

## Sluicing without wh-movement in Malagasy\*

Ileana Paul and Eric Potsdam

University of Western Ontario and University of Florida

### 1 Introduction

Sluicing is the construction illustrated in (1a) in which an interrogative clause is reduced to only a wh-phrase. The standard analysis of sluicing (Ross 1969, Merchant 2001) is that it is movement of a wh-phrase to the specifier of C° followed by deletion of the TP below the wh-phrase, as shown in (1b).

- (1) a. Somebody left and I know who  
 b. Somebody left and I know [<sub>CP</sub> who<sub>i</sub> [<sub>C</sub> C°[wh] [<sub>TP</sub> ~~t<sub>i</sub> left~~ ]]]

If wh-movement is a prerequisite for sluicing, the prediction is that wh-in-situ languages should not have this construction. For one wh-in-situ language, Malagasy, a Western Austronesian language spoken on the island of Madagascar, this prediction is apparently incorrect:

- (2) nandoko zavatra i Bao fa hadinoko hoe inona  
 paint thing Bao but forget.1SG COMP what  
 'Bao painted something but I forget what'

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The goal of this paper is to explore how wh-in-situ languages, Malagasy in particular, can have sluicing without wh-movement. Our primary conclusion is that sluicing is not in fact a unified syntactic phenomenon and that different languages use different syntactic means to arrive at the same surface form. To avoid confusion, we will henceforth use the term SLUICING-LIKE CONSTRUCTION (SLC) to describe a construction in which an interrogative clause is realized only as a wh-phrase, regardless of its underlying syntactic derivation. We reserve the term SLUICING for Ross and Merchant's analysis of SLCs in which there is wh-movement followed by TP deletion.

The paper is organized as follows: Section 2 presents an overview of analyses of SLCs in several wh-in-situ languages. It demonstrates that such languages use a variety of syntactic means to arrive at what looks superficially like English sluicing but is not upon closer analysis. It is in this context that we turn to Malagasy. Section 3 presents some basic facts about Malagasy word order. Section 4 turns to question formation and shows that Malagasy is in fact a wh-in-situ language. This observation is not uncontroversial because Malagasy appears to have wh-movement. We provide evidence that such apparent fronting is in fact a base-generated pseudocleft structure, not wh-movement. Section 5 presents the Malagasy SLC along with two possible analyses. We reject a sluicing analysis in which the Malagasy SLC involves exceptional wh-movement which is licensed by deletion of otherwise illicit structure at Phonological Form (PF). In section 6 we provide evidence for our own analysis, that the Malagasy SLC is derived via predicate fronting of the wh-phrase followed by deletion. Predicate fronting has been independently proposed by other researchers as a general mechanism to derive the predicate-initial (VOS) word order of some Austronesian

languages so our analysis dovetails well with recent theoretical proposals. Section 7 contains conclusions and further issues.

## **2 Typology of sluicing**

Wh-in-situ languages are highly relevant to studies of sluicing because the standard sluicing analysis leads us to expect that such languages will not have sluicing, there being no wh-movement operation to feed the deletion. Contrary to expectations however, it has been documented that many wh-in-situ languages do have a sluicing-like construction (SLC)—a construction that looks like sluicing. Merchant (2001) briefly considers the relevance of wh-in-situ languages for his analysis of sluicing and concludes, based on data from Chinese and Japanese, that “what appears to be sluicing in these languages is the result of operations different from the movement+deletion derivation found in languages with overt wh-movement”. We agree with Merchant’s conjecture and in the remainder of this section we briefly review the diverse alternative strategies that have been proposed for the wh-in-situ languages Japanese, Chinese, and Javanese. The paper goes on to propose that the wh-in-situ language Malagasy appeals to yet a different strategy, in line with Merchant’s proposal.

In Chinese and Japanese, the SLC resembles a cleft, with the wh-phrase as a complement to a copular verb. Japanese derives its SLC using a reduced cleft with a deleted copula (Merchant 2006 and references therein):<sup>1</sup>

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<sup>1</sup> We use the following abbreviations in glossing: 1/2/3-person, ACC-accusative, ASP-aspect, COMP-complementizer, FUT-future, NEG-negative, NOM-nominative, PASS-passive voice, PREP-preposition, PRT-particle, SG/PL-number.

- (3) dareka-ga sono hon-o yon-da ga  
 someone-NOM that book-ACC read-PAST but  
 watashi-wa [<sub>CP</sub>[<sub>TP</sub> *pro*<sub>expl</sub> dare ~~da/de aru~~] ka] wakaranai  
 I-TOPIC who be-PRES Q know.NEG  
 'Someone read the book but I don't know who (it is).'

Chinese creates SLCs via a similar copular construction with a null anaphoric pronoun. The structure, however, does not involve any deletion (Adams 2002, Wang 2002, Wei 2004, 2012):

- (4) Xiaomei mai le yi-jian liwu, danshi  
 Xiaomei buy ASP one-CLASSIFIER present but  
 ta bu gaosu wo [<sub>TP</sub> *pro*<sub>i</sub> shi sheme]  
 she not tell 1SG is what  
 'Xiaomei bought a present, but she didn't tell me what (that was)'

As Merchant concludes, these languages have something that looks like a sluice, but without wh-movement+deletion.

There is another class of wh-in-situ languages which adopts a different strategy for SLCs. In these languages, the wh-phrase moves, but not via wh-movement. Javanese (Adams 2003, 2005) has a SLC in which there is focus movement of a wh-phrase to a clause-initial position followed by TP deletion:<sup>2</sup>

<sup>2</sup> In fact, as discussed by Adams (2003), Javanese appears to have three different sluicing strategies, depending on the nature of the wh-phrase (NP, PP, non-PP adjunct).

- (5) umpamane      Tika   lunga  
 if                      Tika   go  
 ibune      kudu   ngerti [<sub>FocP</sub> [neng      ngendi]<sub>i</sub>] [<sub>TP</sub> ~~dheweke lunga t<sub>i</sub>~~]  
 mother    must   know              LOCATIVE where              3SG      go  
 ‘If Tika goes somewhere, her mother must know where (she goes)’

In what follows, we propose that Malagasy illustrates a similar, but distinct, possibility: the wh-phrase moves via predicate fronting and, as in Javanese and English, the TP is then deleted.

