

The swamp construction*

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1 Introduction

In his seminal paper on sluicing, Ross (1969) observed a three-way interaction between pied-piping, ellipsis, and word order. The pattern is illustrated in (1):

- (1) a. He has a picture of somebody, but [a picture of who] I don't know.
- b. *He has a picture of somebody, but [a picture of who] he has I don't know.
- c. *He has a picture of somebody, but I don't know a picture of who.
- d. *He has a picture of somebody, but I don't know [a picture of who] he has.
- e. He has a picture of somebody, but who I don't know.
- f. He has a picture of somebody, but who he has a picture of I don't know.
- g. He has a picture of somebody, but I don't know who.
- h. He has a picture of somebody, but I don't know who he has a picture of.

The pattern can be summarized as follows: When an indirect question appears in its canonical position ((1-c), (1-d), (1-g), and (1-h)), massive pied-piping in the sense of Heck 2008; Cable 2010 is prohibited independently of ellipsis. However, when the question is fronted, the pied-piping behavior of full and elliptical questions becomes dissociated; elliptical questions now allow (1-a) but full questions still disallow (1-b) massive pied-piping. These facts are schematized in (2).

(2) Interaction:		Pied-piping			
		regular		massive	
		ellipsis		ellipsis	
		yes	no	yes	no
fronting	yes	✓	✓	✓	*
	no	✓	✓	*	*

Abe 2015, 48 ex. 7–8 shows that the example is not isolated but part of a larger pattern: Pied-piping of the entire VP in (3) is acceptable but crucially only when fronting and ellipsis apply simultaneously.

- (3) He spent the entire day doing something at the mall, but (doing) what I don't know.

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In the footnote containing example (1-a) (Ross 1969:fn 10 p. 281) Ross tacitly assumes that (1-a) is derived from the ungrammatical (1-b) by sluicing. Under this analysis, the sentence furnishes a counterexample to the otherwise extremely strong generalization that sluicing obeys constraints on pied-piping. This generalization in turn forms the strongest argument Ross has for the assumption that *wh*-movement feeds sluicing. The existence of counterexamples threatens the argument from pied-piping. Consequently, Ross's *wh*-move-and-delete approach, built to explain the generalization, is threatened.

The descriptive aim of the present paper is to investigate sentences like (1-a) in detail. Analytically, I propose to reject the idea that sluicing is involved in their derivation and offer an alternative. The ultimate theoretical aim is not only to save but to strengthen the *wh*-move-and-delete approach to sluicing.

I follow common practice and call elliptical *wh*-questions sluices. Sluices have been argued to be clausal (see Merchant 2001 for a summary of arguments) and consist of the remnant and the ellipsis site. The sluice has an antecedent clause in the context. In canonical cases of sluicing, the remnant corresponds to a phrase in the antecedent: the correlate. I assume here that there is syntactic structure at the ellipsis site and that it varies from context to context. I use the term 'pre-elliptical structure' generically for such syntactic structure and 'pre-sluice' (following Dayal & Schwarzschild 2010) when referring to sluicing specifically.

We will also need a name for the construction type exemplified by Ross's example. Abe (2015) calls it "topicalized sluicing," which is descriptive of his analysis but misleading if I am correct. In line with the analysis proposed in the present paper, I will use the term "Sluicing" With Apparent Massive Pied-piping construction or swamp construction for short. Sluicing is set in scare quotes, because, as we will see, example (1-a) does not involve sluicing. Also, the example only appears to involve pied-piping. While the acronym is thus similar to the names given to subtypes of sluicing (sprouting, swiping, spading), the absence of an *-ing* suffix reflects that the swamp construction is not a subtype of sluicing.

Let us now return to Ross's and Abe's examples. I take the appearance of pied-piping that exceeds the bounds of what is usually possible in full questions to be characteristic of (unambiguous instances of) the swamp construction. Thus, (1-a) and the version of (3) with the entire VP as a remnant are unambiguous examples of the swamp construction. (1-e) and (3) with only *what* as the remnant are presumably ambiguous between a construal as a topicalized sluice and a swamp structure.

Ross (1969) flags the problem that (1-a) raises for *wh*-move-and-delete approaches to sluicing without being able to solve it. The remains unresolved under modern descendants of Ross's *wh*-move-and-delete analysis (see Merchant (2001) and much work in that line since). The problem is quite simply that there is no grammatical pre-sluice for (1-a) whether we assume syntactic or semantic isomorphism as the condition on recoverability. The example violates constraints on pied-piping under any pre-sluice structure one might propose. Further, while releasing constraints on pied-piping under ellipsis might allow generating (1-a), the resulting theory then has no natural account of the further interaction between fronting and pied-piping.

The approach I adopt here starts by questioning two of Ross's assumptions about the pre-elliptical structure for (1-a) and the ellipsis process involved in de-

iving it. Ross assumed tacitly (a) that the pre-elliptical structure for (1-a) is (1-b) and (b) that (1-a) is derived from its pre-elliptical structure by sluicing. As we will see, the two published accounts of the swamp construction (Bechhofer 1976; Abe 2015) reject at least one of these assumptions. Abe (2015) accepts (b) but rejects (a) and posits a very different pre-sluice. Bechhofer (1976) rejects both (a) and (b). The present account follows Bechhofer in rejecting both assumptions. If the present analysis accepted, the generalization that sluicing remnants are systematically phrases that can appear in Spec,CP in *wh*-questions stands without counterexample. The case for an analysis of sluicing proper in terms of *wh*-movement feeding ellipsis is correspondingly strengthened.

I propose that the swamp construction involves recursive contrastive left dislocation with obligatory clausal ellipsis. The argument for this analysis rests on two equivalences. First, German has the swamp construction as well, i.e., German also has a construction with the characteristic three way interaction between fronting, ellipsis, and pied-piping (see (4)). The German swamp construction has the same distributional and reconstructive profile as its English counterpart, which suggests analyzing both in the same way.

- (4) Er war heute den ganzen Tag im Einkaufszentrum, um dort
 he was today the entire day at.the mall in.order there
 etwas zu erledigen, aber
 something to deal.with but
 a. ... um dort was zu erledigen (*er im Einkaufszentrum
 in.order there what to deal.with he in.the mall
 war), das weiss ich nicht.
 was that know I not
 b. *... ich weiss nicht, um dort was zu erledigen (er im
 I know not in.order there what to deal.with he in.the
 Einkaufszentrum war).
 mall was
 He was the entire day at the mall today in order to deal with something
 but in order to deal with what, I don't know.

