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Malagasy sluicing and its consequences for the identity requirement on ellipsis

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Abstract   Linguistic material cannot be freely deleted in a sentence; rather, elided material must be recoverable via some kind of parallelism with an antecedent. This paper uses sluicing (IP ellipsis) in Malagasy to argue that this parallelism requirement is a semantic restriction and not a syntactic one. An elided constituent must be semantically parallel to its antecedent but need not have parallel syntactic structure (Merchant, 2001). In Malagasy, *wh*-questions are pseudoclefts. Given that antecedent clauses are not pseudoclefts, sluicing is ruled out if syntactic parallelism is necessary. Sluicing is correctly allowed if there is only a semantic parallelism requirement. The paper considers an alternative that would avoid this conclusion: Malagasy *wh*-questions are clefts and the construction under investigation is pseudosluicing (Merchant, 1998), which is not subject to a linguistic parallelism requirement. This alternative is shown to be untenable.

Keywords   Malagasy · Sluicing · Ellipsis licensing · Predicate fronting · *Wh*-questions · Pseudocleft

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1 Introduction

It is widely recognized that linguistic material cannot freely be left unpronounced in a sentence; rather, missing material must be licensed by recoverability. Informally, if a constituent E can be elided, its meaning must be recoverable from an antecedent A. There is much debate, however, over the exact formulation of recoverability and what information in A is relevant for licensing ellipsis. Under a SYNTACTIC PARALLELISM approach (Fiengo and May, 1994 and others), syntactic structure is relevant and there must be morphosyntactic identity between the elided constituent E and the antecedent A. Under a SEMANTIC PARALLELISM approach, semantic representation is relevant and there must be a particular semantic relation between the elided constituent E and the antecedent A (Dalrymple et al., 1991; Hardt, 1999; Merchant, 2001). Much theorizing in this debate has revolved around subtle facts about English VP ellipsis and its interpretations (Fiengo and May, 1994; Hankamer and Sag, 1976; Lobeck, 1995; Sag, 1980; Zagona, 1988, and others). In an important study, Merchant (2001) turns to the domain of sluicing (IP ellipsis) to argue in favor of a semantic parallelism requirement for ellipsis licensing.

The goal of this paper is to present an argument in favor of semantic parallelism and against syntactic parallelism from sluicing in Malagasy, an Austronesian language spoken on the island of Madagascar. Malagasy-specific structures greatly restrict the possible derivations for *wh*-questions and sluicing examples. A syntactic parallelism requirement on ellipsis predicts that sluicing should be unavailable in Malagasy, contrary to fact. Semantic parallelism correctly licenses sluicing. Assuming that recoverability for ellipsis licensing has a universal formulation, Malagasy argues that it must be a semantically based condition.

The paper is structured as follows: Section 2 introduces basic assumptions about Malagasy clause structure and the sluicing construction. A core assumption, to be justified in Section 4, is that Malagasy is a *wh*-in-situ language and *wh*-questions with an initial *wh*-phrase are pseudocleft structures, in which the *wh*-phrase is part of the clause-initial predicate and the following material is a headless relative in the clause-final subject position. A *wh*-in situ pseudocleft structure raises the question of how sluicing can exist, since its derivation is widely believed to be dependent upon *wh*-movement. I develop the proposal that the initial *wh*-phrase escapes ellipsis as part of a general predicate fronting operation that derives predicate-initial word order (Pearson, 2001; Rackowski and Travis, 2000; Travis, 2006). Section 3 presents the argument for semantic parallelism and against syntactic parallelism, showing that the latter is unable to correctly account for the availability of sluicing in Malagasy. The core of the argument is that sluicing will always involve a pseudocleft embedded question with a non-pseudocleft antecedent, so there will never be syntactic parallelism that could license deletion. Section 4 returns to provide evidence in support of the assumption that *wh*-questions with an initial *wh*-phrase in Malagasy are indeed pseudoclefts. Section 5 considers an alternative, pseudosluicing analysis that would allow us to maintain syntactic parallelism. It is hypothesized that *wh*-questions are clefts, not pseudoclefts, and that sluicing is actually pseudosluicing, a construction in which the non-pivot portion of a cleft is unpronounced. If such an analysis were correct for Malagasy, it would not argue against syntactic parallelism because the missing material in pseudosluicing may not be subject to a linguistic parallelism requirement. The section shows that neither the cleft structure nor the pseudosluicing derivation is tenable. Section 6 concludes.

2 Malagasy syntax and sluicing

2.1 Clause structure

Malagasy is an Austronesian language spoken on the island of Madagascar. It has predicate-initial, subject-final word order illustrated by the transitive VOS clause in (1).[1]

(1) m-i-vidy   ny osy i Soa
     PRES-AT-buy the goat Soa
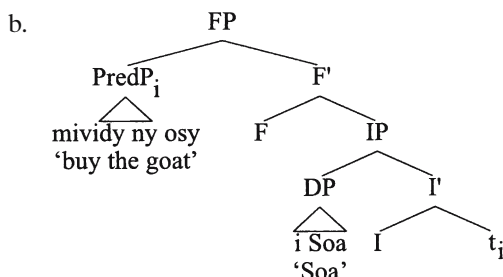   Soa is buying the goat.

Malagasy has a well-developed, Philippine-style voice system which indicates the role of the DP in subject position. I use the traditional terminology to refer to these forms, which are named after the subject's role. Corresponding to the ACTOR TOPIC (AT) sentence in (1) and (2a), the THEME TOPIC (TT) sentence in (2b) has the theme as the clause-final subject and the CIRCUMSTANTIAL TOPIC (CT) sentence in (2c) has an oblique element as its subject. The actor in such non-AT clauses appears immediately after the verb.

(2)a. m-i-vidy   ny osy ho an- dRabe i Soa
       PRES-AT-buy the goat for   Rabe Soa
       Soa is buying the goat for Rabe.

   b. vidi-n' i Soa ho an- dRabe ny osy
       buy-TT Soa for   Rabe   the goat
       The goat is being bought for Rabe by Soa.

   c. i-vidi-anan' i Soa osy Rabe
       AT-buy-CT Soa   goat Rabe
       Rabe is being bought a goat by Soa.

I assume that Malagasy clauses are projected from an I° head. Its left-hand specifier is the surface subject position and its complement is a predicate phrase, PredP (Bowers, 1993; Chomsky, 1995; Kratzer, 1996), which in turn embeds the lexical predicate. VXS order is derived from this underlying SVX order by fronting of PredP to a higher specifier position (Massam and Smallwood, 1997; Pearson, 1998, 2001, 2006; Rackowski, 1998; Rackowski and Travis, 2000; Massam, 2000; Aldridge, 2002, 2004; Cole, et al., 2002; Chung, 2005; Travis, 2006). The derivation of a basic VOS clause is as in (3b). SVO structure is transformed into VOS by moving PredP to the specifier of a projection FP above IP. I refer to this operation as PREDICATE FRONTING.
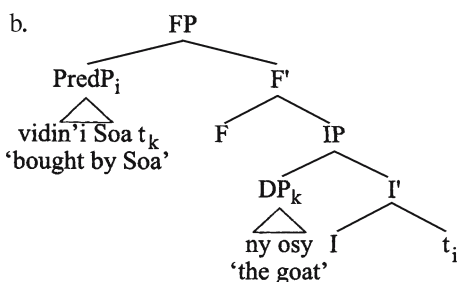
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[1] I use the following abbreviations in glossing: 1/2/3-person, ACC-accusative, AT-actor topic voice (active), CT-circumstantial topic voice (oblique passive), COMP-complementizer, DEM-demonstrative, FUT-future, LOC-locative, NEG-negative, NOM-nominative, PREP-preposition, PRES-present, PRT-particle, REL-relativizer, SG/PL-number, TT-theme topic voice (passive).

(3)a. mividy ny osy   i Soa
   buy.AT   the goat   Soa
   Soa is buying the goat.

b.

FP
 ├── PredP$_i$
 │   mividy ny osy
 │   'buy the goat'
 └── F'
       ├── F
       └── IP
             ├── DP
             │   i Soa   I
             │   'Soa'
             └── I'
                   I   t$_i$

For non-active clauses as in (4a), the post-verbal actor remains PredP-internal and the fronted predicate contains a trace of the raised DP:[2,3]

(4)   a. vidi-n'   i Soa   ny   osy
      buy-TT   Soa   the   goat
      The goat is being bought by Soa.

b.

FP
 ├── PredP$_i$
 │   vidin'i Soa t$_k$
 │   'bought by Soa'
 └── F'
       ├── F
       └── IP
             ├── DP$_k$
             │   ny osy   I
             │   'the goat'
             └── I'
                   I   t$_i$

2.2 Subject restrictions

Malagasy clauses such as the ones above are governed by the restriction that their subjects must be specific (Keenan, 1976:252–254; Paul, 1998, 2000b; Pearson, 1996, 2001:19–20, but see Law and Gärtner (2005) for an alternative viewpoint):

(5)   *Malagasy subject specificity requirement*
      Subjects must be specific.

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[2] I do not show PredP-internal structure. I introduce some of my assumptions about it below when it becomes relevant.

[3] There is an alternative analysis of Malagasy clause structure which argues that Malagasy subjects are A′ topics (Pearson, 2001, 2005). The structures would be roughly the same as shown here except for a relabeling of some projections. For example, Spec,I would become an A′ topic position, the specifier of a topic phrase. I continue to use the more traditional clause structure and the term 'subject' to refer to the clause-final DP. I believe that the choice of clause structure does not affect the conclusions about ellipsis parallelism.

As Pearson (2001:19) summarizes, the subject must be associated with an existential presupposition; there must be an entity to which the subject refers. The subject may be a proper name, a definite pronoun, or a common noun with a demonstrative or definite article, (6). It may not be a bare noun phrase, (7). Instead, an impersonal existential construction must be used, (8).

(6)   mamaky boky i Bao/izy/ny zaza/ilay zaza
      read.AT   book Bao/3SG.NOM/the child/that child
      Bao/(s)he/the child/that child is reading a book.

(7)   *mamaky boky olona/zaza
       read.AT   book person/child
       (Someone/A child is reading a book.)

(8)   misy   olona/zaza   mamaky boky
      exist.AT person/child read.AT   book
      There is someone/a child reading a book.

2.3 *Wh*-questions

Malagasy has two strategies for forming *wh*-questions. When questioning non-subjects, *wh*-in situ is possible, (9) (see Sabel, 2003 for discussion).

(9)a.   nividy inona i Be?
        buy   what Be
        What did Be buy?

   b.   *nividy ny osy iza?
        buy   the goat who
        (Who bought the goat?)

Questioning subjects requires fronting the *wh*-phrase and following it by the particle *no*, which I gloss PRT, (10). It is this strategy that will be of interest here.