- (6) nisy   olona   nihomehy   ka  
 exist   person   laugh              and  
 nanontany      ianao hoe              [<sub>FP</sub> [<sub>VP</sub> iza]<sub>i</sub>] [<sub>TP</sub> ~~no nihomehy t<sub>i</sub>~~]  
 ask                      you   COMP                      who                      PRT      laugh  
 ‘Someone laughed and you asked who (the one who laughed was)’

If the analysis of Malagasy is correct, it strengthens the hypothesis that different languages may arrive at the same surface form via different syntactic means and SLCs do not constitute a unified analytical class. Which strategy (or strategies) a language uses to derive its SLCs will depend upon the syntactic mechanisms independently available in the language.<sup>3</sup> Wh-in-situ languages thus make a valuable contribution to the study of sluicing phenomena. They support the claim that the English-type derivation is not the only route to a sluicing-like surface representation.

<sup>3</sup> See Hoyt and Teodorescu (2012) for similar conclusions based on the difference between English, Romanian and Japanese sluicing.

### 3 Basic Malagasy word order

Malagasy is well known for having fairly rigid VOS word order, (7). More generally, the predicate can be any phrasal category, in addition to VP, so that the language can be described as predicate initial, (8).<sup>4</sup>

- (7)    mividy    ny    akoho            i Bao  
      buy        the    chicken        Bao  
      ‘Bao is buying the chicken’

- (8)    a. [vorona   ratsy   feo]<sub>NP</sub>    ny    goaika  
          bird        bad    voice        the    crow  
          ‘The crow is a bird with an ugly voice’
- b. [faly    amin’ ny zanany]<sub>AP</sub>        Rasoa  
          proud PREP thechild.3SG        Rasoa  
          ‘Rasoa is proud of her children’
- c. [any    an-tsena]<sub>PP</sub>    Rakoto  
          PREP    ACC-market    Rakoto  
          ‘Rakoto is at the market’

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<sup>4</sup> There is considerable debate in literature over the nature of the clause-final DP, whether it is a subject or an A' topic-like element. We continue to refer to it as a subject for convenience, without taking a stand on the issue. See Pearson 2005 for discussion. As pointed out by the anonymous reviewer, if the clause-final DP is located in a topic projection within the CP layer, then the deleted constituent in the Malagasy SLC must be larger than TP.

One exception to this relatively fixed word order is that complement CPs are extraposed to a clause-final position yielding VSO order, (9a). The immediately post-verbal position for the CP is impossible, (9b).<sup>5</sup>

- (9) a. milaza Rabe [fa nivity ny akoho i Bao]  
       say Rabe that buy the chicken Bao  
       ‘Rabe says that Bao bought the chicken.’
- b. \*milaza [fa nivity ny akoho i Bao] Rabe  
       say that buy the chicken Bao Rabe

## 4 Questions in Malagasy

### 4.1 Two types of wh-questions

Malagasy has two strategies for forming information questions. When questioning non-subjects, wh-in-situ is possible (see Sabel 2003 for discussion), (10).

- (10) a. nivity inona i Be? OBJECT  
       buy what Be  
       ‘What did Be buy?’
- b. nivity vary taiza i Be? ADJUNCT  
       buy rice where Be  
       ‘Where did Be buy the rice?’
- c. \*nivity vary iza? \*SUBJECT  
       buy rice who  
       (‘Who bought the rice?’)

<sup>5</sup> Certain CP-like constituents (control and raising-to-object complements) do not obligatorily extrapose.

There is no evidence of wh-movement in such examples. Tests for covert movement show that the wh-phrase does not seem to move even at LF: wh-in-situ is not sensitive to islands, (11), and does not trigger weak crossover, (12).

- (11) namangy ny lehilahy izay nanasa inona i Be?  
 meet the man REL wash what Be  
 (lit. “Be met the man who washed what?”)  
 ‘What did Be meet the man who washed?’

- (12) manaja an’iza ny reniny?  
 respect who.ACC the mother.3SG  
 ‘Who<sub>i</sub> does his<sub>j</sub> mother respect?’

The second question strategy is that, for non-complements (subjects and adjuncts), the wh-phrase appears at the beginning of the clause followed by the particle *no*<sup>6</sup> (see Keenan 1976, MacLaughlin 1995, Paul 2001, Sabel 2003, Law 2007 for further description), (13).

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<sup>6</sup> Traditional Malagasy grammarians (Malzac 1960) have suggested that *no* is a determiner that is diachronically related to the determiner *ny*. Potsdam 2005 suggests that it is a relative clause complementizer. Its exact analysis is not directly relevant.



- (13) a. \*inona    no    nividy    i Be?                      \*OBJECT  
           what    PRT    buy        Be  
           ('What did Be buy?')
- b. taiza        no    nividy    ny    vary    i Be?            ADJUNCT  
           where    PRT    buy        the    rice    Be  
           'Where did Be buy the rice?'
- c. iza        no    nividy    ny    vary?                      SUBJECT  
           who    PRT    buy        the    rice  
           'Who bought the rice?'

While such examples might appear to involve wh-movement with a question complementizer *no* immediately following the fronted wh-phrase, we will show in the following subsection that they are actually pseudoclefts (Dahl 1986, Paul 2001, and Potsdam 2005, Kalin 2009; but see Law 2007 for a somewhat different view). As schematized in (14), the initial wh-phrase is the predicate of the clause, also called the focus or pivot. The remaining material is a headless relative in subject position. The wh-phrase has not actually undergone wh-movement; rather, it has its clause-initial position by virtue of being a predicate in a predicate-initial language. The only A'-movement in the structure is null operator movement in the relative clause, as shown.

- (14)    [<sub>predicate</sub> iza]    [<sub>subject/headless relative</sub>    no    Op<sub>i</sub>    nihomehy t<sub>i</sub>]  
                           who                                      PRT                      laugh  
           (lit. "The one who laughed is who?")  
           'Who laughed?'