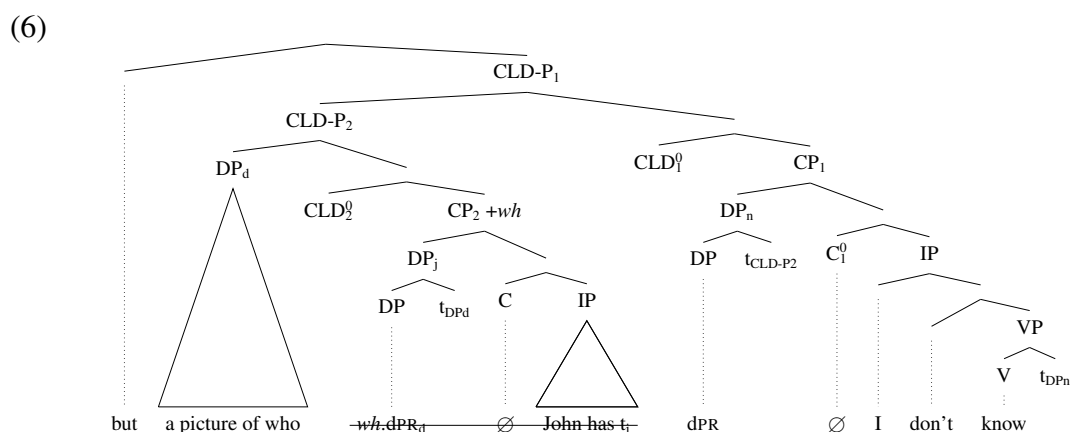
The second equivalence involves the German swamp construction and contrastive left dislocation in German. As is well known, German allows recursive contrastive left dislocation (Wiltschko 1997). Example (5) illustrates the possibility of recursive contrastive left-dislocation and also the less known (see Ott (2014:ex. 63a and 65 p. 294–5) for the only examples in the literature I am aware of) but equally clear fact that recursive contrastive left-dislocation can be accompanied by clausal ellipsis. It turns out that recursive contrastive left dislocation with clausal ellipsis has the same distributional and reconstructive profile as the (German and English) swamp construction, which again suggests analyzing both in the same way. If this argument is accepted, then the swamp construction is an instance of recursive contrastive left dislocation with clausal ellipsis. This conclusion leaves us with the following puzzle: Why is ellipsis optional in other cases of recursive contrastive left-dislocation but obligatory in the swamp construction? I will tentatively sug-

gest that ellipsis is obligatory in the swamp construction because the non-elliptical version is ineffable in English and in German due to a morphological gap. While I claim here that the two equivalences hold, space restrictions prevent me from including the German data in this paper. The interested reader is referred to Abels to appear for the data and more nuanced and detailed discussion than I can offer here.

- (5) Ich weiss, wer das Mädchen zuletzt gesehen hat, aber den
 I know who the girl last seen has, but the.M.SG.ACC
 Jungen, (wer den zuletzt gesehen hat,) das weiss
 boy(M) who dPR.M.SG.ACC last seen hat dPR.N.SG.ACC know
 ich nicht.
 I not
 I know who last saw the girl, but the boy, who last saw him, (that) I don't
 know.

The structure for Ross's example (1-a) under the present analysis is given in diagrammatic form in (6). Here, I represent contrastive left-dislocation as movement to a dedicated projection (CLD-P). The movement originates in a phrase made up of the left-dislocate and the resumptive pronoun (called a d-pronoun in the literature on German).¹ Numerical subscripts in the tree are there only to individuate nodes for the purposes of discussion. Alphabetic subscripts represent movement, co-reference or binding relations. The reader may, of course, feel free to assume the copy theory of movement.

CLD-P₂ has the structure of (German style) contrastive left-dislocation: There is a left peripheral left dislocate resumed by a co-indexed d-pronoun. The left dislocate from the question is the DP (*a picture of who*) containing the *wh*-word. CP₂ is elided. In the structure diagrammed here, this contrastive left-dislocation structure (CLD-P₂) is itself the left dislocate in a larger contrastive left-dislocation structure represented by CLD-P₁. We thus have a recursive contrastive left-dislocation structure. The d-pronoun in Spec,CP₁ is silent in English but pronounced in German.



¹ Nothing substantive in the analysis presented here changes if contrastive left-dislocation targets a CP adjoined position or if left dislocation is not analyzed in terms of movement at all. The choice of representation for contrastive left-dislocation is largely a matter of expository convenience (see Abels to appear, section 4).

Ellipsis of CP₂ is obligatory in (6). Thus, the *wh*-d-pronoun in Spec,CP₂ is never overtly realized in this structure. Indeed there is no other structure where it would occur overtly. The *wh*-d-pronoun has no overt realization either in German or in English. This might raise eyebrows, but I suggest that it is precisely the lack of a morphological realization of this element which forces ellipsis here.

As we saw in (5), the elliptical process eliding a question from which dislocation has taken place is independently available. The process elides a full CP to the exclusion of the left dislocate. We are therefore not dealing with sluicing. Hence, if the current proposal is accepted, the threat for the *wh*-move-and-delete analysis of sluicing posed by the swamp construction dissolves.

2 Previous approaches to the swamp construction

There are only two published accounts of the swamp construction: Bechhofer 1976 and Abe 2015. This section tests distributional predictions of both accounts and extracts further key claims that will be tested in section 3. In terms of distribution, Bechhofer's approach has a clear edge.

2.1 Bechhofer's parenthetical analysis

Bechhofer (1976) assumes that the most important distributional characteristic of the swamp construction is that massive pied-piping is possible in elliptical direct questions, (7-a) and (8-a), but not in elliptical indirect questions, (1-c), nor in direct, (7-b) and (8-b), or indirect non-elliptical questions, (1-d).

- (7) A: He has a picture of somebody.
 - a. B: A picture of who?
 - b. B': **[A picture of who] does he have?*
- (8) A: He spent the entire day doing something at the mall.
 - a. B: Doing what?
 - b. B': **[Doing what] did he spend it (at the mall)?*

The root cases above are the canonical cases of the swamp construction for Bechhofer. She assimilates Ross's example to the root case by invoking a process that promotes the embedded interrogative to root status, fronts it, and turns the apparent matrix (*I don't know* in Ross's example) into a parenthetical.