(10)a.   iza   no   mividy ny osy?
         who PRT buy.AT the goat
         Who is buying the goat?

    b.   inona no   vidin' i Soa?
         what PRT buy.TT Soa
   What is being bought by Soa?

Structurally, such examples are pseudoclefts (Paul, 2000a, 2001; Potsdam, 2006, to appear). In both matrix and embedded *wh*-questions, the *wh*-phrase is inside PredP and the subject is a headless relative with internal movement of a null operator. This is schematized in (11).

(11)   [PredP/predicate *wh-phrase*] [DP/subject Op$_i$ no … t$_i$]

The *wh*-question repeated in (12a) is thus syntactically closer to an English pseudocleft: "(The) one buying the goat is who?" and has the structure in (12b). The *wh*-phrase

is contained in PredP, which has undergone fronting, and the subject in Spec,I is a DP with a headless relative having roughly the meaning "one buying the goat".[4]

(12)   a. iza   no   mividy   ny   osy?
          who   *PRT*   *buy*   *the* *goat*

          Who is buying the goat?

   b.
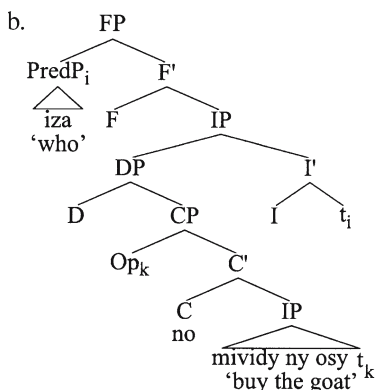
A number of Austronesian languages employ a pseudocleft structure for *wh*-questions, including Palauan (Georgopoulos, 1991), Malay (Cole, et al., to appear), Tsou (Chang, 2000), Tagalog (Aldridge, 2002; Richards, 1998), and Seediq (Aldridge, 2002), and I believe that this is also correct for Malagasy. Section 4 will return to provide evidence for this important claim.

   The restriction that only subjects can be extracted in Malagasy is quite well-known (see, for example, the discussions in Keenan (1976, 1995), Keenan and Comrie (1997), MacLaughlin (1995), Paul (2000a, 2001, 2002), Sabel (2002), and others). It holds of grammatical rules that are typically analyzed using A′-movement, in particular, the null operator movement seen above.[5]

(13)   *Malagasy extraction restriction*
       Only subjects can be extracted.

   (14) illustrates this restriction for *wh*-questions. The examples in (14) are ungrammatical because a non-subject is fronted. The null operator in the subject headless relative corresponds to a non-subject argument. These examples should be compared with the grammatical *wh*-questions in (10) in which the questioned element (and hence the null operator) corresponds to a subject.

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[4] I take the particle *no* to be a relativizer in C°, although nothing hinges on this choice. Paul (2001) suggests that it is a determiner. I leave the precise analysis of *no* for future investigation.

[5] Some adverbials can extract without first advancing to subject position (Keenan, 1976; Paul, 2000a, 2001, 2002; Pearson, 2001; Rabenilaina, 1998; Sabel, 2002). Such examples will not be of concern here.
   See MacLaughlin (1995), Sabel (2002), Paul (2002), and Pearson (2005) for analyses of the extraction restriction.

(14)a. *inona no   mividy i Soa?
         what PRT buy.AT Soa
         (What is Soa buying?)

   b. *iza   no   vidina ny osy?
       who PRT buy.TT the goat
       (Who is the goat being bought by?)

Embedded *wh*-questions are formed in the same way as matrix *wh*-questions. They are introduced by the embedded *wh*-question complementizer *hoe*. CP complements in Malagasy are obligatorily extraposed (Keenan, 1976), yielding VSO word order in the matrix clause, (15).[6] The subject extraction restriction also holds of embedded questions.

(15)a. nanontany aho   hoe iza   no   mividy ny osy
         ask.AT   1SG.NOM COMP who PRT buy.AT the goat
         I asked who is buying the goat.

   b. tsy fantatr' i Be hoe   inona no   vidin' i Soa
       NEG know   Be COMP what PRT buy.TT Soa
       Be doesn't know what is being bought by Soa.

Malagasy also allows extraposition of various non-CP elements to a clause-final position, (16). Such extraposition is optional, however. Extraposed non-CPs may also occur to the immediate left of the subject, as part of the predicate. Since extraposed elements appear to the right of the Spec,I subject, I will assume that they are adjoined to IP.

(16)a. hanao izany Rasoa **noho   izaho**
         do   that Rasoa because.of 1SG.NOM
         Rasoa will do that because of me.

   b. namaky boky ny mpianatra **omaly**
       read   book the student   yesterday
       The student read a book yesterday.

   c. fahatelo Rabe **tamin' ireo   mpianatra ireo**
       third   Rabe PREP DEM student   DEM
       Rabe was third among these students.

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[6] I analyze *hoe* as a subordinating conjunction (as suggested in Rahajarizafy, 1960:117). It introduces embedded *wh*-questions regardless of whether the *wh*-phrase is fronted or in-situ:

 (i) a. tsy fantatr' i Soa hoe   inona no   hita-ny
        NEG know   Soa COMP what PRT see.TT-3SG
    b. tsy fantatr' i Soa hoe   nahita inona izy
        NEG know   Soa COMP see.AT what 3SG.NOM
       Soa_i doesn't know what she_i saw.

It is not used with embedded yes-no questions, which use the complementizer *raha* 'if'.

   Hoe is also used to introduce direct speech (Rahajarizafy, 1960:59–60); nevertheless, it is clear that it is not necessarily performing this function in the above examples. The embedded clauses are indirect questions, not direct ones. We can see this in (i) because the embedded clause contains a third person pronoun coreferential with a third person matrix subject. If the embedded clauses were direct speech, the embedded pronoun would be first person.

The picture then is that *wh*-questions with fronted *wh*-phrases are pseudoclefts. The initial *wh*-phrase is contained in the PredP that has undergone predicate fronting and the remaining material is a headless relative clause in subject position. It is this structure that participates in the sluicing construction discussed below.

2.4 Sluicing

With this much as background, I turn to sluicing. I follow Ross (1969) and Merchant (2001) in taking sluicing to be IP deletion which reduces an interrogative clause to only a *wh*-phrase, (17a).[7] (17b) is the corresponding derivation in English. I will refer to the missing material as the SLUICED CLAUSE and indicate it by strikethrough. The XP corresponding to the *wh*-PHRASE REMNANT is the CORRELATE (*somebody* in (17)) and the clause containing the correlate will be referred to as the ANTECEDENT CLAUSE (*somebody left* in (17)).

(17) a.　Somebody left and you know who.
　　 b.　Somebody left and you know [$_{CP}$ who$_i$ [$_C$, C°[wh] [$_{IP}$ ~~t$_i$ left~~]]]

Three examples of Malagasy sluicing are given in (18).

(18) a.　nandoko zavatra i Bao fa　hadinoko　　hoe　inona
　　　　　paint.AT thing　Bao　but forget.TT.1SG COMP what
　　　　　Bao painted something but I forget what.
　　 b.　nisy olona　nihomehy ka　nanontany ianao　　hoe　iza
　　　　　exist person laughed　and ask.AT　2SG.NOM COMP who
　　　　　Someone laughed and you asked who.
　　 c.　nangalarin' ny olona　ny fiarako fa　tsy　fantatry ny polisy hoe　iza
　　　　　steal.TT　　the person the car.1SG but　NEG know　the police　COMP who
　　　　　My car was stolen by someone but the police don't know who.

　　Given the syntactic restrictions from above and repeated in (19), we can conclude two things about sluicing structures in Malagasy.

(19)　　*Malagasy syntactic restrictions*
　　　　　a.　Subjects must be specific
　　　　　b.　Only subjects can be extracted

First, the subject specificity requirement guarantees that indefinite correlates in the antecedent clause will be impossible in subject position. Indefinite correlates must be in non-subject position, as in (18). That is why (18b) in particular uses an existential construction in the antecedent clause. Second, the subject extraction restriction requires that the null operator in the subject headless relative of the sluiced clause correspond to a subject. This gives us insight into the structure of the deleted material. The pre-deletion sources for (18) are as in (20). These examples obey both syntactic restrictions in (19) and are fully grammatical, even without deletion.

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[7]　The most widely accepted alternative is that the ellipsis site contains an empty category whose content is recovered at LF via replacement with structure from an appropriate linguistic antecedent (Chao, 1988; Chung et al., 1995; Lobeck, 1995). The argument in favor of semantic parallelism in Section 5 does not depend upon a deletion versus empty category syntax. Both approaches only require the assumption that ellipsis involves missing syntactic structure, as argued for independently in Kennedy (2003).

(20)   *pre-deletion sources for Malagasy sluicing*

    a. nandoko zavatra i Bao fa hadinoko   hoe
       paint.AT thing   Bao but forget.TT.1SG COMP

       inona Op_i no nolokoin' i Bao t_i
       what   PRT paint.TT Bao
       Bao painted something but I forget what was painted by Bao.

    b. nisy olona nihomehy ka nanontany ianao   hoe
       exist person laughed   and ask.AT   2SG.NOM COMP
       iza Op_i no nihomehy t_i
       who   PRT laugh.AT
       There was someone who laughed and so you asked who laughed.

    c. nangalarin' ny olona ny fiarako fa   tsy   fantatry ny polisy hoe
       steal.TT   the person the car.1SG but NEG know   the police COMP
       iza Op_i no nangalatra ny fiarako t_i
       who   PRT steal.AT   the car.1SG
       My car was stolen by someone but the police don't know who stole my car.