Embedded *wh*-questions take the same form, as illustrated in (15). They are introduced by the formative *hoe*, which we assume is a complementizer. They are obligatorily extraposed.<sup>7</sup>

- (15) a. nanontany          ianao      [hoe iza    no    nihomehy]  
          ask                  you        COMP who   PRT   laugh  
          ‘You asked who laughed’
- b. tsy    fantatro   hoe        taiza        no        nividy       vary   i Be  
      NEG   know.1SG COMP       where       PRT       buy        rice    Be  
      ‘I don’t know where Be bought the rice’

## 4.2 Evidence for the pseudocleft structure

In this section we provide evidence supporting the pseudocleft analysis of *wh*-questions, repeated in (16a). We argue against a *wh*-movement analysis, schematized in (16b), in which *wh*-questions are derived by ordinary *wh*-movement to the specifier of CP, as in English. Further details and argumentation can be found in Potsdam (2005).

- (16) a. [<sub>predicate</sub> *wh*-phrase] [<sub>subject</sub> no Op<sub>i</sub> ... t<sub>i</sub>]      ✓PSEUDOCLEFT ANALYSIS
- b. [<sub>CP</sub> *wh*-phrase<sub>i</sub> [<sub>C</sub> no [<sub>TP</sub> ... t<sub>i</sub>]]]                      ✗WH-MOVEMENT ANALYSIS

Our two arguments in favor of the pseudocleft analysis and against the *wh*-movement analysis can be summarized as follows: 1) *wh*-questions show parallels with the focus construction, which Paul (2001) analyzes as a pseudocleft. The parallels are

<sup>7</sup> *Hoe* is in fact a defective verb meaning ‘say’. We assume that its use here is as a complementizer. It may introduce either embedded questions, as in (15), or direct quotations. It is possible that the two uses are related but we take no stand on the issue.

Malagasy has a focus construction illustrated in (17a) that appears similar to *wh*-questions. The focus construction is most naturally translated into English with a cleft or pseudocleft. Paul (2001) advances a pseudocleft analysis of the construction, assigning (17a) the structure in (17b). The initial focused element is the predicate of the clause and the subject is a headless relative clause.

- There are a number of parallels between the focus construction and *wh*-questions suggesting that they should share a single syntactic structure. 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 focussed XPs supply new information. Third, the two constructions are subject to an identical fronting restriction that we already saw above for *wh*-questions: only subjects and adjuncts can be fronted (Keenan 1976 and others). The same restriction holds of the focus construction, (18).

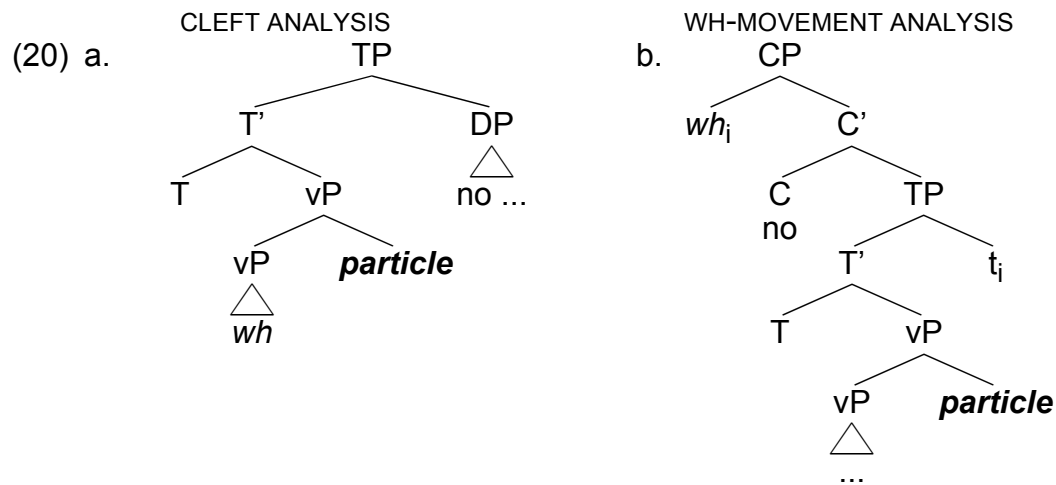
- (18) a. \*ny vary no nividy Rabe \*OBJECT  
           the rice PRT buy Rabe  
           ('It was the rice that Rabe bought')
- b. omaly no nividy vary Rabe ADJUNCT  
      yesterday PRT buy rice Rabe  
      'It was yesterday that Rabe bought the rice'
- c. Rabe no nividy ny vary SUBJECT  
      Rabe PRT buy the rice  
      'It was Rabe who bought the rice'

Analyzing wh-questions as clefts immediately accounts for these parallels. They are unexplained or at least accidental under the wh-movement analysis since the focus constructions and wh-questions would have very different structures.

The pseudocleft analysis is also supported by observations that the initial wh-phrase behaves like a predicate. There are a number of verbal elements that flank the predicate in Malagasy and thus help to identify it. For example, the floating quantifiers *daholo* 'all' and *avy* 'each', and the VP-adverb *foana* 'always' are post-predicate particles and must immediately follow the predicate in VOS clauses:

- (19) a. namaky ny boky **daholo** ny ankizy  
           read the book all the child  
           'All the children read the book'
- b. any an-tsena **foana** Rakoto.  
      there ACC-market always Rakoto  
      'Rakoto is always at the market'

For concreteness, we assume that these particles are right-adjoined to vP. Under the pseudocleft analysis then, these particles should immediately follow the wh-phrase, as illustrated in (20a). Under the wh-movement analysis, on the other hand, we expect to find these particles at the end of the clause, (20b).<sup>8</sup>



As predicted by the pseudocleft analysis, these elements immediately follow a wh-phrase in questions:

- (21) 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    there    ACC-market  
           ‘Who is always at the market?’