We can extract two claims from Bechhofer's analysis. One claim concerns the distribution: Elliptical questions should be able to violate constraints on pied-piping only when they are roots, (7), or fronted under root coordination, (1-a), and nowhere else. The second claim is that the apparent matrix in Ross's example should behave as a parenthetical. This second claim will be evaluated in section 3. Here we simply observe that Bechhofer correctly predicts the distribution of the swamp construction.

Bechhofer immediately predicts that Ross's example and Abe's example should work only when the conjunction occurs at the root but not when it is embedded. This prediction is tested in the examples below:

- (9) a. [₁ The persistent reports [₂ [that he has a picture of someone] but [(that) we don't know who (he has a picture of)]]] are disconcerting
 b. * [₁ The persistent reports [₂ [that he has a picture of someone] but [(that) we don't know a picture of who (he has)]]] are disconcerting
 c. * [₁ The persistent reports [₂ [that he has a picture of someone] but [(that) a picture of who (he has) we don't know]]] are disconcerting
 d. * [The fact [[that he spent the entire day doing something at the mall] but [(that) doing what we don't know]]] is disconcerting.

In (9-a)–(9-c), Ross's example, delimited by [₂ ...], is presented in various forms in a structural context that clearly involves embedding. Embedding within the subject DP is indicated by the brackets [₁ ...]. Any potential matrix parse of the crucial string *a picture of who (he has) we don't know* is blocked by plural agreement, *are*, with the head of the subject DP *reports*. Bechhofer correctly predicts (9-c) to be ungrammatical whether or not the question is elided. Similarly for VP pied-piping, for which only the crucial ungrammatical example is given, (9-d).

We have thus established a contrast between clear root cases, (1-a) and (8-a), and clearly embedded cases, (9). Of course, roots are never selected, which suggests that a true generalization across the cases considered so far is that the swamp construction is possible in unselected positions. Three contexts intended to distinguish roots from unselected embedded positions are tested below: clausal subjects, (10), extraposed clausal subjects, (11), and unselected embedded questions in the sense of Adger & Quer 2001, (12). None of these contexts allow the swamp construction, which seems to be restricted to roots and fronted under root coordination.

- (10) a. *He has a picture of somebody, but a picture of who is surprising.
 b. *He spent the entire day doing something at the mall, but doing what is surprising.
- (11) a. *He has a picture of somebody, but it is surprising a picture of who.
 b. *He spent the entire day doing something at the mall, but it is surprising doing what.
- (12) a. *They have a picture of someone in the backroom, but the bartender didn't tell me a picture of who.
 b. *He spent the entire day doing something at the mall, but the security guard wouldn't tell me doing what.

Bechhofer's approach limits the swamp construction to true roots and root coordination. For Bechhofer, root coordination subsumes Ross's example (1-a) via the analysis of the matrix as a parenthetical.

2.2 Abe's in-situ analysis

Abe (2015) analyzes the swamp construction against the background of his in-situ approach to sluicing. Within that analysis, and assuming the copy theory of movement, the pre-sluice for a canonical sluicing example like (13) is given in (13-a).

- (13) He has a picture of somebody, but I don't know who.
 a. ... <who> he has a picture of <who>.

Unlike in Ross's analysis, this structure does not feed into ellipsis of a clausal constituent but instead into non-constituent ellipsis, (14). The ellipsis operation spares constituents marked with the [Focus]-feature. As shown in (14), both members of the *wh*-chain are unaffected by ellipsis but, Abe suggest, the lower member is actually pronounced in sluicing. This is indicated by the subscript [PF]. The low copy is pronounced because in chain links that do not cross overt material (or *wh*-traces) the low copy (if any) is pronounced:

- (14) ... but I don't know <who>_[Focus] ~~he has a picture of~~ <who>_{[Focus][PF]}

In Ross's example, this normal course of events is disturbed by topicalization of *a picture of who* into the matrix. The moving constituents and their copies are again enclosed in acute brackets in the following structure and annotated with the movement inducing properties (topic and *wh*), the ellipsis-suspending [Focus] property, and the allocation of [PF] properties to the chain for clarity:

- (15) ... but <a picture of <who>_{wh} >_{topic[Focus][PF]} I don't know <who>_{wh} ~~he has~~
<a picture of <who>_{wh} >_{topic[Focus]}

As we have just seen, *who* would normally be pronounced in-situ under Abe's approach but, since this low copy is now part of a separate overt movement chain, it is pronounced within that chain.

We extract two claims from Abe's account for further scrutiny. First, according to Abe it is the remnant that is fronted rather than the indirect question and, therefore, the category of the fronted element should always be the category of the remnant (DP in Ross's example (1-a)) and not that of the indirect question (CP). We will investigate this claim in section 3. Second, for Abe the process giving rise to the swamp construction is topicalization. We will now test whether or not the distribution of the swamp construction tracks the availability of topicalization. The results are not very encouraging.

Abe's account runs into issues of undergeneration regarding Ross's example and the root version of it, (7-a). Sluices do not allow topicalization from the elliptical domain, (16-b), and root questions do not allow topicalization at all whether they are elliptical or not, (17) (see Bianchi & Frascarelli 2010, 77 ex. 47).²

- (16) a. ?Joe has a picture of Nixon, but a picture of Kennedy I don't know who has.
b. *Joe has a picture of Nixon, but a picture of Kennedy, I don't know who.
- (17) a. *These petunias, did John plant?
b. *These petunias, when (did John plant)?

Setting the worry about undergeneration aside, we turn to the question of whether the distribution of the swamp construction tracks the distribution of topicalization in other cases. The following examples are telling. They involve the matrix predicates *glad* and *tell*. According to Bianchi & Frascarelli 2010, these predicates allow

²Abe acknowledges these problems of undergeneration and provides a somewhat technical solution. See Abels (to appear: section 2.2 and Appendix II) for further discussion.

embedded topicalization, as shown in (18) (Bianchi & Frascarelli 2010:69 ex. 39).

- (18) a. I am glad that this unrewarding job, she has finally decided to give up.
b. Mary didn't tell us that Bill she had fired, and John she had decided to promote.