    Given that Malagasy does not have *wh*-movement, it is perhaps surprising that there is a sluicing construction. According to the standard analysis (Merchant, 2001; Ross, 1969), *wh*-movement is needed to move the *wh*-phrase to a high position in the clause so that IP ellipsis can take place, stranding the *wh*-phrase. Malagasy *wh*-questions with initial *wh*-phrases are pseudoclefts, however, so there is no *wh*-movement to feed the deletion. Paul and Potsdam (to appear) proposes that the resolution to this paradox is the predicate fronting operation discussed in Section 2.1. Predicate fronting provides the necessary externalization of the *wh*-phrase so that IP deletion can apply. A sample derivation is given in (21). In the sluiced clause, shown, PredP containing the *wh*-phrase fronts to Spec,F, above IP, and IP deletes, stranding the *wh*-phrase:

(21) a. nisy olona   nihomehy   ka
          exist person   laugh   and

          nanontany   ianao hoe   iza   ~~no~~   ~~nihomehy~~
          ask   you   COMP who PRT laugh
          Someone laughed and you asked who (laughed).

    b.
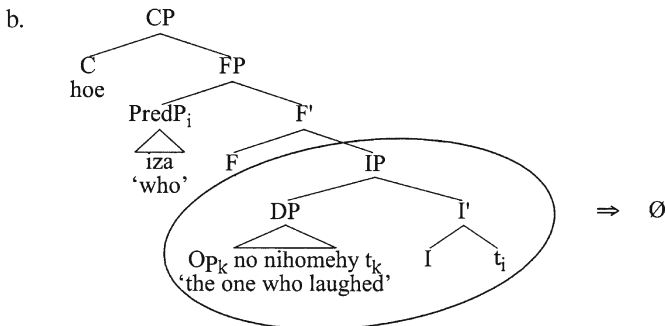
The claim that predicate fronting can feed sluicing in Malagasy is reasonable given that Principles and Parameters theory does not contain specific rules or a sluicing construction. There is no requirement that the movement be *wh*-movement as in English and other well-studied languages (Merchant, 2001). Other researchers have proposed that sluicing in diverse languages is fed by non-*wh*-movement. Adams (to appear) proposes that some sluicing in Javanese is fed by focus movement or adverb preposing. Hoyt and Teodorescu (to appear) shows that the wide range of sluicing data in Romanian follows from the availability of (multiple) *wh*-movement, topicalization, and focus fronting.[8]

Assuming this view of Malagasy clause structure and sluicing, the next section explores the consequences of the structures in (20) for the form of the parallelism requirement on ellipsis.

3 Identity in ellipsis: in favor of semantic parallelism

Linguistic material cannot freely be left unpronounced in structures. Rather, ellipsis is typically licensed by recoverability: a constituent E may be elided only if its content is recoverable from the surrounding linguistic context through an antecedent A. The exact formulation of this parallelism condition and what information in the antecedent A is relevant is a matter of much debate, however. One can identify two broad approaches to recoverability: syntactic parallelism and semantic parallelism. The approaches differ in terms of whether it is syntactic or semantic information in the antecedent that is relevant for licensing deletion. I develop generic versions of these two approaches in Sections 3.1 and 3.2 before using Malagasy sluicing to argue in favor of the semantic approach and against the syntactic approach in Section 3.3.

3.1 Syntactic parallelism

Under a SYNTACTIC PARALLELISM approach to ellipsis recoverability, it is the morphosyntactic form of the antecedent that is relevant for licensing ellipsis. There must be a structural relationship between E and A, typically one of identity, in order for ellipsis to succeed. Such an approach is found in Rooth (1992), Fiengo and May (1998), Chung et al. (1995), and Fiengo and May (1998), among others. I formulate a concrete proposal in (22).

(22) *Syntactic parallelism condition on IP ellipsis*
      An IP E can be deleted only if E is morphosyntactically identical to an antecedent IP A at LF

Consider how the approach works for the basic English case in (23a).

(23)a. Somebody ate the cake. I wonder who ~~ate the cake~~.

   b. antecedent clause: [$_A$ x ate the cake]

   c. sluiced clause: I wonder [$_{CP}$ who $_X$ [$_E$ ~~x ate the cake~~]]

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[8] Since at least the discussions of English VP ellipsis in Sag (1980) and, more recently, Lobeck (1995), it has been recognized that deletion must also be licensed by a syntactic head. Merchant (2001, 2004) discusses this requirement for sluicing. I will not be concerned with this issue here. I suggest that it is the complementizer *hoe* and F° that license sluicing deletion in Malagasy. See Paul and Potsdam (to appear) for analytical details.

The structure of the antecedent clause at LF is (23b). I assume that an indefinite correlate translates as a free variable at LF (Heim, 1982). Such variables will be bound by text-level existential closure or by some other operator. The structure of the sluiced clause is (23c) with the trace of A′-movement also represented as a variable. Since the two clauses are structurally identical, sluicing can succeed, as desired. For further details, see the discussions in Chung et al. (1995).

3.2 Semantic parallelism

Under a SEMANTIC PARALLELISM approach, the relevant information in the antecedent is semantic and there must be a certain semantic relationship between E and A in order for there to be ellipsis. Semantic approaches to ellipsis are represented by Dalrymple et al. (1991), Hardt (1999), Prüst et al. (1994), Asher et al. (1997) and more recently Merchant (2001) for sluicing. Merchant's sluicing condition is given in (24), with e-GIVENness defined in (25) and (26).

(24) *Focus condition on IP ellipsis* (Merchant, 2001:31)
      An IP E can be deleted only if E is e-GIVEN.

(25) *e-GIVENness* (Merchant, 2001:31)
      An expression E counts as e-GIVEN iff E has a salient antecedent A and, modulo ∃-type shifting,[9]
      i. A entails F-closure(E), and
      ii. E entails F-closure(A)

(26) *F-closure(X)* is the result of replacing focus-marked parts of X with ∃-bound variables of the appropriate type.

Since none of the examples under consideration involves focused material, I offer the simplified version of Merchant's analysis in (27), which will suffice for my purposes.

(27) *Simplified semantic condition on IP ellipsis*
      An IP E can be deleted only if there is an antecedent IP A such that A and E entail each other.

Given that the antecedent IP A will be a declarative but the elided IP E will be a *wh*-interrogative, it remains to state what it means for a declarative to entail an interrogative, and vice versa, since interrogatives are not usually understood as having a truth value. I will assume that entailment relations with a question can be calculated by using the declarative sentence that results from replacing the *wh*-phrase in the question with an existentially quantified noun phrase (Karttunen, 1977; Merchant, 2001). This move is motivated by theories that analyze the semantics of questions in terms of a set of propositions containing the (true) answers (Groenendijk and Stokhof, 1997; Hamblin, 1973; Karttunen, 1977). Although this is not a theory of the syntax-semantics of questions, it will suffice for our purposes. Consider how this will work for the English case repeated in (28a).

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[9] "∃-type shifting is a type-shifting operation that raises expressions to type <t> and existentially binds unfilled arguments" (Merchant, 2001:14).

(28)a. Somebody ate the cake. I wonder who ate the cake.

    b. antecedent clause: [[A]] = ∃x[eat(x, the cake)]

    c. sluiced clause: [[E]] = ∃x[eat(x, the cake)]

The semantic representations of the antecedent IP A and the elided IP E are (28b,c), respectively. For the antecedent clause in (28b), the indefinite is represented as a free variable and then bound by existential closure, in accordance with my Heimian treatment of indefinites. For the sluiced clause, the *wh*-phrase contributes an existentially quantified noun phrase subject, yielding the interpretation in (28c).[10] Since the two representations are identical and therefore entail each other, sluicing succeeds. Observe that there is no structural identity requirement under the semantic parallelism approach. The elided material has syntactic structure but this structure does not play directly into the ellipsis licensing condition.

3.3 Parallelism and Malagasy sluicing

This section demonstrates that the grammatical examples of sluicing in Malagasy are compatible only with a semantic parallelism approach to ellipsis identification. One can see that this is so by inspecting the word order differences between the antecedent clauses and the sluiced clauses in the pre-deletion data repeated in (29).

(29)   *pre-deletion sources for Malagasy sluicing*

    a. nandoko zavatra i Bao fa hadinoko   hoe
        paint.AT thing   Bao   but forget.TT.1SG COMP

        inona Op_i no   nolokoin' i Bao t_i
        what   PRT paint.TT   Bao
        Bao painted something but I forget what wa s painted by Bao.

    b. nisy olona nihomehy ka nanontany ianao   hoe
        exist person laughed   and ask.AT   2SG.NOM COMP

        iza Op_i no   nihomehy t_i
        who   PRT laugh.AT
        There was someone who laughed and so you asked who laughed.

    c. nangalarin' ny olona ny fiarako fa tsy   fantatry ny polisy hoe
        steal.TT   the person the car.1SG but NEG know   the police COMP

        iza Op_i no   nangalatra ny fiarako t_i
        who   PRT steal.AT   the car.1SG
        My car was stolen by someone but the police don't know who stole my car.

The argument is as follows: If *wh*-questions are pseudocleft structures, there is clearly no syntactic parallelism between the pseudocleft sluiced clause and non-pseudocleft antecedent clause. The antecedent clause will have a non-pseudocleft structure

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[10] Here and below I ignore the animacy distinction between *who* and *what*.

with the correlate in a non-subject argument position but the sluiced clause will be a pseudocleft with the corresponding *wh*-phrase variable in the matrix PredP.

Below, I consider the structures of (29a) in more detail to make the point explicit. Syntactic structures of the antecedent and sluiced clauses are in (30) and (31), respectively. In both trees, I assume that the subject–predicate relationship is licensed in PredP, with the head Pred° mediating between the predicate and its external argument. Movement out of PredP may then occur, which I show using copies and arrows. PredP itself also fronts to Spec,F, as discussed above. I have not shown the internal structure of the fronted PredP for readability's sake. Thus, the two trees do not correspond to the word order in the Malagasy sentence in (29a) that it represents. Nevertheless, the fronted PredP will have the same structure as the in situ PredP.

(30) is the antecedent clause 'Bao painted something' and needs little comment. The PredP-internal external argument moves to Spec,I where it is pronounced. PredP moves to Spec,F (not shown), which derives the predicate-initial word order.

(30) *syntactic structure of antecedent clause in (29a)*

      a. nandoko   zavatra i Bao
         paint.AT   *thing*   *Bao*
      Bao painted something.

      b.
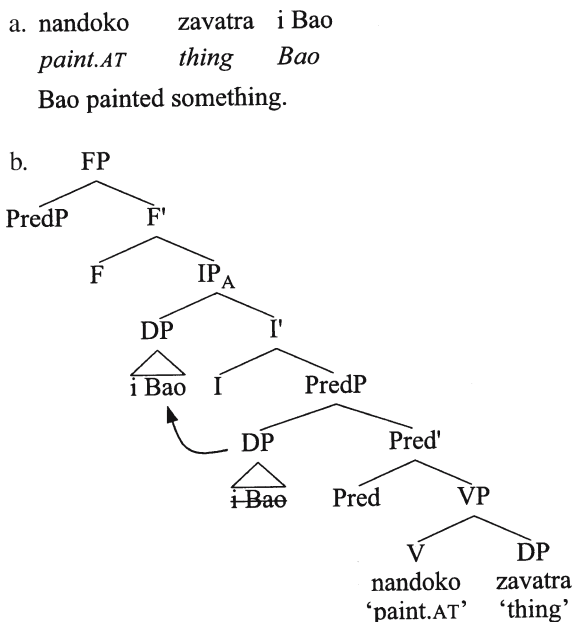
(31) is the structure for the pseudocleft elided clause. I take pseudoclefts to be specificational clauses and I adopt the analysis of specificational copular clauses in Moro (1997) and Mikkelsen (2004). As before, Pred° licenses the subject–predicate relationship. Following the above authors, it is the headless relative clause (the ultimate subject) which is the lexical predicate and the complement of Pred°. The *wh*-phrase is the subject of predication, in Spec,Pred. The headless relative then moves to Spec,I to become the surface subject (see Mikkelsen, 2004 for details). As before, the structure of the fronted PredP is not shown.