<sup>8</sup> In these trees, the subject/topic is in a rightward specifier of TP. We will modify this clause structure below. The purpose of these trees is to illustrate the position of particles – the precise position of the subject/topic is immaterial at this point.

Other post-predicate particles that behave the same way include the exclamative element *anie* and the parenthetical *hono* ‘so they say’.

Malagasy also has pre-predicate particles. The modal *tokony* ‘should’ and the emphatic *tena* ‘indeed’ must immediately precede the predicate in VOS clauses:

- (22) a. **tokony**      hamangy      an-dRakoto   Raso  
               should        visit                ACC-Rakoto   Raso  
               ‘Raso should visit Rakoto’
- b. **tena**        nanapaka    bozaka        Rabe  
               indeed    cut                grass        Rabe  
               ‘Rabe indeed cut the grass’

The pseudocleft analysis correctly predicts that these particles immediately precede a wh-phrase in wh-questions, (23). The fronting analysis cannot correctly account for the grammaticality of the examples.<sup>9</sup>

- (23) 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?’

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<sup>9</sup> Note that both sets of particles can in general appear farther to the right in the structure (Potsdam 2005). This position does not distinguish the two analyses however because there is also a vP adjunction site within the headless relative for these particles under the pseudocleft analysis.

Potsdam (2005, 2007) explores such data in more detail but even at this level of presentation the data make sense if wh-questions are pseudoclefts in which the initial wh-phrase is a predicate, not a fronted element. 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 clause structure. Such elements would have to have special distribution statements for wh-questions, different from ordinary clauses.

We conclude that Malagasy has no wh-movement. Wh-questions use either an in-situ or pseudocleft strategy. This sets up an analytical challenge because, as we show in the next section, Malagasy has a SLC.

## 5 Malagasy sluicing

Before introducing Malagasy SLC examples, recall the English example, repeated from (1):

- (24) a. Somebody left and I know who  
 b. Somebody left and I know [<sub>CP</sub> who<sub>i</sub> [<sub>C</sub> C°[wh] [<sub>TP</sub> ~~t<sub>i</sub> left~~ ]]]

In such examples, we will call the missing material the SLUICED CLAUSE and indicate it with strikethrough. The REMNANT is the wh-phrase that remains (*who* above) and the CORRELATE is the XP corresponding to the wh-phrase (*somebody* above) in the ANTECEDENT CLAUSE.

Two examples of the Malagasy SLC are given in (25).

- (25) a. nandoko zavatra i Bao fa hadinoko hoe inona  
 paint thing Bao but forget.1SG COMP what  
 ‘Bao painted something but I forget what’
- b. nisy olona nihomehy ka nanontany ianao hoe iza<sup>10</sup>  
 exist person laugh and ask you COMP who  
 ‘Someone laughed and you asked who’

If such examples instantiate genuine sluicing, they are surprising because wh-movement prior to the deletion would be required. We have just argued however that Malagasy has no wh-movement. If the SLCs are not sluicing, the question arises as to how such examples can be derived. In what follows, we propose two analyses. The first, in section 5.1, suggests that there actually is wh-movement, despite our earlier conclusions about the syntactic structure of Malagasy wh-questions. Under this solution the Malagasy SLC actually is sluicing. We reject this analysis and propose instead, in section 5.2, that the Malagasy SLC does involve deletion but that the input configuration for TP deletion is derived not by wh-movement but by a general predicate fronting operation that exists independently to derive VOS word order. This analysis is compatible with our conclusions about the structure of wh-questions above and supports the claim that languages arrive at SLCs by different syntactic means.

## 5.1 Deletion repair

One analysis of the Malagasy SLC is that, despite appearances, the SLC examples do involve the necessary wh-movement and thus are sluicing. This analysis is a priori

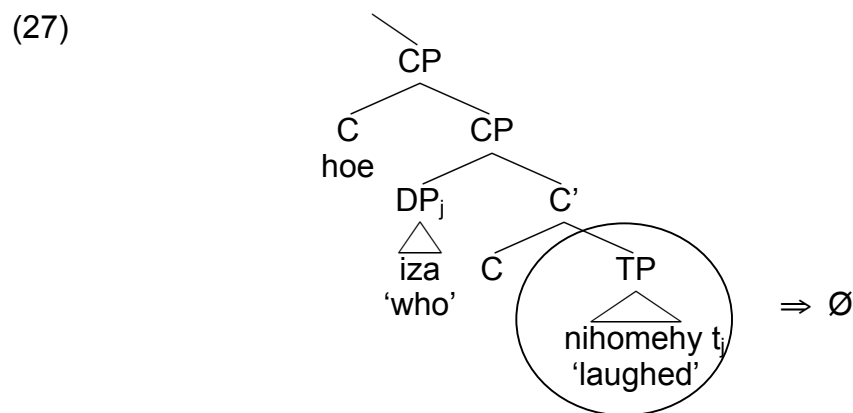
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<sup>10</sup> The antecedent clause in this example takes the form of an existential construction because indefinite



desirable in that appeals to an analysis that is well-motivated for other languages and does not require any new syntactic mechanisms. The derivation of (26) would be as in (27), parallel to the English sluicing derivation.

- (26) nisy olona nihomehy ka nanontany ianao hoe  
 exist person laugh and ask you COMP  
 [CP iza<sub>i</sub> [<sub>TP</sub> ~~nihomehy t<sub>i</sub>~~]].  
 who laugh  
 'Someone laughed and you asked who'



We will call this the Deletion Repair analysis: Malagasy has wh-movement just in case deletion eliminates the TP containing the trace of wh-movement. We might assume that Malagasy does not show wh-movement because it would violate some general movement restriction in the language. The deletion somehow ameliorates the violation, perhaps by eliminating the offending trace. The analysis is based on the observation that sluicing apparently does rescue violations of constraints on movement, notably

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subjects are impossible in Malagasy (Keenan 1976).

island constraints (Ross 1969) (data from Chung, Ladusaw, and McCloskey 1995 and Merchant 2001):

(28) a. *complex noun phrase constraint*

They want to hire someone who speaks a Balkan language, but I don't remember which ~~they want to hire someone who speaks~~.

b. *wh-island*

Sandy was trying to work out which students would be able to solve a certain problem, but she wouldn't tell us which one ~~she was trying to work out which students would be able to solve~~.

c. *COMP-trace effect*

It has been determined that someone will be appointed, but I can't remember who ~~it has been determined that will be appointed~~.