Nevertheless, *glad* and *tell* fail to embed the swamp construction:

- (19) a. *He spent the entire day doing something at the mall, but I sure am glad that doing what nobody knows.
b. *He spent the entire day doing something at the mall, but you never told us that doing what nobody knows.

The swamp construction then does not share the distribution of topicalization.

As we have seen, Abe's claim that the swamp construction involves topicalization runs into distributional difficulties. In direct questions, swamp is possible but topicalization is impossible. In certain embedded declaratives topicalization is possible but swamp is impossible. Only indirect questions conform to Abe's expectations: swamp is impossible and so is topicalization.

The current account, which relates the swamp construction to left-dislocation, does not run into the same difficulties. Left dislocation is possible in direct questions ((20) from Bianchi & Frascarelli 2010, 77 ex. 46), in root coordinated declaratives ((21) based on Bianchi & Frascarelli 2010, 62 ex. 22), and impossible under *glad* and *tell* ((22) from Bianchi & Frascarelli 2010, 76 ex. 45):

- (20) a. These petunias, did John plant them?
b. These petunias, when did John plant them?
(21) A: What can you tell me about John?
B: I can't tell you anything about John, but Bill, Mary kissed him.
(22) a. *I am glad that this unrewarding job, she has finally decided to give it up.
b. *Mary didn't tell us that Bill she had fired him.

Furthermore, Bianchi & Frascarelli (2010:75) note that most of their "English informants did not easily accept embedded L[eft] D[islocation] as such." Unlike Abe's account, which has difficulties in accounting for the distribution of the swamp construction, the current approach promises to get the distribution right.

2.3 Summary

Swamp clauses can appear as root clauses and fronted in root coordination but apparently nowhere else. The German swamp construction and recursive contrastive left-dislocation with clausal ellipsis show the same distribution.

Open issues for the next section include the following questions: Is the relation between the swamp clause and its apparent matrix one of syntactic subordination (Abe and the current analysis) or one of parenthesis (Bechhofer)? Is the fronted constituent clausal (Bechofer and the current analysis) or is the category of the fronted constituent that of the remnant (Abe)?

3 Clausal subordination and clausal fronting

In this section we will investigate the two questions mentioned immediately above. We will see that there is strong evidence that swamp clauses are subordinated and that the fronted constituent must be a clause and cannot be the remnant alone.

3.1 Embedding or parenthesis

Binding and word order are customary diagnostics to distinguish embedding from parenthesis. Both indicate that the swamp construction involves embedding.

Typical cases of parenthesis are characterized by a lack of binding relations between the parenthetical expression and its host. This is shown by the impossibility of variable binding by a quantifier between host and parenthetical in either direction, (23-a), while such binding is of course possible, subject to c-command and scope, in embedding structures, (23-b).

- (23) a. (i) *He_n bought, nobody_n claims, all the necessary books already.
(ii) *Nobody_n bought, he_n claims, all the necessary books already.
b. (i) Nobody_n claims (that) he_n bought all the necessary books already.
(ii) *He_n claims (that) nobody_n bought all the necessary books already.

Second, the host in an appositive root structure shows root word order rather than embedded word order while true embedding shows the opposite pattern. This is illustrated through obligatory subject-auxiliary inversion in the host clause in (24-a)–(24-b) and its impossibility (in standard English) in indirect questions.

- (24) a. What, Peter asks, can syntax do for him?
b. *What, Peter asks, syntax can do for him?
c. Nobody_n asks what syntax can do for him_n.
d. *Nobody_n asks what can syntax do for him_n. [Standard English]

On both diagnostics swamp clauses pattern as embedded clauses rather than as hosts for parentheticals. Variable binding into the swamp clause is clearly possible. Example (25) is a base line showing a regular sluicing construction with fronting of the question. The interpretation indicated in (25-b), a plausible pre-sluice for (25-a), with binding of *they* by *nobody* is clearly available. (26) is the swamp counterpart. The interpretation indicated in (26-b) is available in (26-a), although (26-b) itself is, of course, unacceptable because of the illicit pied-piping.

- (25) a. Everybody will have to take a picture of somebody, but who, nobody knows yet.
b. Everybody will have to take a picture of somebody, but who they_n will have to take a picture of, nobody_n knows yet.
(26) a. Everybody will have to take a picture of somebody, but a picture of who, nobody knows yet.
b. *Everybody will have to take a picture of somebody, but a picture of who they_n will have to take, nobody_n knows yet.

These facts suggest embedding rather than a parenthesis.

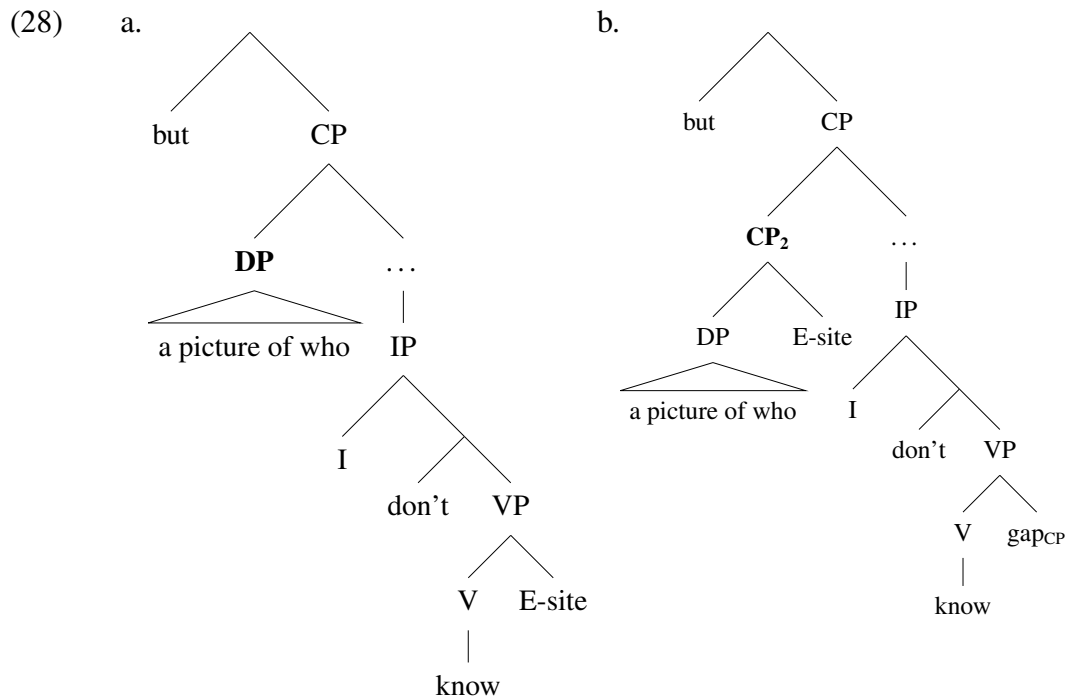
Second, if swamp clauses were hosts in parenthetical structures, we would expect corresponding full clauses (without massive pied-piping) to behave like hosts for parentheticals. The impossibility of subject-auxiliary inversion in (27) shows this not to be the case.

