with someone, but I don't know with whom.  
She was dancing with someone, but I don't know who.  
She was dancing with someone, but I don't know whom.

- (46) A: blah blah blah. B: What for?

- (47) He would report me under some circumstances, but I can only guess under which.  
(48) \*He would report me under some circumstances, but I can only guess which under.

- (49) Under what circumstances will the moon implode?  
 (50) \*What circumstances will the moon implode under?

Not an issue of under, its more of an idiomatic thing..

Which bed did the kids play under?

Under which bed did the kids play?

?

Section II.

Some of the sentences contained herein bear upon our analysis of sluicing only in the sense that they reinforce our earlier beliefs and at the same time aid us in fleshing out the theory slightly. Some of the examples, for instance, show us that apparent prepositions which are, in fact, particles in a phrasal verb, are not actually candidates for movement:

- 1337a. Billy got some test over with, but we don't know which.
- 1337b. \*Billy got some test over with, but we don't know with which.
- 1337c. \*Billy got some test over with, but we don't know over with which.
- 1337d. \*Billy got some test over with, but we don't know which over with.
- 1337e. \*Billy got some test over with, but we don't know which with.

Similarly, idiomatized prepositions, or prepositions whose meaning is bound up<sup>3</sup> with that of their nominals partake of this phenomenon:

- 1338a. Galactus, destroyer of worlds, will consume our planet under some circumstances, but I don't know which.
- 1338b. \*Galactus, destroyer of worlds, will consume our planet under some circumstances, but I don't know under which.
- 1338c. \*Galactus, destroyer of worlds, will consume our planet under some circumstances, but I don't know which under.

But this adheres largely to our previous generalization, namely that information (nodes, as well as structure) in the antecedent cannot be repeated in the sluice site. And so, we'd expect non-argument 'under' to behave differently. And so it does.

- 1339a. Jamie is dancing, but I don't know what under.
- 1339b. Jamie is dancing, but I don't know under what.

<sup>3</sup> Via metaphorical extension, idiomatization, or some other process

*gr lost me. I need to know what "bound up with" means. and then metaphorical extension, idiomatization, some other process ... I'd need to know what they mean, too.*

Our generalization stands.

However, other examples in this section lead us to consider our analysis critically, with great consideration of prepositions. In sentences where a preposition phrase exists as an antecedent to the WH remnant of sluicing, the preposition must be sluiced (note: this is not the case with “under”, though that phenomenon is already described above).

(44a) She was dancing with somebody, but I don't know who(m).

(44b) \*She was dancing with somebody, but I don't know with whom

The preposition in (44a/b) must be deleted. However, there are instances when there was no preposition as an antecedent, and in these cases the preposition may not be sluiced.

(44) She was dancing, but I don't know with whom.

(44c) \*She was dancing, but I don't know whom.

These facts are predicted by the fact that sluicing requires all old content to be deleted, leaving only new content and the WH element.

There is also a difficult fact about case assignment, regarding the alternation between “who” and “whom”. This has been particularly difficult for us, because although many of us have “whom” available in our dialects and idiolects, its application is optional. The fact is that when not following a preposition, a WH word will not remain in accusative case:

(44) She was dancing, but I don't know with whom.

(45) She was dancing, but I don't know who with.

Whatever movement is happening in (45) is causing nominative case to be assigned. We believe this to be a problem for everyone, not just for those exploring sluicing:


(201) We don't know who John sold his bicycle to.

(201a) We don't know to whom John sold his bicycle.

(201b) \*We don't know whom John sold his bicycle to.

(201c) \*We don't know to who John sold his bicycle.

*I think those are accurate judgments.*



These sentences (given that their grammaticality judgments are correct; there lingers some doubt) show that nominative case will be assigned to a WH element that raises without its preposition. These facts

should not be wholly trusted--in coming up with these sentences we realized that a speaker who uses "whom" productively will likely not strand their prepositions.