Lasnik (2001) and Kennedy and Merchant (2000) propose specific analyses of this genre in which an illicit movement is rendered licit by PF deletion.

In what follows, we present four problems with the Deletion Repair analysis. Further details of the argumentation are discussed in Potsdam (2007). First, if *wh*-movement is to the specifier of CP, as is usually the case, it is unexpected that the *wh*-phrase follows rather than precedes the embedded question complementizer *hoe*:

(29)            nandoko       zavatra    i Bao       fa ...

                 paint            thing       Bao       but

a. hadinoko       hoe       inona

                 forget.1SG    COMP       what

b. \*hadinoko       inona       (hoe)

                 forget.1SG    what       COMP

                 'Bao painted something but I forget what'

Second, the Deletion Repair analysis predicts that accusative case wh-phrase remnants should be grammatical because wh-movement should be able to target any wh-phrase. This is incorrect, (30).

(30) \*nanasa    olona       Rabe ka            nanontany    aho       hoe       an'iza  
                 invite    person    Rabe and.so    asked       I       COMP    who.ACC  
                 ('Rabe invited someone and I asked whom')

Note that we are working within a Deletion Repair analysis whereby deletion remedies any movement constraint violations. Thus, the fact that Malagasy cannot in actuality question complements, as mentioned in section 3, is irrelevant because the deletion by hypothesis relieves the violation of this restriction.

Third, the analysis predicts that if there were a configuration in which sluicing could not ameliorate the movement constraint violation, such examples would be ungrammatical. An example is sluicing with implicit correlates. English sluicing with implicit correlates is illustrated in (31). There is no overt correlate in the antecedent clause to which the wh-remnant corresponds. The correlate is implicit.

- (31) a. She's reading. I can't imagine what.  
 b. They're baking a cake, but they wouldn't say for whom.

Implicit correlates are relevant because sluicing with implicit correlates cannot violate constraints on movement (Chung, Ladusaw, and McCloskey 1995, Romero 1998, Merchant 2001). Sluicing deletion is unable to rescue such derivations (contrast these with the grammatical examples in (28)).

- (32) a. *complex noun phrase constraint*

\*Kim knows the person who was reading but she won't say what (she knows the person who was reading)

- b. *wh-island*

\*Agnes wondered when John would bake a cake but it's not clear for whom  
 (Agnes wondered when John would bake a cake)

The Deletion Repair analysis predicts that Malagasy sluices with implicit correlates should likewise be ungrammatical; however, this is incorrect:

- (33) nihira Rasoa fa tsy fantatro hoe inona  
 sing Rasoa but NEG know.1SG COMP what  
 'Rasoa was singing but I don't know what'

Finally, it remains mysterious why there would be wh-movement just in this instance. There does not seem to be any language-internal motivation for such movement. We conclude that the SLC in Malagasy does not involve otherwise unavailable wh-

movement. The question remains how Malagasy SLCs are derived. We offer an another answer in the next subsection.

## 5.2 Predicate fronting

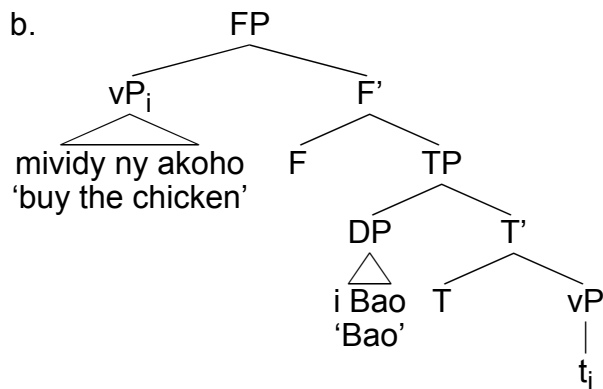
Our proposal, in line with Merchant's suggestion, is that what looks like sluicing in Malagasy makes use of other syntactic mechanisms. In other words, Malagasy's SLC is not sluicing. The elements our analysis are as follows: First, the SLC involves embedded questions which are pseudoclefts, just as root questions are pseudoclefts. (34) illustrates an embedded question. It takes the form of a matrix wh-question introduced by the complementizer *hoe*.

- (34) nanontany      ianao      hoe      iza      \*(no)      nihomehy  
      ask                you      COMP      who      PRT      laugh  
      'You asked who laughed'

Second, the wh-predicate of the pseudocleft moves out of TP via predicate fronting. Recently, there have been a number of proposals in the literature that VOS word order in Austronesian languages is derived from an underlying SVO order via predicate fronting (Massam and Smallwood 1997, Rackowski and Travis 2000, Massam 2000, Pearson 2001, Aldridge 2002, 2004, Travis 2004, Cole and Hermon 2008; see Chung 2005 for critical discussion). The derivation of a basic VOS is clause is as in (35) in

which an underlying SVO structure is transformed into VOS by fronting the predicate phrase, vP, to the specifier of a projection FP above TP.<sup>11</sup>