(31) *syntactic structure of the elided clause in (29a)*

  a. fa hadinoko
    but forget.TT.1SG

   hoe inona Op_i no nolokoin' i Bao t_i
   COMP what   PRT paint.TT Bao
   … but I forget what was painted by Bao.

  b.
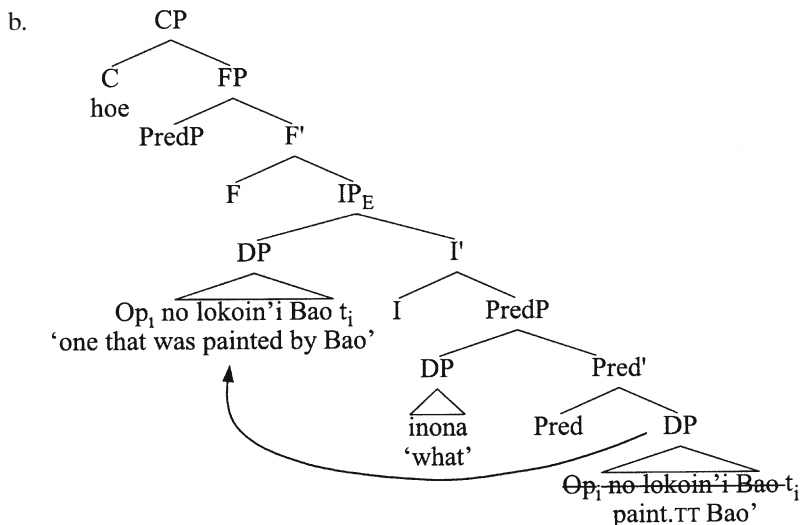
We can ask whether either theory of ellipsis identity allows IP_E to elide as desired. That is, is IP_E syntactically and/or semantically parallel to IP_A? It seems straightforward to observe that there is no syntactic parallelism. IP_E is a pseudocleft but IP_A is not.[11] On the other hand, I claim that there is semantic parallelism. To see this, I lay out the semantic interpretations of the two clauses below. Before going into the details, it is worth stating the main conclusion: the pseudocleft structure of *wh*-questions rules out syntactic parallelism in sluicing derivations. It does not affect the existence of semantic parallelism. At the relevant level of semantic representation, both clauses have the same denotation. For (29a), $[[IP_A]]=[[IP_E]]=\exists x[paint(Bao,x)]$.

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[11] Observe that there is also a voice mismatch between the active antecedent clause and the passive sluiced clause. One might take this as further evidence that there can be no syntactic parallelism (Potsdam, 2003). On the other hand, such voice mismatches are normally not allowed, (i), (see Merchant, 2001:34–35 for English and Chung, to appear for Chamorro) suggesting that there is something exceptional about Malagasy.

(i) *Someone shot Ben, but I don't know by who(m) ~~Ben was shot *t*~~.

One can account for the apparent mismatch in Malagasy by analyzing the 'voice' morphology as inflectional morphology. If Malagasy 'voice' morphology is inflectional, then it is not surprising that it is ignored for the purposes of parallelism, even under a syntactic approach, as it is widely believed that inflectional morphology is ignored for the purpose of computing identity in ellipsis. For example, VP ellipsis does not require identity at the level of inflectional morphology (Goldberg, 2005; Potsdam, 1997; Stjepanovic, 1998; Warner, 1993). Two specific approaches to Austronesian 'voice' morphology that treat it is some kind of inflectional agreement are Pearson (2001, 2005) and Rackowski and Richards (2005). Because the analysis of Malagasy voice morphology is a subject of debate, I do not appeal to it as evidence against syntactic parallelism.

The simplified semantic condition on ellipsis in (27) is satisfied since there is mutual entailment between IP_A and IP_E.

I return to the semantic derivations for the antecedent and elided clauses in (29a) within a type-theoretic framework. The semantic type structure of the antecedent clause and the computation of its denotation are given in (32) and (33).

(32) *semantic type structure for the antecedent clause in* (29*a*)
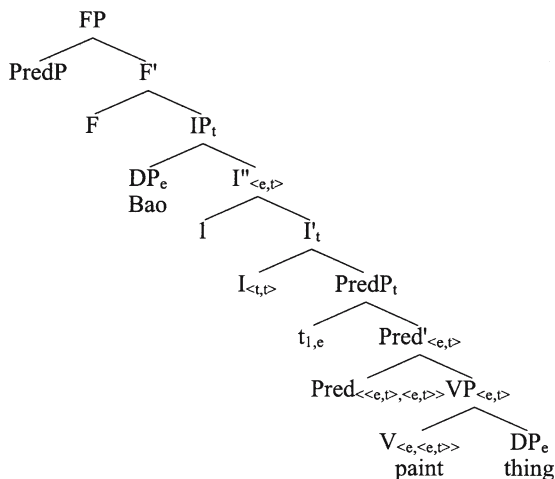
Three assumptions need explanation in (32). First, syntactic movement of PredP is A′-movement which undergoes obligatory reconstruction for interpretation (Massam, 2000). That is, PredP is interpreted in the base position shown and the PredP in Spec,F is not relevant. Second, when a DP raises via A-movement to Spec,I an index is inserted below Spec,I which corresponds to the trace of movement (the lower copy) of the raised element. This index is interpreted as a lambda-abstraction operator that binds the variable introduced by movement (Heim and Kratzer, 1998). In the case of (32), the trace contributes an individual variable. Finally, as has been widely discussed in the semantic literature (Heim, 1982, see Chung and Ladusaw, 2003 for discussion), indefinite DPs do not semantically combine with a transitive predicate like *paint*, which requires an argument of type e. The standard approach to remedy this type mismatch is some kind of type-shifting operation on the indefinite that yields a DP of the correct type (Chung and Ladusaw, 2003). In the above tree, I have simply assumed that this type shifting operation, however it is implemented, has applied, yielding a free variable of the needed type e.

The semantic interpretation of the IP is $\exists x[\text{paint}(\text{Bao},x)]$ after existential closure, calculated as follows. W, x, y, and z are individual variables, P and Q are property variables, and R is a proposition variable.

(33) *semantic interpretation of (32)*

DP *thing*   x   Heimian treatment of indefinites as free variables

V *paint* $\lambda y[\lambda z[\text{paint}(z,y)]]$

VP $\lambda y[\lambda z[\text{paint}(z,y)]](x) \Rightarrow \quad \lambda z[\text{paint}(z,x)]$

Pred $\lambda P[\lambda y[P(y)]]$

Pred′ $\lambda P[\lambda y[P(y)]](\lambda z[\text{paint}(z,x)]) \Rightarrow \lambda y[\lambda z[\text{paint}(z,x)](y)] \Rightarrow \lambda y[\text{paint}(y,x)]$

t_1 w

PredP $\lambda y[\text{paint}(y,x)](w) \Rightarrow \text{paint}(w,x)$

I $\lambda R[R]$

I' $\lambda R[R](\text{paint}(w,x)) \Rightarrow \text{paint}(w,x)$

I" $\lambda w[\text{paint}(w,x)]$

DP *Bao*   Bao

IP_A $\lambda w[\text{paint}(w,x)](\text{Bao}) \Rightarrow \text{paint}(\text{Bao},x)$

$\exists x[\text{paint}(\text{Bao},x)]$ after existential closure

The indefinite DP object of *paint* is translated as a free variable, in accordance with the Heimian treatment of indefinites. After type shifting it combines with the verb to form a one-place predicate of type <e,t>. Following Mikkelsen (2004), I assign the Pred head a copulative meaning in which it combines with a lexical predicate, the VP, and an individual, the trace of the raised subject. The latter is an individual variable which later gets bound by the lambda operator introduced under I". In combining with a predicate and an individual, Pred° yields PredP of type t. I° is taken to be an identity function on propositions so that I' has the same interpretation. The movement index adjoined to I' introduces a lambda-abstraction operator that binds the variable in the external argument position. This is subsequently saturated by the individual constant in Spec,I. The interpretation of the IP is paint(Bao,x), where the theme is a free variable. After existential closure, we obtain the desired interpretation $\exists x[\text{paint}(\text{Bao},x)]$.

The remaining task is to show that the interpretation of the elided clause in (31) is semantically equivalent to the interpretation of (32). The semantic type structure of the elided clause is (34).

(34) *semantic type structure for the elided clause in* (29a)
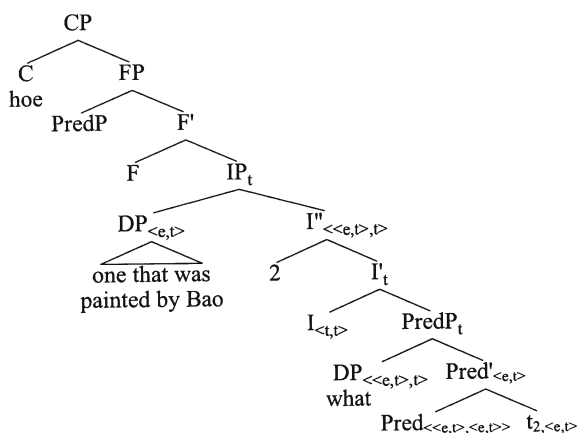
In the earlier type structure in (32), the lambda operator introduced within IP abstracted over an individual variable because the raised DP was of type e. In the tree above, the lambda operator within IP abstracts over properties because the trace of the raised DP is a property. This is a consequence of analyzing the pseudocleft as a specificational clause in which the surface subject originates as the complement to Pred°.

The semantic interpretation of the IP is given in (35).

(35) *semantic interpretation of (34)*

t_2	Q
Pred	$\lambda P[\lambda y[P(y)]]$
Pred$'$	$\lambda P[\lambda y[P(y)]](Q) \Rightarrow \lambda y[Q(y)]$
DP *what*	$\lambda P[P(x)]$
PredP	$\lambda P[P(x)](\lambda y[Q(y)]) \Rightarrow \lambda y[Q(y)](x)] \Rightarrow Q(x)$
I	$\lambda R[R]$
I$'$	$\lambda R[R](Q(x)) \Rightarrow Q(x)$
I$''$	$\lambda Q[Q(x)]$
DP subject	$\lambda z[paint(Bao,z)]$
IP	$\lambda Q[Q(x)](\lambda z[paint(Bao,z)]) \Rightarrow \lambda z[paint(Bao,z)](x) \Rightarrow paint(Bao,x)$
$\exists x[paint(Bao,x)]$	after existential closure

I have translated the headless relative clause as a property, not a definite description, and it leaves a property variable in the complement of Pred° position. This seems correct given the interpretation of the *wh*-question. In particular, the Malagasy headless relative in the pseudocleft is not interpreted as definite. The *wh*-question does not presuppose the existence of an entity that meets the description of the headless relative. This can be seen in the fact that Malagasy *wh*-questions can be answered negatively, denying the existence of an entity meeting the description in the headless relative:

(36) Q: inona no novidinao tamin' ny magazay?
   what PRT buy.TT.2SG PREP the store
   What did you buy at the store?