One other issue raised in this section is sentences that have no antecedent for the WH word. Sentences like (44) have had significant impact on our consideration of the identity condition for sluicing, as there is no reason to say that there exists a correlate of the WH remnant in the antecedent clause.

Finally, it bears noting that Hypothesis B would have some distinct troubles accounting for data like those seen in section C:

- 44. She was dancing, but I don't know with whom.
- 45. She was dancing, but I don't know who with.
- 46. A: blah blah blah. B: What for?

Especially in (46), the difficulties inherent in explaining the apparent 'preposition-inversion'<sup>4</sup>, as well as explaining how an apparent PP (or DP?) is functioning as an actual utterance, make B look fairly unattractive. Furthermore, the DP hypothesis has almost nothing to say about how the Ps come into being in the first place. Assuming that they are there inherently as a part of the internal structure of a TP makes that much easier to explain.

Not clear.

## VII. Conclusion, Formalization of IC

Based on the data we have seen above, Hypothesis A is clearly a better description of sluicing than Hypothesis B. We have seen that the *Wh*-phrases in the sluice tend to have the properties of CPs rather than DPs, and that we would have to go to some extraordinary lengths to claim that these <sup>are</sup> DPs rather than CPs. We also see that the syntactic feature identity we see between these DPs and their antecedents is explained much more easily when there is a syntactically identical CP within which the [+WH] phrase exists in the sluice. Hypothesis B also has no smooth way of accounting for word order of the [+WH] phrase in sentences like "She was dancing, but we don't know who with." This is accounted for rather nicely in Hypothesis A, because the constraints on these kinds of constructions closely mirror the constraints on WH-raising, which can only take place in a CP.

But that does introduce some question about the deletion, doesn't it?

Based on the observations we have seen, we can hypothesize the following identity conditions on sluicing. The WH-word needs to have the same syntactic complexity of its indefinite antecedent. This is seen in that DPs that are unary branching down to their terminal nodes can only have "who/whom" and "what" as [+WH] DP correspondents. Meanwhile, "which" and "whose" only apply to DPs that are not

<sup>4</sup> DP moving to spec PP?

God, I hope not.



unary branching down to their terminal nodes. We also see that syntactic features, with the exception of [+/-WH] and [+/- definite] have to be preserved between these DPs. This is because one can't say, for instance, \*"A car is in my driveway, but I don't know who."

We can thus say:

**Hypothesis for *Wh*-word identity condition:** This identity condition stands between a WH phrase in a sluiced clause and an indefinite DP in a non-dominating clause. There needs to be syntactic identity with respect to DP complexity and syntactic features such as [+animacy]. A DP is complex if it isn't unary branching down to its terminal nodes. The WH-phrase is licensed to be distinct from its antecedent with respect to [+/- definite] and [+/-WH] features.

Meanwhile, with respect to the identity condition on the deletion, it seems that there must be strict syntactic identity below the SPEC CP level between the antecedent and the sluice. If the case-licensing head of the [+WH] DP in the sluice has no overt correspondent in the antecedent, even if it is not in SPEC CP, it must be preserved overtly in the sluice. This helps us explain sentences like "She was dancing, but we don't know who with," where "with" is not in SPEC CP and has syntactic correspondent in the antecedent. We can thus say:

**Identity Condition for the Deletion:** Everything below SPEC CP of the sluice must be in strong syntactic identity with its antecedent, unless the case-licensing head of the [+WH] DP is not in SPEC CP and is not overt in the antecedent. If this is the case, sluicing is licensed, although the case-licenser of the [+WH] DP must be overt in the sluice.

oh.  
I had to  
read this  
twice.  
↓

Perhaps there is some clearer way to say it.

It looks like (unless I'm misreading it) this identity condition fails to take notice of a very prominent feature of sluicing: the WH-trace in the sluice corresponds to an indefinite in the antecedent. That's not strong syntactic identity.