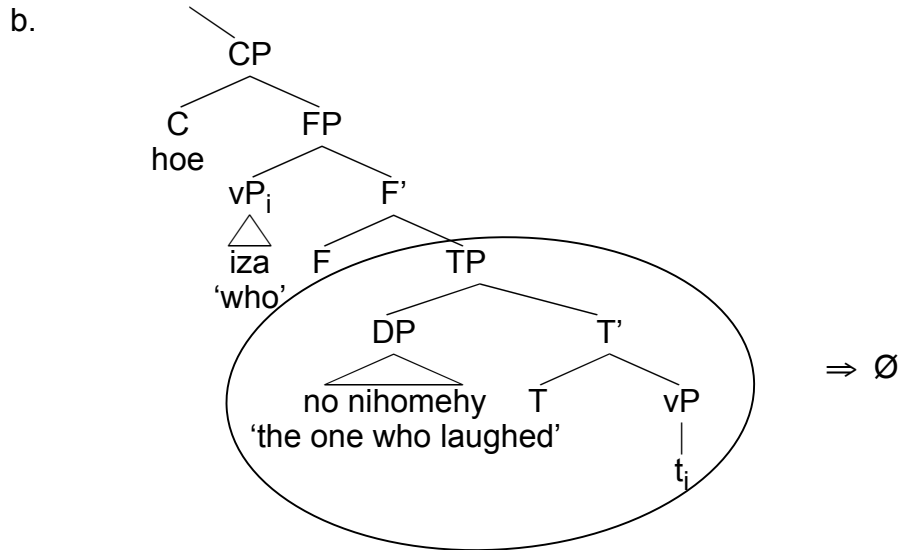
- (35) a. mividy ny akoho i Bao  
 buy the chicken Bao  
 'Bao is buying the chicken'



The simplest assumption is that such predicate fronting also occurs in (embedded) wh-questions and as part of the derivation of SLC examples. The wh-phrase predicate fronts and then the TP, which no longer contains the predicate, deletes, (36b).

- (36) 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)'

<sup>11</sup> The above authors differ in the details of the fronting analysis, in particular, in the final landing site of the predicate. These details are not relevant for present purposes. The anonymous reviewer asks how tense marking ends up on the verb. We assume a lexicalist approach to morphology: the verb is merged into the derivation fully inflected.



The predicate fronting account of VOS word order is motivated in part by theory-internal considerations. By invoking predicate fronting, we avoid stating that Malagasy has some rightward and some leftward specifier positions. Moreover, all movement is strictly leftward, rather than mixed rightward and leftward. There are also empirical motivations. As we have already seen, movement of complements in Malagasy is blocked:

- (37) a. \*inona    no    nividy    i Be?                      \*OBJECT  
          what    PRT    buy        Be  
          ('What did Be buy?')
- b. taiza     no    nividy    ny vary    i Be?        ADJUNCT  
          where    PRT    buy        the rice    Be  
          'Where did Be buy the rice?'
- c. iza     no    nividy    ny    vary?                      SUBJECT  
          who    PRT    buy        the    rice  
          'Who bought the rice?'

Assuming that the fronted predicate, being in a specifier, creates an island for A' movement, and assuming that adjuncts such as *taiza* 'where' are adjoined above vP, we have a simple explanation of this otherwise unusual restriction on extraction. Objects are "frozen" within the fronted predicate, while (high) adjuncts and subjects are free for extraction.<sup>12</sup>

If predicate fronting is independently part of Malagasy grammar, then it provides the necessary movement to feed TP deletion in the SLC examples, as shown in the derivation in (36b). In the next section we provide some evidence that the above derivation is on the right track. Before turning to this evidence, however, we discuss some details of the licensing of deletion.<sup>13</sup> Since at least Lobeck (1995), it has been believed that deletion must be licensed by a syntactic head. We propose that it is the complementizer *hoe* that licenses TP deletion in Malagasy.<sup>14</sup> Since it is not the complement of the complementizer *hoe* that deletes, but rather the complement of F° (see the tree in (36b)), the head of FP must also play a role in licensing deletion. To see how this can be implemented formally, consider Merchant's (2001) discussion of the licensing conditions on sluicing in English. Merchant (2001: 54ff) argues that only the null [+wh, +Q] interrogative C° licenses a null TP (i.e. sluicing). Within a Minimalist checking theory, he claims that a feature E on the T head moves to C° to be checked but it can only be checked by the null [+wh, +Q] interrogative C°. This feature, as well as giving the semantics for sluicing, indicates that its sister (i.e. TP) is not to be

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<sup>12</sup> An anonymous reviewer asks if we predict that *all* VOS languages will show the same extraction asymmetry. We don't believe, however, that *all* VOS languages necessarily involve predicate fronting and so not all VOS languages would necessarily be subject to this restriction. We leave this issue open to further empirical research, but see Chung (2005) for some relevant discussion.

<sup>13</sup> For discussion of the identity conditions on sluicing, we refer the reader to Potsdam (2007), who argues in favor of semantic rather than syntactic identity.



pronounced. Adapting this analysis to Malagasy, the feature E can be generated on F° and it enters into an Agree relation with C° (*hoe*) without movement.). As in English, E marks its sister (TP) to be unpronounced at PF. The result is that the TP in (36b) is not pronounced.

The above implementation suggests one source of cross-linguistic variation in the realization of sluicing. The feature E, which licenses deletion, can be generated on different heads: T° in English (and other languages discussed by Merchant 2001) and F°, the head above T° in Malagasy. In addition, the feature can be strong in some languages, forcing movement for checking, and weak in others, being checked by Agree. This creates the appearance that either the complementizer itself, or the head of the complement of the complementizer licenses sluicing. Another language that seems to illustrate this second state of affairs is Hungarian (Merchant 2001: 81), in which the *wh*-phrase remnant also follows the embedded complementizer in sluicing:

- (38) a      *gyerekek      találkoztak      valakivel      de      nem      emlékszem,*  
           the    children      met                    someone.with    but    not    I.remember  
           (hogy)    kivel.  
           that        who  
           ‘The children met someone, but I don’t remember who.’

Finally, we note here that Malagasy SLCs, like Hungarian, do not at first glance conform to Merchant’s (2001: 62) generalization:

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<sup>14</sup> At this point we take no stand on whether other complementizers also license deletion. Initial data indicate that they may but we have not adequately explored the facts.

(39) *Sluicing-COMP generalization*

In sluicing, no non-operator material may appear in COMP.

As can be seen in the tree in (36b), the C° head is filled with *hoe*. Merchant (2001: 80), however, takes the generalization in (39) to be a prosodic constraint, relating to complementizers being adjacent to the sluicing site. In Malagasy, *hoe* is not adjacent to the elided TP. The wh-phrase intervenes. Therefore it may not be a true counterexample once the generalization is more precisely formulated. See van Craenebroeck (2012) for related discussion of sluicing with multiple CP projections.