   A: tsy misy
   NEG exist
   Nothing.

English clefts, in contrast, do have an existential presupposition and a negative answer to a *wh*-question cleft is less felicitous:

(37) Q: What was it that you bought at the store?

   A: ??Nothing.

The antecedent and elided clauses come out as semantically equivalent, licensing the ellipsis.

The sluicing example from (29b) makes the same point in a different way. The antecedent has the structure of an existential sentence, possibly with a null expletive in subject position (see Paul, 2000b; Pearson, 1996; and Polinsky, 1994 on the structure of Malagasy existentials), but the sluiced clause is again a pseudocleft with a variable corresponding to the *wh*-phrase embedded in the predicate. There is thus no syntactic parallelism and we incorrectly expect sluicing to fail under a syntactic parallelism approach. In contrast, there is semantic parallelism since both IPs have the denotation $\exists x[laugh(x)]$. Semantic parallelism correctly predicts that sluicing will be possible.

The point is fully general, regardless of the specific examples. A sluiced clause will have the structure of a pseudocleft while the antecedent clause will not. There will not

be syntactic identity between the two clauses. Syntactic parallelism thus wrongly predicts sluicing to be impossible, contrary to fact. Semantic parallelism correctly allows the sluice if the appropriate semantic relation holds.

I take this to be the main claim of the paper: Malagasy sluicing provides an argument for semantic parallelism over syntactic parallelism as the identity requirement for ellipsis. In order to strengthen the conclusion, however, the following two sections provide support for two key assumptions that underlie this claim: Section 4 provides empirical evidence that Malagasy *wh*-questions are indeed pseudoclefts and Section 5 shows that the Malagasy sluicing construction involves ellipsis that is subject to some form of linguistic parallelism.

4 The pseudocleft syntax of malagasy *wh*-questions

There is some debate over the syntactic structure of *wh*-questions in Malagasy that have a fronted *wh*-phrase followed by the particle *no*:

(38)   iza   no mividy ny osy?
       who PRT buy   the goat
       Who is buying the goat?

Much earlier work assumed that they were derived by *wh*-movement, as this is compatible with the observed word order (Keenan, 1976; MacLaughlin, 1995; Pensalfini, 1995; Potsdam, 2003; Sabel, 2002, 2003). Given the predicate-initial word order of Malagasy, however, it is impossible to tell by inspection of the surface word order what the underlying syntax is. Examples like (38) are compatible with either an English-like *wh*-movement derivation, (39a), in which the *wh*-phrase fronts to a left-peripheral operator position, or the assumed pseudocleft structure, (39b).

(39)a. *wh-movement derivation*

$[_{CP}$ iza$_i$ $[_{C'}$ no $[_{FP}[_{PredP}$ mividy ny osy] t$_i$]]]
       who   PRT   buy   the goat
       lit. Who buys the goat?

  b. *pseudocleft derivation*

$[_{FP}[_{PredP}$ iza] $[_{DP}$Op$_i$ no   mividy ny osy t$_i$]]
            who   PRT buy   the goat
       lit. (One) that buys the goat is who?

In what follows I summarize evidence in support of the pseudocleft analysis. Additional details can be found in Potsdam (2006, to appear).

4.1 Predicate-related particles

The first observation is that the initial *wh*-phrase in *wh*-questions behaves like a PredP. This is expected under the pseudocleft analysis but not under the *wh*-movement analysis, where the initial *wh*-operator is an argument DP. The specific evidence comes from predicate-related particles. There are a number of particles in Malagasy that appear before or after PredP and thus help to identify it. Particles that follow PredP
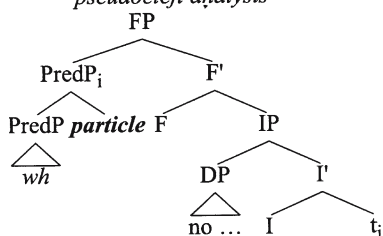
include the quantifiers *daholo* 'all' and *avy* 'each' (Keenan, 1976, 1995) and adverbs such as *foana* 'always' and *koa* 'also' (Pearson, 1998; Rackowski, 1998). There is much evidence that the verb plus dependents in VXS clauses forms a constituent, which I identify as PredP, to the exclusion of the subject (Keenan, 1976, 1995). In such clauses these particles must immediately follow this constituent, (40). Other positions of *daholo/foana* are ungrammatical.

(40) a. namaky ny boky **daholo** ny ankizy
      read   the book all   the children
   All the children read the book.

   b. any an-tsena   **foana** Rakoto
      LOC ACC-market always Rakoto
      Rakoto is always at the market.

For concreteness, I assume that these particles are right-adjoined to PredP (Bowers, 1993). Under the pseudocleft analysis then, they should be able to immediately follow the *wh*-phrase, as schematized in (41a). Under the *wh*-movement analysis, on the other hand, this should be impossible. The particles should only appear at the end of the clause, (41b).

(41) a. *post-predicate particle placement*   b. *wh-movement analysis*
        pseudocleft analysis
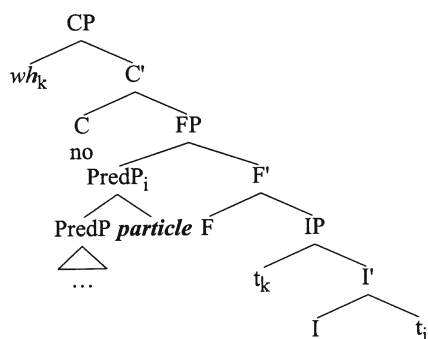
In support of the pseudocleft analysis, these elements may immediately follow a *wh*-phrase in questions, (42). The wh-movement analysis has no way to account for these sentences.[12]

(42) a. iza **daholo** no namaky ny boky?
      who all   PRT read   the book
      Who all read the book?

   b. iza **foana** no any an-tsena?
      who always PRT LOC ACC-market
      Who is always at the market?

---

[12] The particles may also appear in clause-final position, except for *daholo*. This position does not distinguish the two hypotheses, however, because both analyses allow this placement. The *wh*-movement analysis does so given the structure in (41b) and the pseudocleft analysis does so as there is a second PredP, inside the headless relative in subject position, to which the particle can adjoin. See Potsdam (to appear) for further discussion of such data.

Malagasy also has pre-predicate particles. Elements such as the modal-like *tokony* 'should' and *toa* 'seem' (Paul, 2001) and the emphatic particle *tena* 'indeed' must immediately precede PredP in VXS clauses. Other positions of these particles are not possible.
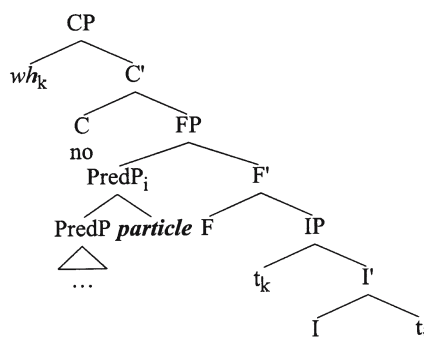
(43)a. **tokony** hamangy an-dRakoto i Soa
        should   visit   ACC-Rakoto Soa
        Soa should visit Rakoto.

   b. **tena**   nanapaka bozaka Rabe
        indeed cut   grass   Rabe
        Rabe indeed cut the grass.

I assume that these particles left-adjoin to PredP. The pseudocleft analysis then predicts that these particles can immediately precede a *wh*-phrase in *wh*-questions, (44a). The *wh*-movement analysis, on the other hand, predicts that these elements should only appear after the *wh*-phrase, (44b).

(44) a. *post-predicate particle placement*   b. *wh-movement analysis*
           pseudocleft analysis
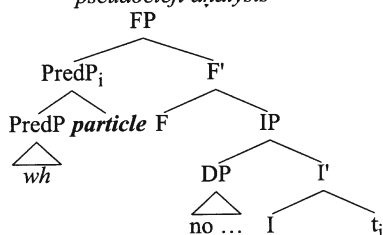
Again, the pseudocleft analysis is superior. The *wh*-movement structure cannot account for the grammaticality of the data in (45) in which the particle precedes the *wh*-phrase.[13]

(45)a. **tokony** iza   no   hamangy an-dRakoto?
        should who PRT visit   ACC-Rakoto
        Who should visit Rakoto?

   b. **tena**   iza   no   nanapaka bozaka?
        indeed who PRT cut   grass
        Who indeed cut the grass?

---

[13] The pre-predicate particles can also appear immediately before the verb in (45). As before, this position cannot decide between the two analyses as it is permitted under either approach. The verb is at the left edge of a PredP in both analyses. See Potsdam (to appear) for further discussion.

An alternative analysis of the pre-predicate particles is that they are actually clause-initial particles. If that were correct, the *wh*-movement analysis would account for the data in (45). Paul (2000a) and Potsdam (to appear) show that the particles are not clause-initial particles, however. Nor are they higher predicates that take CP complements.

Potsdam (to appear) explores such data in more detail; they make sense if *wh*-questions are pseudoclefts in which the initial *wh*-phrase is part of a PredP, not a fronted argument. Under the *wh*-movement analysis, the placement of the various elements is unexpected because the *wh*-phrase is not a predicate but is very high in the left periphery of the clause. Such particles would have to have special distribution statements for *wh*-questions, different from ordinary clauses.

The pre- and post-predicate particles can be used to show that the sluicing construction does in fact derive from a pseudocleft. When PredP is fronted, it carries along with it predicate-related particles, as it is the entire PredP, not just the *wh*-phrase, that is being fronted. When IP ellipsis occurs, these predicate-related particles remain:

(46) *post-predicate particles in sluicing remnant*

a. nahandro zavatra maro   i Soa fa
   cook   thing   several Soa   but

   tsy   fantatro   hoe [$_{PredP}$ inona **daholo**]
   NEG know.1SG COMP   what   all
   Soa cooked several things but I don't know what all.

b. any an-tsena   matetika ny mpivarotra sasany fa
   LOC ACC-market often   the merchant   some   but

   tsy   fantatro   hoe   [$_{PredP}$ iza   **foana**]
   NEG know.1SG   COMP   who   always
   Some merchants are often at the market but I don't know who always is.