- (27) a. John has a picture of someone, but who he has a picture of, I don't know.
 b. *John has a picture of someone, but who does he have he a picture of, I don't know.³

The word order facts thus also suggest embedding rather than parenthesis. It then seems safe to rule out Bechhofer's parenthetical analysis of the swamp construction on the basis of these rather clear diagnostics. The same is true for the German swamp construction and contrastive left-dislocation with clausal ellipsis.

3.2 The category of the fronted constituent

I now address the question of whether the swamp construction involves fronting of the remnant alone (a DP in Ross's example (1-a)) or of a clausal constituent. We will, in other words, evaluate the merits of the two structures in (28). (28-a) is a representation of Abe's claim that what is fronted is only the remnant. (28-b) is an abstract representation of the claim made in the present paper, (6).



³This string of words is acceptable under an intonation that signals three independent clauses and with a clear break before *I don't know*: *John has a picture of someone. || But who does he have a picture of? || I don't know*. This would serve as a representation of a quirky internal monologue, but this is neither the effect nor the intonation characteristic of the swamp construction.

The first argument for (28-b) and against (28-a) depends on the observation that the availability of the swamp construction correlates with the availability of CP fronting. While *not know* in Ross's example readily allows CP fronting (see (25-b) above), such fronting is impossible in other environments. Thus, extraposed subject *wh*-questions cannot readily be fronted, (29-a) versus (29-b).

- (29) a. Something causes this effect, but it is unclear what (causes this effect).
 b. ??Something causes this effect, but [_{CP} what (causes this effect)] it is unclear *t*_{CP}.

The same limitation shows up in the swamp construction. Example (30-a) is minimally paired with (29-a). (30-a) violates the ban against massive pied-piping in regular embedded questions and regular sluicing. Example (30-b) is minimally paired with (29-b). The full version is ungrammatical for two reasons: (a) it violates the ban on fronting an extraposed question and (b) it violates the ban on massive pied-piping. The elliptical version of (30-b) is a candidate for the swamp construction. Under the CP fronting hypothesis, (28-b), we expect the elliptical version to remain ungrammatical: it violates the constraint against fronting an extraposed CP in exactly the same way that (29-b) does.

- (30) a. *The influence of something causes this effect, but it is unclear [_{CP} the influence of what (causes this effect)].
 b. *The influence of something causes this effect, but the influence of what (causes this effect) it is unclear.

However, under the DP topicalization analysis, (28-a), the structure of the elliptical version of (30-b) would be as shown in (31), which should be acceptable given that extraction from extraposed clauses causes no or only weak island effects (see Szabolcsi 2006; Abrusán 2014 for discussion).

- (31) ... [_{DP} the influence of what] it is unclear [_{CP} ~~*t*_{DP} causes this effect~~]

Another instructive set of contrasts can be constructed on the basis of data in Turnbull-Sailor 2007. Turnbull-Sailor (2007:13) discusses the contrast between *wonder* and *discover* in (32) and that between *ask* and *determine* in (33). The interesting observation is that *wonder* and *ask* can but *discover* and *determine* cannot follow their interrogative complements.⁴

- (32) Turnbull-Sailor 2007, 13 ex. 24
 a. They all wondered what could be done.
 b. What could be done, they all wondered.⁵
 c. They all discovered what could be done.
 d. *What could be done, they all discovered.

- (33) Turnbull-Sailor 2007, 13 ex. 25

⁴The claim here needs to be carefully hedged. For example, the prohibition against fronting does not inhere in *discover* and *determine* but has to do with whether the question has been resolved or not. Therefore, introducing negation in (32-d) changes the judgment. The important point here is simply the very solid correlation in behavior.

- a. The juror asked who should be found guilty.
- b. Who should be found guilty, the juror asked.
- c. The juror determined who should be found guilty.
- d. *Who should be found guilty, the juror determined.

DP topicalization in comparable cases gives rise to a *wh*-island effect with all four embedding predicates. When we turn to canonical sluicing, we find that regular sluicing shows the same pattern as full interrogative clauses: *wonder* and *ask* do but *discover* and *determine* do not allow fronting of the sluice:

- (34) a. He had eaten something poisonous. They all wondered what.
- b. He had eaten something poisonous. What, they all wondered.
- c. He had eaten something poisonous. They all discovered what.
- d. *He had eaten something poisonous. What, they all discovered.
- (35) The DA argued somebody's friend should be questioned.
- a. ... The juror asked whose friend.
- b. ... Whose friend, the juror asked.
- c. ... The juror determined whose friend.
- d. *... Whose friend, the juror determined.

This is unsurprising given that sluices are CPs. The same contrasts show up again in the swamp construction, as illustrated in (36).

- (36) a. The DA argued a friend of somebody should be questioned.
- (i) ... A friend of who, the juror wondered.
- (ii) *... A friend of who, the juror discovered.
- b. The defendant had taken a picture of somebody.
- (i) ... A picture of who, the prosecutor asked.
- (ii) *... A picture of who, the prosecutor determined.

The pattern can easily be understood if the swamp construction obligatorily involves clausal fronting. Examples (32) and (33) are transparent cases of clausal fronting, as are examples (34) and (35) on the consensual assumption that sluices are clauses. We can explain the pattern in (36) as a simple extension of the prohibition against fronting clauses under *discover* and *determine* if the swamp construction involves clausal fronting. The consistent patterning of clauses with remnants in the swamp construction remains mysterious. These paradigms thus suggest that both Ross's example involves CP fronting obligatorily and cannot involve fronting of the remnant alone.