We now turn to evidence in favor of predicate fronting.

## 6 Evidence for the Predicate Fronting Analysis

Our evidence in favor of predicate fronting plus TP deletion as the source of Malagasy SLCs consists in showing that the wh-phrase remnant in sluicing is actually a predicate, as is expected under the proposed derivation.

First, the same elements that can flank predicates in matrix clauses (see section 4.2) also co-occur with wh-phrase remnants in SLCs. Pre-predicate elements such as the modal *tokony* ‘should’ and the emphatic element *tena* ‘indeed’ can precede a wh-phrase in a SLC, (40), and post-predicate elements such as the floating quantifier *daholo* ‘all’ and the VP adverb *foana* ‘always’ can follow the wh-remnant, (41).

- (40) a. misy olona tokony hamangy an-dRaso fa  
 exist person should visit ACC-Raso but  
 tsy fantatro hoe [<sub>pred</sub> **tokony** iza]  
 NEG know.1SG COMP should who  
 'Someone should visit Raso but I don't know who should'
- b. nisy olona nanapaka bozaka fa  
 exist person cut grass but  
 tsy tadidiko hoe **tena** iza  
 NEG remember.1SG COMP indeed who  
 'Someone cut the grass but I don't remember who indeed did'

- (41) a. nahandro zavatra maro Raso fa  
 cook thing many Raso but  
 tsy fantatro hoe inona **daholo**  
 NEG know.1SG COMP what all  
 'Raso cooked several things but I don't know what all'
- b. any an-tsena matetika ny mpivarotra sasany fa  
 there ACC-market often the merchant some but  
 tsy fantatro hoe iza **foana**  
 NEG know.1SG COMP who always  
 'Some merchants are often at the market but I don't know who always is'

Second, all and only the wh-phrases that can be predicates can be SLC remnants. We have already seen that accusative wh-phrases cannot be SLC remnants, (42). They

also can not be questioned in a pseudocleft, (43), because only subjects and some adjuncts can be questioned with this strategy as discussed in section 4.1.

- (42) \*nanasa olona Rabe ka nanontany aho hoe an'iza  
 invite someone Rabe and ask I COMP who.ACC  
 ('Rabe invited someone and I asked whom')

- (43) \*an'iza no nanasa Rabe?  
 who.ACC PRT invite Rabe  
 ('Whom did Rasoa invite?')

In the same vein, prepositional phrases can be pseudoclefted and sluiced:<sup>15</sup>

- (44) tamin' inona no namonoan-dRasoa ny akoho?  
 with what PRT kill.PASS-Rasoa the chicken  
 'What did Rasoa kill the chicken with?'

- (45) namono ny akoho tamin-javatra maranitra Rasoa fa  
 kill the chicken with thing sharp Rasoa but  
 tsy fantatro hoe tamin' inona  
 NEG know.1SG COMP with what  
 'Rasoa killed the chicken with something sharp but I don't know with what'

The set of wh-phrases that can appear in SLCs is therefore identical to the set of wh-phrases that can be predicates in pseudoclefts.

<sup>15</sup> The verb in (44) is in what is called the circumstantial voice. It is roughly equivalent to the passive of an applicative.

In summary, wh-phrase remnants in SLCs are predicates. This observation supports our claim that SLC examples are derived by predicate fronting and subsequent TP deletion. The derivation is similar to that assumed for English except that the wh-phrase is fronted by predicate fronting, not wh-movement.

## 7 Conclusion

In this paper we have provided an analysis of a SLC in the wh-in-situ language Malagasy. Our analysis of the Malagasy SLC contributes to the typology of ways in which wh-in-situ languages create a sluicing-like surface structure. In Malagasy, we have argued, a SLC involves wh-predicate fronting followed by TP deletion:

- (46)    nisy    olona            nihomehy    ka  
          exist   person        laugh           and  
          nanontany        ianao hoe        [<sub>FP</sub> [<sub>VP</sub> iza]<sub>i</sub>    [<sub>TP</sub> —no— nihomehy t<sub>i</sub>]  
          ask                you    COMP                who                PRT    laugh  
          ‘Someone laughed and you asked who (the one who laughed was)’

Thus Malagasy has a SLC strategy that is distinct from other wh-in-situ languages, such as Japanese, Chinese and Javanese, discussed in section 2. The derivation is similar yet also distinct from English sluicing.

A consequence of our analysis is that Malagasy provides further support for a non-unified analytical approach to SLCs. Our proposal and the above languages highlight the fact that sluicing is not a syntactic construction *per se*. A sentence that superficially looks like English sluicing need not have an English-like derivation. Wh-in-situ

languages cease to be a counterexample to the movement+deletion view of sluicing if their SLCs can be derived by other means. The strategy (or strategies) a language uses to arrive at a sluice depends upon the syntactic mechanisms independently available in the language. Thus while Javanese employs focus fronting, Malagasy exploits predicate fronting. Chinese and Japanese, on the other hand, have no movement at all to feed a sluicing derivation and rely on ellipsis alone.

Another consequence of our analysis is that it provides evidence for predicate fronting in Malagasy. While there is much recent work espousing predicate fronting as the mechanism by which verb-initial word order in Austronesian languages is derived, there is thus far little empirical evidence for this fronting operation (see Chung 2005 for important discussion) and it is usually adopted based on theory-internal consideration. Our analysis suggests that Malagasy must have predicate fronting if the derivation of SLC examples is to succeed. The analysis thus has potentially important consequences for theories of Austronesian clause structure.

## References

- Adams, Perng Wang. 2002. Sluicing in Chinese: The beauty of silence. Ms., Univ. of Delaware.
- Adams, Perng Wang. 2003. Sluicing in Javanese. Paper presented at the 2003 Western Conference on Linguistics (WECOL). University of Arizona.
- Adams, Perng Wang. 2005. Sluicing in Javanese: Constrained by its syntax. Ms., Univ. of Delaware.
- Aldridge, Edith. 2002. Nominalization and wh-movement in Seediq and Tagalog. *Language and Linguistics* 3:393-427.
- Aldridge, Edith. 2004. Ergativity and word order in Austronesian languages. Doctoral dissertation, Cornell University.