(47) *pre-predicate particles in sluicing remnant*

a. misy olona   tokony hamangy an-dRabe fa
   exist person should visit   ACC-Rabe but

   tsy   fantatro   hoe [$_{PredP}$ **tokony** iza]
   NEG know.1SG COMP   should   who
   Someone should visit Rabe but I don't know who should.

b. nisy olona   nanapaka bozaka fa
   exist person cut   grass   but

   tsy   tadidiko   hoe [$_{PredP}$ **tena**   iza]
   NEG remember.1SG COMP   indeed who
   Someone cut the grass but I don'tremember who indeed did.

In (46) and (47), the sluicing remnants contain post-predicate and pre-predicate particles, respectively. This is the expected result if embedded *wh*-questions are pseudoclefts and sluicing is derived by PredP fronting followed by IP deletion.

4.2 Parallels with the focus construction

The second argument in favor of the pseudocleft analysis comes from a related focus construction. *Wh*-questions show non-trivial parallels with a focus construction in

Malagasy, which Paul (2001) analyzes as a pseudocleft. The parallels are immediately accounted for if *wh*-questions also have a pseudocleft syntax.

The Malagasy focus construction is illustrated in (48a). It consists of an initial focused XP, the particle *no*, and the remainder of the clause. It is most naturally translated into English with a cleft or pseudocleft. Paul (2001), following Dahl (1986), advances a pseudocleft analysis of the construction, assigning (48a) the structure in (48b). The initial focused element is the predicate of the clause and the subject is a headless relative clause.

(48)a. i Soa no mividy ny osy
       Soa PRT buy   the goat
       It's Soa who is buying the goat.

   b. [[$_{predicate}$ i Soa] [$_{subject/headless\ relative}$ no Op$_i$ mividy ny osy t$_i$]]
              Soa   *buy   the goat*
       lit. The one who is buying the goat is Soa.

There are a number of parallels between the focus construction and *wh*-questions which suggest that they should have the same syntactic analysis. First, both are formed by preposing a constituent and following it immediately with the particle *no*. Second, the two constructions have a similar focus interpretation of the initial XP. *Wh*-phrases indicate a request for new information in the same way that focused XPs supply new information. Third, both constructions are subject to the subject extraction restriction which prevents fronting of a non-subject:

(49)   *ny osy   no mividy i Soa
       the goat PRT buy   Soa
       (It's the goat that Soa is buying.)

Fourth, the focus construction shows the same pattern of particle placement documented above (Paul, 2001). Post-predicate particles immediately follow the focused XP, (50), and pre-predicate particles precede it, (51).

(50)a. ireo lehilahy ireo **daholo** no milalao baolina
       DEM man   DEM all   PRT play   ball
       It's these men who are all playing ball.

   b. Rasoa **foana**   no mihomehy
      Rasoa always   PRT laugh
      It's always Rasoa who laughs.

(51)a. **tokony** Rasoa no hamangy an-dRabe
       should   Rasoa PRT visit   ACC-Rabe
       It should be Rasoa who visits Rabe.

   b. **tena**   Rabe no nahandro vary
      indeed Rabe PRT cook   rice
      It's indeed Rabe who cooked rice.

Assuming that Paul (2001) is correct and that the focus construction is a pseudocleft, analyzing *wh*-questions as pseudoclefts as well immediately accounts for these parallels. They are unexplained or at least accidental under the *wh*-movement analysis

since the focus construction and *wh*-questions would have very different structures. I conclude that Malagasy has no *wh*-movement. *wh*-questions use either an in situ strategy (Section 2.3) or the pseudocleft structure repeated below.

(52)   [PredP/predicate *wh-phrase*] [DP/subject Op$_i$ no … t$_i$]

5 Pseudosluicing: a non-ellipsis alternative

Even if one accepts the general correctness of a non-*wh*-movement structure for Malagasy *wh*-questions, there is yet another analysis that would avoid it having any consequences for theories of ellipsis identity. This section considers such an alternative and shows that it faces a number of difficulties. The idea is that *wh*-questions in Malagasy are actually clefts, not pseudoclefts, and that the sluicing construction is actually pseudosluicing. PSEUDOSLUICING is a construction that resembles sluicing in having a *wh*-XP remnant, but the remnant is derived from an underlying cleft structure (Merchant, 1998). Less is known about the workings of pseudosluicing and it might not involve ellipsis. In the terminology of Hankamer and Sag (1976), sluicing is SURFACE ANAPHORA, which requires some kind of identity between the deleted material and a linguistic antecedent. Pseudosluicing, by contrast, might well be DEEP ANAPHORA, which is pragmatically controlled and not restricted by any kind of linguistic identity requirement. Deep anaphora shows no evidence of having any syntactic structure at an earlier stage of the derivation. If the Malagasy construction were pseudosluicing, it would not be subject to the identification requirement on ellipsis under investigation here and we could not use the construction to draw any conclusions about the formulation of ellipsis parallelism requirement. The pseudosluicing analysis is thus important to rule out.

I build up the cleft and pseudosluicing picture in Section 5.1. Section 5.2 presents argumentation against analyzing Malagasy *wh*-questions as clefts. The data are not problematic for the pseudocleft analysis. Section 5.3 present arguments against a pseudosluicing analysis. I conclude that the analyses and results from Sections 2 to 4 can be maintained.

5.1 Clefts and pseudosluicing

PSEUDOSLUICING is a term introduced in Merchant (1998) to describe a sluicing-like construction in Japanese, another *wh*-in situ language. Merchant defines pseudosluicing informally as an elliptical construction that resembles a sluice in having a *wh*-XP remnant, but the remnant is derived from an underlying cleft structure. By CLEFT, Merchant means a construction parallel to the English *it*-cleft, schematized in (53a). Crosslinguistically, a cleft typically consists of an expletive subject, a copula, a focused phrase or PIVOT, and a modifier of the pivot, which I call the RELATIVE-CLAUSE-LIKE CONSTITUENT (RCC). In the English example *It was candy that they bought* in (53b), we have the expletive *it*, a form of the copula *be*, a DP pivot, *candy*, and the RCC *that they bought*.

(53)a. expletive copula [XP pivot] [YP relative-clause-like constituent (RCC)]
     b. It   was   candy   that they bought.

A pseudosluice is a reduced cleft structure in which the pivot is a *wh*-phrase and the relative clause-like portion of the cleft is absent. An English sluice and corresponding pseudosluice are given in (54a,b), respectively. While the sluice elides

an IP, the pseudosluice is missing the CP RCC. In English, the two constructions are clearly distinguishable because the copula and expletive are overt in a cleft/pseudosluice.

(54)a. They bought something but I don't know what ~~they bought~~.   *sluice*

   b. They bought something but I don't know what it was ~~that they~~   *pseudosluice*
      ~~bought~~.

In a *wh*-in situ language with no copula (or a null copula) and a null expletive, such as Malagasy, only the in situ *wh*-phrase pivot will remain and a sluice and a pseudosluice will be superficially indistinguishable, as can be seen by comparing the sluice in (54a) with the hypothetical pseudosluice below.

(55)   *pseudosluice in a* wh-*in situ, null expletive, null copula language*
       They bought something but I don't know $\emptyset_{it}$ $\emptyset_{be}$ what ~~that they bought~~.

In what follows, I first develop the cleft analysis of *wh*-questions for Malagasy. I then show how a pseudosluicing derivation can yield the relevant data.

Law (2005) first proposed that Malagasy *wh*-questions might be clefts rather than pseudoclefts. He shows how a cleft approach can be made compatible with the evidence given for the pseudocleft structure in Section 4. I implement his idea in the following way: If Malagasy *wh*-questions are clefts rather than pseudoclefts, then we can map a *wh*-question to the cleft scheme by making the initial *wh*-phrase the pivot and the remaining material the RCC. The expletive subject and copula are null. For the specific example repeated in (56), *iza* 'who' is the pivot and *no mividy ny osy* 'PRT buy the goat' is the RCC.

(56)   iza   no mividy ny osy?
       who   PRT buy.AT the goat
       Who is buying the goat?

I assign Malagasy clefts, and (56) specifically, an underlying structure as in (57). There is a null cleft copula BE which takes two complements, the XP pivot and a CP relative-clause-like constituent. The subject position is occupied by a null expletive.[14]

(57)

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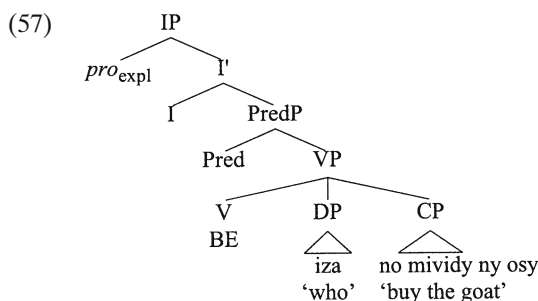
[14]   There is some debate over the correct syntactic structure of clefts in English, in particular whether or not the pivot and the RCC form a constituent. Merchant (1998) offers evidence that the do, contra Percus (1997). For Malagasy, the presentation is simplified if they do not, as I have shown. The analysis can also be constructed with the *wh*-phrase and CP forming a constituent and it is subject to the same criticisms.

Two movements apply to (57) to yield the final structure. First, since CP complements obligatorily extrapose in Malagasy (see Section 2.3), the RCC does so as well. I previously suggested that extraposition be analyzed as right adjunction to IP. PredP also undergoes predicate fronting, to Spec,F. The end result is shown in (58).
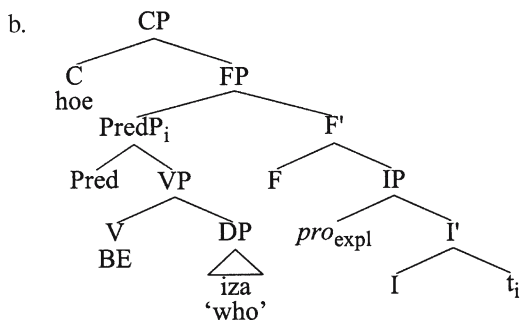
(58) *cleft analysis of Malagasy wh-questions*

```
                    FP
          ┌──────────┴──────────┐
       PredP_i                   F'
       ┌───┴───┐          ┌──────┴──────┐
     Pred     VP          F             IP
          ┌────┴────┐          ┌────────┴────────┐
         V    DP   t_k        IP               CP_k
         BE   ╱╲          ┌────┴────┐      ╱──────────╲
             iza       pro_expl    I'    no mividy ny osy
            'who'              ┌────┴────┐  'buy the goat'
                               I        t_i
```
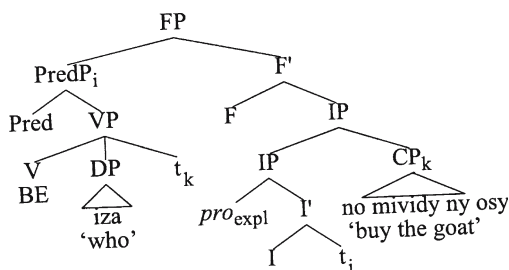
Now we are in a position to lay out a pseudosluicing derivation. With reference to the pre-movement structure in (57), pseudosluicing involves a full cleft structure with the CP unpronounced. Under the assumption that pseudosluicing is deep anaphora, the CP complement of BE is not deleted under identity but is simply missing in the base structure. BE takes one less complement.