As noted above, German also allows the swamp construction, (4-a). We saw that there is a resumptive d-pronoun in the example: *das*. When the dislocate is a DP, the d-pronoun systematically reflects the dislocate's ϕ -features; clausal dislocates are resumed by the neuter singular *das*, the R-pronoun *da*, or a prepositional adverb – depending on the properties of the matrix verb (see Altmann 1981). The German swamp construction clearly bears the mark of clausal left-dislocation, (37), since the d-pronoun always corresponds to the one expected with clausal left-dislocates and fails to agree with the overt remnant.

(37) German

- a. Die Gerüchte über jemanden haben ihn schockiert, aber die
the.PL rumors.PL about someone have him shocked, but the
Gerüchte über wen, {das |*die} weiss ich nicht.
rumors about who dPR.3rdSG.N dPR.3rdPL know I not
The rumors about someone shocked him, but the rumors about who, I
don't know.
- b. Hans hat eine Zeichnung von jemandem, aber eine Zeichnung
Hans has a.F.SG drawing.F.SG of somebody, but a picture
von wem, {das |*die} weiss ich nicht.
of who dPR.3rdSG.N dPR.3rdSG.F know I not
Hans has a picture of somebody, but a picture of who I don't know.

The pattern of judgments clearly indicates that the fronted constituent may and must be a CP and cannot be a DP.

This subsection has provided evidence which bears on the question of whether the fronted constituent in Ross's example (1-a) is the remnant alone (a DP) or whether it is a clausal constituent (a CP). The position according to which only the remnant is fronted is not supported by the facts. The facts point strongly to a structure with a fronted (elliptical) clause.

3.3 Interim Conclusion

In this section we have tried to answer the questions raised by Bechhofer's and Abe's analyses of the swamp construction. Bechhofer's analysis, according to which the apparent sluice is a root and the apparent matrix is a parenthetical, cannot be maintained; binding and word order suggest true embedding. We also found that Abe's claim that in Ross's example (1-a) only the remnant, a DP, is fronted, while the CP is left in its canonical position, cannot be maintained either (with German patterning again like English); the swamp construction involves a fronted clause, a CP, rather than merely a fronted remnant. Section 2 had already shown that Abe's approach overgenerates (and possibly also undergenerates) when it comes to the distribution of the swamp construction. Bechhofer's analysis, as far as can be determined, describes the distribution correctly. Putting together the results from both sections, we find that neither of the existing accounts satisfactorily deals with the properties of the swamp construction.

As illustrated in detail in Abels to appear, the distribution and the reconstructive behavior of the swamp construction in English patterns with the two German constructions: the swamp construction and recursive contrastive left-dislocation with clausal ellipsis. This patterning of data then motivates a uniform analysis of all three constructions in terms of contrastive left-dislocation with ellipsis. Given that recursive contrastive left-dislocation with clausal ellipsis is available in German anyway, the only obstacles to the analysis proposed here (for German) come from the observations that (phrases containing) *wh*-pronouns (not scoped within the left dislocate) cannot usually be left dislocated and that clausal ellipsis is generally optional in the contexts where it is allowed. For English a bit more work is needed. We will need to address the question of why the *d*-pronoun corresponding to the

fronted CP cannot be realized in English and why, more generally, English does not generally seem to have a contrastive left-dislocation structure of the German type while exhibiting it in the swamp construction.

4 Morphological assumptions

This section is divided into two parts. In the first part, I address the question of why ellipsis of CP₂ in (6) is obligatory. The second part will make some of the assumptions more explicit that are needed to transfer the analysis from German, where all of this is relatively straightforward, to English.

4.1 Obligatory clausal ellipsis

The issue to be addressed in this subsection is the question of why ellipsis is obligatory in the swamp construction. The claim is that full structure in (6) is well-formed as far as the narrow syntax is concerned. So why can it not be pronounced? Why is ellipsis of CP₂ obligatory? The leading idea I use to answer this question comes from Kennedy & Merchant (2000); Merchant (2001); Kennedy (2003), who suggest that the morphology, the lexicon of a language, can sometimes force ellipsis.

Kennedy and Merchant discuss the following type of data. They observe that (38-a) is ungrammatical because of a left-branch violation and that (38-b) is grammatical and is interpreted as though it had the structure in (38-c), which again violates the left branch condition.

- (38)
- a. *The Cubs start a more talented infield than the Sox start an outfield.
 - b. The Cubs start a more talented infield than the Sox do.
 - c. The Cubs start a more talented infield OP_i [than the Sox do [_{VP} start [_{DP} — an t_i infield]]].

In view of the fact that other languages do allow left branch extraction and guided by the idea that linguistic variation is ultimately lexical, Kennedy and Merchant propose that languages that allow left branch extraction overtly do but languages that do not allow it do not have a morpheme that allows extraction of DegP from the edge of DP. The relevant notion of a morpheme is (roughly) that of a stable correspondence between a bundle of syntactic/semantic features and a phonological representation (which might, of course, be null). The proposal is that left branch extraction is impossible in the general case because English has a morphological gap. This gap prevents the structure underlying both (38-a) and (38-b) from being pronounced fully. But in (38-b) ellipsis bleeds lexical insertion. Thus, the morphological gap remains undetectable to the system and the derivation converges.

In late lexical insertion models (like distributed morphology or nano-syntax) this is a plausible and natural approach. In the general case, feature bundles that have no realization according to the lexicon of the language will lead to morphological crash but may be syntactically well formed. However, because the narrow syntax is oblivious to lexical vagaries of this sort, ineffability of the corresponding syntactic structure results even when the syntactic structure is well-formed. But if the system never needs to attempt insertion, the crash in the morphology can be

avoided.⁶

Arguably, this is also what happens with a class of defective verbs in Russian which lack first person singular non-past forms. This fact is illustrated in the following table for the two verbs *buzit'*–‘make a fuss’ and *šelestet*–‘rustle’ (extracted from Baerman *et al.* 2009 with similar non-defective verbs for comparison).

	z – ž		st - šč	
	buzit' 'make a fuss'ă	porazit' 'strike'ă	šelestet' 'rustle'	pustit' 'release'
(39) 1 st SG	_____	poražu	_____	pušču
2 nd SG	buziš	poraziš	šelestiš	pustiš
3 rd SG	buzit	porazit	šelestit	pustit
1 st PL	buzim	porazim	šelestim	pustim
2 nd PL	buzite	porazite	šelestite	pustite
3 rd PL	buzjat	porazjat	šelestjat	pustjat

Of course, there are presumably well-formed syntactic structures that would require the absent forms, but they are ineffable.