- Chung, Sandra. 2005. What fronts? On the VP raising account of verb-initial order. In *Verb first: Papers on the syntax of verb initial languages*, A. Carnie, S.D. Collberg, and H. Harley (eds.), 9-29. Amsterdam: John Benjamins.
- Chung, Sandra, William Ladusaw, and James McCloskey. 1995. Sluicing and logical form. *Natural Language Semantics* 3:239-282.
- Cole, Peter and Gabriella Hermon. 2008. VP raising in a VOS language. *Syntax* 11:144-197.
- van Craenenbroeck, Jeroen. 2012. How do you sluice when there is more than one CP? This volume.
- Dahl, Otto Christian. 1986. Focus in Malagasy and Proto-Austronesian. In *FOCAL I*, P. Geraghty, L. Carrington and S.A. Wurm (eds.), 21-45. Pacific Linguistics.
- Han, Chung-hye and Maribel Romero. 2004. Disjunction, focus, and scope. *Linguistic Inquiry* 35:179-217.
- Hoyt, Frederick and Alexandra Teodorescu. 2012. How many kinds of sluicing, and why? Single and multiple sluicing in Romanian, English and Japanese. This volume.
- Kalin, Laura. 2009. New about the *no*-phrase: Specificational pseudoclefts in Malagasy. *The Proceedings of AFLA 16*, S. Chung, D. Finer, I. Paul, and E. Potsdam (eds.), 61-75. Accessed on-line September 4, 2010 at <http://westernlinguistics.ca/afla/>.
- Keenan, Edward L. 1976. Remarkable subjects in Malagasy. In *Subject and Topic*, C. N. Li (ed.), 247-301. New York: Academic Press.
- Kennedy, Christopher and Jason Merchant. 2000. Attributive comparative deletion. *Natural Language and Linguistic Theory* 18:89-146.
- Lasnik, Howard. 2001. When can you save a structure by destroying it? In *The Proceedings of the 31st Meeting of the North East Linguistic Society*, M. Kim and U. Strauss, 301-320. Amherst, Ma.: GLSA.
- Law, Paul. 2007. The syntactic structure of the cleft construction in Malagasy. *Natural Language and Linguistic Theory* 25:765-823.
- Lobeck, Anne. 1995. *Ellipsis: Functional heads, licensing, and identification*. Oxford: Oxford University Press.
- Malzac, R. P. 1960. *Grammaire Malgache*. Paris: Société d'Éditions Géographiques, Maritimes et Coloniales.

- Massam, Diane. 2000. VSO and VOS: Aspects of Niuean word order. In *The syntax of V-initial languages*, A. Carnie and E. Guilfoyle (eds.), 97-116. Oxford: Oxford University Press.
- Massam, Diane and Carolyn Smallwood. 1997. Essential features of predication in Niuean and English. In *The Proceedings of the 27th Meeting of the North East Linguistic Society*, K. Kusumoto (ed.), 236-272. Amherst, Ma.: GLSA.
- MacLaughlin, Dawn. 1995. Wh-movement in Malagasy: An extraction asymmetry. In *Theoretical approaches to African linguistics*, A. Akinlabi (ed.), 117-128. Trenton, NJ: Africa World Press.
- Merchant, Jason. 2006. Sluicing. In *The Blackwell companion to syntax*. M. Everaert, H. van Riemsdijk, R. Goedemans, B. Hollebrandse (eds.), 269-289. Malden: Blackwell.
- Merchant, Jason. 2001. *The syntax of silence: Sluicing, islands and the theory of ellipsis*. New York: Oxford University Press.
- Paul, Ileana. 2001. Concealed pseudo-clefts. *Lingua* 111: 707-727.
- Pearson, Matt. 2001. The clause structure of Malagasy: A minimalist account. Doctoral dissertation, UCLA.
- Pearson, Matt. 2005. The Malagasy subject/topic as an A' element. *Natural Language and Linguistic Theory* 23:381-457.
- Potsdam, Eric. 2005. The cleft structure of Malagasy wh-questions. In *Clause Structure and Adjuncts in Austronesian Languages*, H.-M. Gärtner, P. Law, and J. Sabel (eds.), 195-232. Berlin: Mouton de Gruyter.
- Potsdam, Eric. 2007. Malagasy sluicing and its consequences for the identity requirement on ellipsis. *Natural Language and Linguistic Theory* 25:577-613.
- Rackowski, Andrea and Lisa Travis. 2000. V-initial languages: X or XP movement and adverbial placement. In *The syntax of V-initial languages*, A. Carnie and E. Guilfoyle (eds.), 117-141. Oxford: Oxford University Press.
- Romero, Maribel. 1998. Focus and reconstruction effects in wh-phrases. Doctoral dissertation, University of Massachusetts at Amherst.



- Ross, John R. 1969. Guess who? In *Papers from the 5th Meeting of the Chicago Linguistic Society*, Robert I. Binnick, Alice Davison, Georgia M. Green, Jerry L. Morgan et. al. (eds.), 252-286. Chicago: Chicago Linguistic Society.
- Sabel, Joachim. 2003. Malagasy as an optional multiple wh-fronting language. In *Multiple wh-fronting*, Cedric Boeckx and Kleanthes Grohmann (eds.), 229-254. Amsterdam: John Benjamins.
- Travis, Lisa. 2004. VP-, D°-movement languages: Malagasy in Wonderland. Paper presented at the 11th Meeting of the Austronesian Formal Linguistics Association. ZAS Berlin.
- Wang, Chyan-An Arthur. 2002. On sluicing in Mandarin Chinese. Masters Thesis. National Tsing Hua University.
- Wei, Ting-chi. 2004. Predication and sluicing in Mandarin Chinese. Doctoral dissertation. National Kaohsiung Normal University.
- Wei, Ting-chi. 2012. Predicational sluicing in Mandarin Chinese. This volume.