The structure for one of the earlier sluicing examples is as follows:

(59) a. nisy olona   nihomehy ka
         exist person   laugh   and
         nanontany ianao hoe   iza
         ask   you   COMP   who
         Someone laughed and you asked who.

b.
```
                    CP
          ┌──────────┴──────────┐
          C                      FP
         hoe          ┌──────────┴──────────┐
                   PredP_i                   F'
                   ┌───┴───┐          ┌──────┴──────┐
                 Pred     VP          F             IP
                      ┌────┴────┐  pro_expl    ┌────┴────┐
                     V         DP              I'
                     BE        ╱╲          ┌───┴───┐
                              iza          I      t_i
                             'who'
```

Since the construction is deep anaphora, the desired interpretation is determined pragmatically, in whatever manner we understand (60a) to mean (60b) in the following English question/answer pair.

(60)   Q: Who is at the door?

   a. A: It's me.

   b.   It's me who is at the door.

By hypothesis, a linguistic identity requirement is not at issue in recovering the meaning of (59a) and (60b) so pseudosluicing, if correct for Malagasy, would not tell us anything about the theoretical issue under investigation. I argue against this negative conclusion by first showing that the cleft structure is not correct for Malagasy questions (Section 5.2). The unavailability of a cleft would automatically rule out pseudosluicing as a source for the Malagasy data. Even if we assume the availability of a cleft however, Section 5.3 shows that sluicing in Malagasy does not pattern with deep anaphora, further ruling out a pseudosluicing derivation.

5.2 Against a cleft analysis of *wh*-questions

In this section, I compare the pseudocleft and cleft approaches to Malagasy *wh*-questions and show that a subset of facts introduced in Section 4 are problematic for the cleft analysis. Paul (2000a) also rejects a cleft approach to Malagasy *wh*-questions but with different assumptions about the cleft structure.
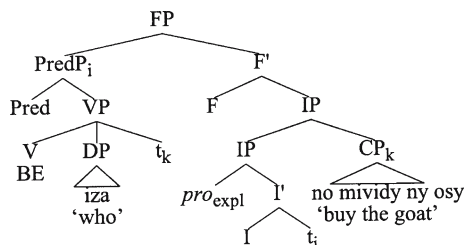
If we compare the cleft structure with the pseudocleft structure, both repeated below, we can see that they are very similar in terms of constituency.
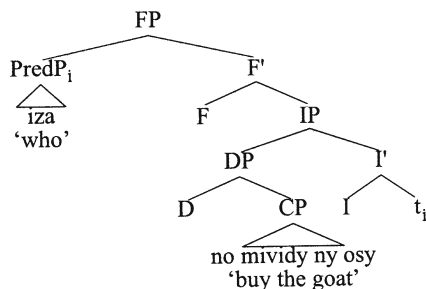
(61)   iza   no mividy ny osy?
    who PRT buy   the goat
    Who is buying the goat?

(62)   *cleft analysis of Malagasy wh-questions*

(63)   *pseudocleft analysis of Malagasy wh-questions*

The fronted PredP in each case contains only the *wh*-phrase. Thus, the pre- and post-predicate particles from Section 4.1 will left- or right-adjoin to PredP in both analyses.

They will immediately precede or follow the initial *wh*-phrase, capturing the particle placement facts from Section 4.1, as desired (Law, 2005). Nonetheless, there are some syntactic differences that distinguish the two structures.

The first difference concerns the content of the subject position, Spec,I. In the cleft analysis, Spec,I contains an expletive, while in the pseudocleft analysis it contains a headless relative DP with roughly the meaning "(the) one who is buying the goat". We can take advantage of this distinction by appealing to elements that are sensitive to a semantically contentful subject. One such element is the quantifier *daholo* 'all' (or *avy* 'each') which we have already seen occurs in post-predicate position adjoined to PredP. Keenan (1976, 1995) and Rahajarizafy (1960) assert that such particles are subject-oriented. The data in (64) and (65) support the claim. *Daholo* 'all' may be bound by a subject, (64), but not an object, the object of a preposition, or a post-verbal agent, (65). Even when bound, *daholo* never forms a constituent with its antecedent.

(64)   nihomehy daholo ny mpianatra
      laugh   all   the student
      All the students laughed.

(65)a. *namaky ny boky daholo aho
       read   the book all   1SG.NOM
       (I read all the books.)

    b. *niteny tamin' ny mpampianatra daholo aho
       speak PREP the teacher   all   1SG.NOM
       (I spoke with all the teachers.)

    c. *hitan' ny mpiasa daholo aho
       see.TT the worker all   1SG.NOM
       (I was seen by all the workers.)

Daholo is also ungrammatical in impersonal constructions because there is no semantically contentful subject to bind it:

(66)a. *mikotroka daholo
       thunder   all
       (*It's all thundering.)

    b. *nisy mpianatra daholo teo amoron-dranomasina
       exist student   all   LOC beach
       (*There all were students at the beach.)

These observations make sense if *daholo* is adjoined to PredP, as assumed in Section 4.1, and must be c-commanded by a semantically contentful antecedent. Only a DP in Spec,I will c-command a PredP adjunct.

We have already seen that *daholo* is possible in *wh*-questions:

(67)a. iza   daholo no   namaky ny boky?
      who all   PRT read   the book
      Who all read the book?

   b. inona daholo no   novidinao?
      what   all   PRT buy.TT.2SG
      What all was bought by you?

Such examples argue against the cleft analysis of *wh*-questions in (62) because under that analysis there is no subject that can bind the quantifier. The subject of the cleft is an expletive, which cannot bind *daholo*. Thus, although the cleft analysis achieves the correct placement of predicate-related particles, it cannot give a correct interpretation to some of them. The pseudocleft analysis provides the right structure for the examples. The quantifier is adjoined to PredP and its antecedent is the headless relative in Spec,I (*no namaky ny boky* '(the) ones who read the book' in (67a)).

A second difference between the cleft and pseudocleft analyses concerns the position of the relative clause. In the pseudocleft analysis, the headless relative is in Spec,I; in the cleft analysis, the RCC is higher, adjoined to IP. We can capitalize on this difference by looking at the relative position of the relative clause and elements that would be right-adjoined to IP. I have already hypothesized that extraposed elements right-adjoin to IP. We thus derive the word order predictions in (68), where XP is an *extraposed* adverbial. Under the cleft analysis, an extraposed XP can precede or follow the RCC since both are adjoined to IP and I assume that adjunctions are unordered. Under the pseudocleft analysis, by contrast, the extraposed XP must follow the RCC because an IP-adjoined position is necessarily to the right of Spec,I.

(68)   *predicted position of extraposed adverbials in wh-questions*

   a. cleft analysis: *wh*   **XP**   RCC   **XP**

   b. pseudocleft analysis: *wh*   ***XP**   RCC   **XP**

There are certain adverbials in Malagasy, notably temporal adverbials, that speakers prefer extraposed. One such adverbial is *taloha* 'before':

(69)a. mpianatra Rabe taloha
      student   Rabe before
      Rabe used to be a student.

   b. *mpianatra taloha Rabe
      student   before Rabe

In *wh*-questions, the clause-final position of such adverbials is allowed by both analyses. Contrary to the prediction of the cleft analysis, however, the adverbial cannot precede the RCC:

(70)a. iza   (???taloha) no   mpianatra (taloha)?
        who before   PRT student   before
        Who used to be a student?

   b. inona (*omaly) no   novakian-dRabe (omaly)?
        what yesterday PRT read.TT-Rabe   yesterday
        What did Rabe read yesterday?

This is unexpected with the cleft structure on the standard assumption that multiple adjuncts can freely reorder and it argues in favor of the pseudocleft structure.[15] I conclude that a cleft analysis is not appropriate for Malagasy *wh*-questions. In addition to having to posit multiple null formatives, the cleft structure is less capable of dealing with specific data from section 4.[16]

5.3 Against a pseudosluicing analysis

A second line of argumentation against the cleft analysis for Malagasy questions is based on the observation that the Malagasy construction under investigation is not pseudosluicing. Remember that pseudosluicing is an instance of Hankamer and Sag's (1976) deep anaphora in which the "missing" material is recovered pragmatically, not via a linguistic identity requirement. There is no actual elided material. If Malagasy questions were clefts, it would be necessary to have a pseudosluicing derivation to derive the sluicing data above. In all relevant respects, however, the Malagasy construction behaves like its English sluicing counterpart, which is not pseudosluicing and not deep anaphora.[17] The inappropriateness of pseudosluicing thus argues against an underlying cleft structure for Malagasy *wh*-questions because the pseudosluicing der-

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[15] The data could be accounted for with the cleft analysis by imposing an ordering on the applications of extraposition: the RCC must extrapose before the adverbial. I cannot rule out this possibility and, in such a case, the argument would not go through; however, such a restriction seems unmotivated at this point.

  It is possible that the temporal adverbial in the examples is within the relative clause, in which case the example would not tell us anything. Nothing forces this, however. Given that both the cleft and pseudocleft structures are bi-clausal there are two clauses that the adverbial can modify and extrapose within.

[16] There are a number of observations which would seem to favor the cleft analysis but which space considerations prevent me from exploring here. An anonymous reviewer points out that the phrasal categories that can be clefted in English are distinct from those that can be pseudoclefted. The possible predicates in the Malagasy focus and *wh*-question constructions (NP/DP, PP, AdvP) (see Paul, 2000a) more closely align with the English cleft as opposed to the English pseudocleft. In the absence of clearer cross-linguistic patterns, however, I do not know what to make of the parallel. Similarly, it is well-known that the pivot in an English pseudocleft cannot be questioned:

 (i) a. What John bought is a book.
     b. *What is what John bought?

Again, it is not clear whether this is a cross-linguistic generalization or a language-particular restriction. Lastly, Potsdam (2006, to appear) and Law (2005) document a number of ways in which the headless relative under the pseudocleft analysis does not behave like a DP syntactically. The cleft analysis does not face this problem because the constituent containing *no* is a CP.