We saw that Kennedy & Merchant (2000) suggest that the effect of ineffability caused by morphological gaps can be repaired by ellipsis. This follows quite directly if we assume that elliptical structures do not require morphological insertion at the ellipsis site. We can now test this idea by observing how the defective Russian verbs behave under ellipsis. The examples here involve stripping (E. Titov, N. Slioussar, p.c.):

- (40) On {buzit | šelestit}, a ja net.
 he makes.a.fuss rustles, but I not
 He {makes a fuss | rustles} but me not.

On the assumption that stripping derives from syntactically full fledged but elliptical structure, these examples confirm Kennedy and Merchant’s conjecture: The ineffability of *I {make a fuss | rustle}*., caused by a morphological gap, is repaired by ellipsis. Descriptively, ellipsis is obligatory with verbs like *buzit'* and *šelestet'* when the subject is first person singular. For the repair to be available, ellipsis needs to be independently available, of course, as it is in the case of stripping above.

The claim that a morphological gap makes otherwise optional ellipsis obligatory needs to be distinguished from the following alternatives: (i) The relevant form is phonologically null; (ii) the morphological gap licenses ellipsis of the relevant head; (iii) the morphological gap licenses ellipsis of a constituent containing the head. All three of these alternatives overgenerate in obvious ways: (i) predicts that the null verb should act like a regular verbal form so that *ja //* should be able to mean *I rustle* or *I make a fuss* independently of context; (ii) and (iii) predict that in contexts where ellipsis is not usually available, the occurrence of the lexical gap should allow it.

⁶What matters to me here is the logic of the account not whether it is the correct approach to left branch extraction. There are in fact reasons to believe that ellipsis does not repair violations of the left branch condition (Grebenyova 2006; Barros *et al.* 2014), making an account of Kennedy and Merchant’s data in terms of the interplay of covert movement and pied-piping along the lines of Kennedy 2002 more appealing.

Contrary to this expectation, the translation of *I complain and.* into Russian is as incomplete as it is in English and does not mean *I complain and make a fuss*. The reason (40) is grammatical is not because the morphological gap licenses ellipsis. It does not. The example is grammatical because there is an independent ellipsis process, stripping, which can occur here. Not applying this independently available process with the missing verb forms leads to a crash; thus, ellipsis must apply. All of this is quite natural, if we assume that ellipsis bleeds lexical insertion.

The interaction between the (distributed) lexicon and ellipsis is a principled case of repair by ellipsis. The existence of such cases can be deduced directly from the nature of ellipsis under the independently motivated architectural assumption of late lexical insertion. Unlike literal island repair by ellipsis, which is completely ad hoc (Culicover & Jackendoff 2005), there is nothing ad hoc or mysterious about the idea of repairing lexical gaps by ellipsis.

I propose that this type of explanation should be given to the puzzle of why clausal ellipsis under contrastive left-dislocation becomes obligatory in the swamp construction: The sister of the Q-morpheme in (6) has simultaneous properties of a *wh*-word and of a bound d-pronoun. On the assumption that neither English nor German have the relevant morpheme in their lexicon, the non-elliptical version of CP₂ is ineffable. Recall from the discussion immediately above that morphological gaps are not themselves ellipsis licensors; morphological gaps will make independently available ellipsis obligatory. What candidate elliptical processes are there? There is no process eliding *wh*-phrases in Spec,CP in German. Therefore, any elliptical process saving CLD-P₂ (and every phrase containing it) from ineffability will minimally have to target CP₂ – and this, thanks to the independent availability of contrastive left-dislocation with clausal ellipsis in the relevant environments, is exactly what we find.

For German, all we need to assume is that it lacks a *wh*.dPR morphologically to explain why question ellipsis is obligatory in the swamp construction but optional otherwise. This approach predicts that there could be a language that is just like German in all respects except that it does have a morphological exponent for *wh*.dPR. This language would be expected to have an elliptical as well as a non-elliptical version of the swamp construction.

4.2 Back to English

The question to be addressed in this part of the paper is the following. How can English possess the swamp construction without having contrastive left-dislocation more generally? Given that the structure for Ross's example proposed here involves two instances of contrastive left-dislocation, I will discuss the solution for each of these cases separately.

It should be clear, that the current analysis of contrastive left-dislocation with question ellipsis and of the swamp construction in German can be carried over to English only if we assume that the *wh*-phrase with apparent massive pied-piping is really left dislocated. That is, we have to assume that the structure of CLD-P₂ is the same in German and in English. We will have to assume that CP₂ can be elided in the relevant cases and that ellipsis is forced here specifically because English has the same morphological gap as German: it lacks a *wh*-d-pronoun.

Independent support for the existence of contrastive left dislocation with question ellipsis might come from examples like the following:

- (41) We know who last saw the girl. But the boy? That we don't know.

I have not studied such examples sufficiently to know whether they truly involve an embedding structure and support connectivity effects for the putative left dislocate *the boy* as they should, if they correspond structurally to (5).

My approach to Ross's example forces me to assume that the massively pied-piped ellipsis remnant is contrastively left-dislocated and that the corresponding CP is elided, obligatorily so, because of the morphological gap.⁷

This leaves the second instance of contrastive left-dislocation indicated in structure (6). While German provides strong evidence from the presence of the d-pronoun that CLD-P₂ is left dislocated rather than topicalized from CP₁, the evidence from the English swamp construction does not overtly suggest this conclusion. Indeed, CLD-P₂ could just as well have been topicalized and we could easily claim that in English it is. This would lead to the idea that English has no overt (non-elliptical) contrastive left-dislocation at all. The entire series of d-pronouns are morphological gaps in English, hence contrastive left-dislocation only exists in elliptical form.⁸

An alternative approach to the hypothesized contrastive left-dislocation of CLD-P₂ might be to suggest that English allows contrastive left-dislocation of clauses – and maybe other categories (see Ott 2017 for discussion of English VP-topicalization in this spirit) – but that the d-pronouns are phonologically null. The idea that CPs are left dislocated with a null pronoun in English is not at all new. The existence of a null pronoun resuming a displaced clause has long been hypothesized (Koster 1978; Alrenga 2005). The fact that there seems to be a systematic category mismatch between fronted CPs and their gaps, (42)–(44), suggest as much.

- (42) Bresnan 2001, p. 17 ex. 3
- a. That he was sick we talked about for days.
 - b. *We talked about that he was sick for days.
 - c. We talked about the fact that he was sick for days.
- (43) Moulton 2015, p. 306 ex. 3
- a. Albert {boasted | commented} that the results were fantastic.

⁷Though I cannot pursue this issue here, one might speculate that fragment answers in English are derived from contrastive left-dislocation with ellipsis. This would provide a second example in English of contrastive left-dislocation with clausal ellipsis. The main challenge to overcome are almost certainly the arguments against a derivation of fragments in terms of syntactic movement given in (Weir 2014).

⁸Such an analysis where CLD-P₂ is topicalized does not contravene the distributional arguments given above. While I argued that the swamp construction does not have the distribution of topicalization, the arguments proposed there are compatible with the hypothesis discussed here. The root cases of the swamp construction will still only involve contrastive left-dislocation with ellipsis and not involve topicalization. Ross's example will require both topicalization (of CLD-P₂) and ellipsis (of CP₂). We would have to say that the conjunction of these two processes is possible in English only in the same, restricted environments where recursive contrastive left-dislocation with question ellipsis is possible in German – presumably for similar reasons.

- b. *Albert {boasted | commented} {that | it | a belief that the results were fantastic}.
 - c. *That the results were fantastic, Albert {boasted | commented}.
- (44) Williams 2016, p. 2 ex. 4
- a. *That John is here I was not aware.
 - b. That John is here I was not aware of.
 - c. I was not aware (*of) that John is here.

The category mismatch could be the result of the categorial status of d-pronouns as DPs in English together with the idea that CPs are never topicalized and always contrastively left-dislocate in English (for relevant discussion of connectivity effects in Moulton 2015).

There is clearly more work to be done here, but it seems plausible that one of the ideas above about contrastive left-dislocation in English will find independent support. Like German, English lacks a morphological exponent for the *wh*.dPR and like English, in the restricted environments where we find the swamp construction, contrastive left-dislocation can be coupled with clausal ellipsis. Assuming this much, the analysis of German will carry over to English.

It is natural to ask at this point whether it would not be more economical to assume that the swamp construction is an instance of sluicing after all and to replace the assumptions made here by the following set of assumptions: There is a *wh*-complementizer which is endowed with (i) the ellipsis-licensing E-feature, (ii) a feature that forces fronting of the clause projected by this head, and (iii) a flavor of the *wh*-feature that allows massive pied-piping. This C-head encodes through feature conjunction the properties of the swamp construction. Given that the conjunction of features is arbitrary, this account leads naturally to the assumption that C heads with any of the combinations of properties (i)–(iii) should be able to exist. In particular, we should be able to find languages with C heads instantiating just (i) and (iii). This would be a language which obeys certain constraints on pied-piping in regular *wh*-questions but where these constraints are inoperative under sluicing. I would take the existence of such a language to falsify the *wh*-move-and-delete approach to sluicing; such a language would violate the fundamental corollary of all *wh*-move-and-delete analyses according to which only those constituents that can occupy Spec,CP in full *wh*-questions can be sluicing remnants.⁹ Given that this corollary of all *wh*-move-and-delete approaches is extremely well supported, there is clear evidence that the alternative theory sketched in this paragraph is incorrect.

This section has dealt with two issues. The first subsection took the idea as given that the swamp construction in German is an instance of contrastive left-dislocation and suggested a way to relate the two exceptional properties of the swamp construction to each other: the fact that the left dislocate contains a *wh*-word and the fact that clausal ellipsis is obligatory. I suggested that ellipsis is obligatory because

⁹The other two combinations of features are either relatively innocuous or hard to distinguish from the current proposal. A language that had a C head with (i) and (ii) but without (iii) would allow sluicing under clausal fronting, which isn't particularly shocking. If the language in addition lacked a head instantiating (i) it would allow sluicing only under fronting. A language that had a C head with (ii) and (iii) but without (i) would be very similar to the language type with a morphological exponent of the *wh*.dPR whose existence is predicted here.

the non-elliptical version of the swamp construction would require a *wh*.dPR, but the lexicon of German does not contain this item. The second, more speculative subsection briefly sketched the additional assumptions needed to apply the analysis developed for German to English. No attempt was made to defend these assumptions any further or choose between the different versions briefly entertained above.

5 Conclusions and outlook

I have proposed an analysis of Ross's example (1-a) with four key ingredients: (i) recursive contrastive left-dislocation, (ii) contrastive left-dislocation from a question, (iii) ellipsis of a clause that has itself been dislocated from (in certain environments), and (iv) contrastive left-dislocation of a phrase containing an unscoped *wh*-word. (i)–(iii) are independently available in German and are therefore costless assumptions. I have not discussed assumption (iv). Interpreting the structure in (6) compositionally is quite straightforward. The correct interpretation for (6) can easily be derived if we assume that the *wh*-d-pronoun is bound and semantically restricted by the left dislocate. Such an analysis can be implemented using the semantics for partial *wh*-movement and pied-piping in Sternefeld 2001 or Cable 2007. The upshot of this line of thinking is that constraints on pied-piping are purely syntactic (as in Cable 2007; Heck 2008). Similarly, the requirement in English and other single *wh*-fronting languages to move some *wh*-phrase to Spec,CP must be viewed in terms of a requirement inherent in C (attraction) rather than as a requirement of the *wh*-phrase (greed). None of this seems problematic. I suggested that the lack of a morphological exponent of the *wh*.dPR explains why ellipsis is obligatory. The analysis is extremely well supported for German. Somewhat speculatively, I suggest that it should be applied to English as well.

Analytically, we have seen that neither Bechhofer's nor Abe's analyses of the swamp construction are adequate. Both need to be given up.

Theoretically the present analysis removes a counterexample to Ross's generalization according to which sluicing always obeys constraints on pied-piping. Since Ross's generalization follows directly specifically from *wh*-move-and-delete analyses of sluicing, such analyses are correspondingly strengthened by the removal of this counterexample. The swamp construction raises thorny issues for in-situ analyses of sluicing and analyses without unpronounced clausal structure at the ellipsis site. Both types of theories have trouble deriving Ross's pied-piping generalization in the first place and a harder time still, dealing with the swamp construction and its characteristic three-way interaction between ellipsis, fronting, and pied-piping.

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