[17] Japanese is perhaps the best known language that is claimed to have pseudosluicing. I do not compare Malagasy to Japanese as I do not believe that the situation in Japanese is sufficiently clear. One complication is that the *wh*-remnant in Japanese sluicing may be case-marked or not (Hiraiwa and Ishihara, 2001; Hoji, 1990; Kizu, 1997; Merchant, 1998; Nishiyama, 1995; Nishiyama et al., 1996; Takahashi, 1993, 1994) and it seems to be generally accepted that the two options instantiate different constructions, with different syntactic properties. It is not obvious which construction is most

ivation is dependent upon a cleft. Only if Malagasy *wh*-questions are not clefts do we understand why there is no pseudosluicing.

The first argument against pseudosluicing is that the Malagasy construction does not show characteristics of deep anaphora in which the missing information is determined pragmatically. Hankamer and Sag (1976) argues that surface anaphora requires a linguistic antecedent but deep anaphora does not. One can see that this is true of English sluicing, which is surface anaphora, (71a). A linguistic antecedent is not needed for deep anaphora, such as the pronoun *he* in (71b).

(71)   [Shown a picture of an unknown man]

    a. *I wonder who.

    b. I wonder who he is.

Malagasy sluicing too requires a linguistic antecedent:

(72)   [Shown a picture of a crowd of people]

    manontany tena aho   hoe   aiza *(izany)
    wonder   *1SG.NOM COMP where that*
    I wonder where *(that is).

If Malagasy sluicing were pseudosluicing, in which the missing material could be reconstructed using non-linguistic resources, the need for a linguistic antecedent would be surprising.

Merchant (2001) documents a number of differences between English sluicing and pseudosluicing and some of his observations can be extended to the Malagasy. They too indicate that the Malagasy constructions patterns with sluicing, not pseudosluicing. First, Merchant (2001:121) shows that sluicing in English, but not pseudosluicing, allows adjunct remnants, (73), and implicit argument remnants, (74).

(73)a. He fixed the car, but I don't know how (*it was).

    b. He fixed the car, but I don't know why (*it was).

    c. He fixed the car, but I don't know when (*it was).

    d. He's hidden the jewels, but I don't know where (*it is).

(74)a. They served the guests, but I don't know what (*it was).

    b. He said that they had already eaten, but I don't know what (*it was).

    c. They were arguing, but I don't know about what (*it was).

Malagasy patterns with sluicing and not pseudosluicing in also allowing adjunct and implicit argument sluices:

Footnote 17 continued

appropriate for comparison. In addition, there is no consensus analysis of the construction(s) in the literature. Focusing on the non-case-marked construction, some researchers argue that the underlying structure is indeed a cleft (Merchant, 1998). Others propose that it is an equative pseudocleft (Kizu, 1997; Fukaya and Hoji, 1999; Hiraiwa and Ishihara, 2001). Still others claim that it is an English-like derivation with exceptional *wh*-movement (Takahashi, 1994). Given the unclear analytical picture, I will not invoke Japanese data for comparison.

(75) *sluicing with adjuncts*

    a. namboaran-dRabe ny fiara fa tsy fantatro hoe   ahoana
        fix.TT-Rabe   the car but NEG know.1SG COMP how
        Rabe fixed the car but I don't know how.

    b. nitomany indray ilay zaza fa tsy fantatro hoe   nahoana
        cry   again DEM child but NEG know.1SG COMP why
        That child cried again but I don't know why.

    c. ho avy ny vahiny fa tsy fantatro hoe   rahoviana
        FUT come the guest   but NEG know.1SG COMP when.FUT
        The guests will come but I don't know when.

    d. nividy gazety   ny mpiasa fa tsy fantatro hoe   taiza
        buy   magazine the worker but NEG know.1SG COMP wherePAST
        The worker bought a magazine but I don't know where.

(76) *sluicing with implicit arguments*

    a. manjaitra izy   fa tsy fantatro hoe   inona
        sew   3SG.NOM but NEG know.1SG COMP what
        He's sewing but I don't know what.

    b. manonofy Rabe fa tsy fantatro hoe   iza
        dream   Rabe but NEG know.1SG COMP who
        Rabe is dreaming but I don't know of whom.

Merchant (2001:122) also documents that sluicing does not allow aggressively non-D-linked *wh*-phrases (Pesetsky, 1987) as the remnant but pseudosluicing does:

(77)   Someone dented my car last night!

    a. I wish I knew who the hell it was.   *pseudosluicing*

    b. *I wish I knew who the hell.   *sluicing*

    c. I wish I knew who.   *sluicing*

Malagasy shows the same pattern as English sluicing in not allowing aggressively non-D-linked remnants:

(78) *ungrammatical aggressively non-D-linked remnant*
        nanasa olona Rasoa
        invite   person Rasoa
        Rasoa invited someone.

    a. tsy fantatro hoe mpamosavy iza   no nasainy
        NEG know.1SG COMP witch   which PRT invite.TT.3SG
        I don't know who the hell she invited.

    b. *tsy fantatro hoe   mpamosavy iza
        NEG know.1SG COMP witch   which
        (*I don't know who the hell.)

    c. tsy fantatro hoe   iza
        NEG know.1SG COMP who
   I don't know who.

Given Merchant's diagnostics, we do not have pseudosluicing.[18]

Finally, I offer a purely syntactic argument against the pseudosluicing derivation based on the impossibility of extraposed remnants. (79) repeats the hypothesized structure of a Malagasy pseudosluice (see (59) for a specific example). The relative-clause-like complement of BE is missing. The sluicing derivation is given in (80) (shown after IP deletion).

(79)   *pseudosluicing derivation*
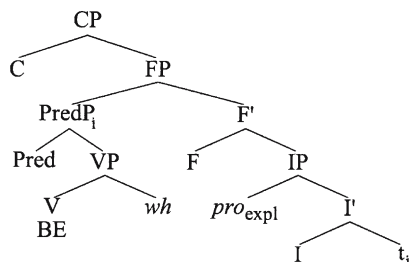
(80)   *sluicing derivation*
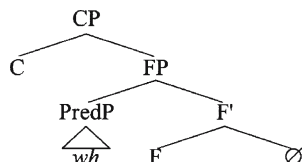
We have already seen that PredP adjuncts can appear in sluicing examples, (46) and (47). This is expected under both analyses because PredP survives the deletion in the sluicing derivation and nothing is deleted in the pseudosluicing derivation. The two structures differ however in whether or not they will allow IP adjuncts. Under the pseudosluicing derivation, (79), IP adjuncts should be possible because the pseudo-sluice is a full clause; there is no deleted material or reduced structure. In the sluicing derivation, (80), by contrast, IP adjuncts will be deleted when the IP complement of F° elides. We thus expect no IP adjuncts to be possible.

I have already used extraposed XPs as instances of elements adjoined to IP. The pseudosluicing analysis predicts that extraposed adverbial remnants will be possible in the Malagasy construction because the pseudosluice is an unreduced clause. The sluicing analysis, by contrast, predicts that they should be impossible because elements adjoined to IP are deleted along with IP. (81b) shows that an extraposed remnant (boldfaced) is in fact not grammatical, in line with the sluicing analysis. The full grammatical example, without deletion, is in (81a).

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[18] Merchant (2001) gives a number of tests that distinguish sluicing and pseudosluicing based on the exhaustivity of the pivot in English clefts. Because Malagasy *wh*-questions do not have this semantic restriction, we cannot use such tests.

(81) nisy olona betsaka niantso ahy   tamin' ity herinandro ity fa
      exist person many   call   1SG.ACC PREP DEM week   DEM but
      Many people called me this week but …

   a. tsy tadidiko   hoe iza no niantso ahy   **omaly**
       NEG remember.1SG COMP who PRT call   1SG.ACC yesterday
       I don't remember who called me yesterday.

   b. *tsy tadidiko   hoe iza omaly
       NEG remember.1SG COMP who yesterday
       (*I don't remember who yesterday.)
       (I don't remember who it was yesterday.)

The English sluicing translation in (81b) is also ungrammatical, confirming that IP
adjuncts are deleted under sluicing. Observe that an English pseudosluice transla-
tion is acceptable. Comparison to English indicates once again that the Malagasy
construction is unlike pseudosluicing.

   I conclude that *wh*-questions in Malagasy are not clefts and that the construction
under investigation is not pseudosluicing. The initial sluicing analysis based on an
underlying pseudocleft structure is superior and, consequently, the argument for a
semantic identity condition on ellipsis can be maintained.

6 Conclusions

This paper has explored the syntax of Malagasy sluicing and its implications for the
formulation of the ellipsis recoverability condition.

   Internal to Malagasy, I have argued that *wh*-questions are pseudoclefts in which
the *wh*-phrase is contained in the main clause predicate and the remaining material is
a headless relative clause in subject position, (82a). The predicate-initial word order
is derived by a general operation of predicate (PredP) fronting which moves PredP to
a specifier position above IP, (82b). This creates a structure to which IP deletion can
apply, yielding sluicing, (82c).

(82)a. $[_{DP/subject}$ Op$_i$ no … t$_i]$ $[_{PredP/predicate}$ *wh-phrase*$]$

   b. $[_{FP}$ $[_{PredP}$ *wh-phrase*$]$ $[_{F'}$ F° $[_{IP}$ $[_{subject}$ Op$_i$ no … t$_i]$ $[_{I'}$ I° t$_{PredP}]]]]$

   c. $[_{FP}$ $[_{PredP}$ *wh-phrase*$]$ $[_{F'}$ F° Ø $]]$

English and Malagasy sluicing differ only in the operation that fronts the *wh*-phrase
to an IP-external position. In English, it is *wh*-movement; in Malagasy, it is predicate
fronting. This variation is in line with the position that there is no sluicing construc-
tion per se. Different languages can arrive at a sluicing-like output via various paths
that depend upon the language-internal syntactic operations that are available. This
correctly accounts for the fact that *wh*-in situ languages, like Malagasy, can have
sluicing.

   With respect to theoretical issues surrounding the formulation of the ellipsis recov-
erability condition, I have argued that the parallelism requirement on elided material
and its antecedent is semantic, not syntactic. The evidence for this came from Malagasy

sluicing, where the pseudocleft structure of *wh*-questions does not permit sluicing derivations in which the sluiced clause would be syntactically parallel to the antecedent clause. Nonetheless sluicing succeeds. Malagasy thus provides evidence against a syntactically-based recoverability condition on ellipsis—in sluicing at least. Semantic parallelism is superior in permitting sluicing in Malagasy since it does not require syntactic parallelism between the antecedent clause and the sluiced clause. In the successful examples of sluicing, semantic parallelism still obtains.[19]

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[19] Chung (to appear) demonstrates that a semantic identity condition alone is insufficient and there remains a residue of cases for which a syntactic condition seems necessary. The debate is far from settled.

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