

## A note on the anaphoric traits of sluicing\*

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### Abstract

Sluicing, traditionally argued to instantiate unpronounced structure, is presently analyzed as a self-sufficient representation, which reflects (extra-)sentential relations that make use of information provided by morpho-syntax and the lexicon.

**Keywords:** sluicing, anaphora, ellipsis, dependency, *wh*-questions.

### 1 Background and goal

Mainly focusing on Greek, the present paper concentrates on so-called elliptical representations dubbed as SLUICING (originally due to Ross 1969), as exemplified in (1) (see Giannakidou & Merchant 1998—hereafter, GM; Merchant 2000, 2001 for an early discussion of Greek).

- (1) Kapjos efighe ke anarotieme pjos.  
someone-NOM left-3SG and wonder-1SG who-NOM  
“Someone left and I wonder who.”

Pre-theoretically, in terms of syntax, *pjos* (who) in (1) surfaces after *anarotieme* (wonder), a position that is mostly reserved for complements, although *anarotieme* (wonder) typically selects for full-fledged indirect *wh*-questions and not single DPs. Regarding interpretation, *pjos* (who) seems to carry the meaning of an ordinary indirect *wh*-question whose propositional reading is associated with that of the preceding clause, in the sense that the speaker “wonders who that person is such that s/he left.”

The aforementioned observations, which have initially revolved around the syntax and interpretation of the congeneric English sentences (cf., the English translation in (1), for instance), have shaped the widely accepted view that sluicing bears

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more structure than meets the eye. More precisely, two competing approaches have largely been developed and prevailed over the years. One is the PF-deletion account, forwarded by Ross op.cit., and extensively defended by Merchant (2001), in line with which syntax generates a full-fledged *wh*-question, as in (2), whereby *who* moves to [Spec,CP] leaving a relevant copy at its base-generated site.<sup>1</sup>

- (2) [<sub>CP</sub> [<sub>TP<sub>β</sub></sub> Someone left]] and [<sub>CP</sub> I [<sub>VP</sub> wonder [<sub>CP</sub> who [~~TP<sub>α</sub>~~ left ~~(who)~~]]]].

Particular to sluicing is the assumption that, after the derivation is computed and the output is sent to the interfaces, i.e., P(honetic) F(orm) and L(ogical) F(orm) respectively, (the conventionally labelled at present as) TP<sub>α</sub> (or IP), is deleted at PF.<sup>2</sup> Deletion is performed if and only if TP<sub>α</sub> and TP<sub>β</sub> semantically entail each other (see Merchant, op.cit., for details). Therefore, although TP<sub>α</sub> carries no phonetic content, it gives rise to the relevant propositional reading at LF.

The second account, known as LF-copying (see Chung, Ladusaw & McCloskey 1995, *to appear*; henceforth, CLM) also defends the claim that there is additional structure available. However, it proposes that, as regards TP<sub>α</sub>, syntax only generates the necessary non-terminal (empty) slots (cf., (3a)), in which the relevant terminal constituents of TP<sub>β</sub> are to be copied at LF.

- (3) a. [<sub>CP</sub> [<sub>TP<sub>β</sub></sub> Someone left]] and [<sub>CP</sub> I [<sub>VP</sub> wonder [<sub>CP</sub> who [<sub>TP<sub>α</sub></sub> ]]]].  
 b. [<sub>CP</sub> [<sub>TP<sub>β</sub></sub> Someone left]] and [<sub>CP</sub> I [<sub>VP</sub> wonder [<sub>CP</sub> who<sub>k</sub><sup>i</sup> [<sub>TP<sub>α</sub></sub> left someone<sub>k</sub><sup>i</sup> ]]]].

Specifically, it is argued that: a) *who* is directly merged at [Spec,CP] and b) copying includes the indefinite *someone*, which occupies the position where the copy of *who* would be realized if *wh*-movement had taken place. Both *who* and *someone* are treated as indefinites that discharge “free variables”, that is open sentences in the sense of Heim (1982) (and Kamp 1981), which are simultaneously bound (i.e., closed off) by the same *wh*-operator that appears on C (not shown here). Binding is syntactic as well as semantic, as illustrated respectively by the co-super/subscripting of the indefinites in (3b). Thus, on the assumption that the relevant structure is only built at LF, the propositional content of the *wh*-question comes with no phonetic equivalent.

Despite their technical differences, both accounts just described view sluicing as an instance of anaphora that necessarily admits a certain amount of non-phonetically realized, morpho-syntactic information, either “deleted” at PF or “reused” at LF.

In what follows, I maintain that (Greek) sluicing is an instance of anaphora but I propose that it is anaphora which is evaluated on the basis of surface morpho-

<sup>1</sup>Copies of extracted items are presently notated in angle brackets, a convention adopted from Starke (1997).

<sup>2</sup>Deletion sites are illustrated under strikethrough.

syntactic information.<sup>3</sup> In other words, there is no additional structure available in sentences, such as (1), that “follows” the *wh*-item, which I hereafter call “SLUICE”.<sup>4</sup>

The paper unfolds as follows. After presenting some (new) evidence on Greek sluicing (section 2), I lay the proposal (section 3) and account for the data discussed (section 4). Section 5 concludes the discussion. Note that whenever nothing is at stake, for space limitations and ease of illustration, I occasionally resort to English as the language of exemplification.

## 2 Data

To begin with, by and large, Greek sluicing admits properties that have also been observed with respect to English (see, CLM 1995, for an extensive discussion), some of which have already been raised by GM (1998) and Merchant (2000, 2001). My intention here is to discuss three such properties, the last two of which have, to the best of my knowledge, gone unnoticed so far.

In particular, first, although ordinary Greek *wh*-questions generally abide by the typical islandhood pattern,<sup>5</sup> the *wh*-item in sluicing may be associated with a correlate that is deeply embedded in an island, as shown by Merchant (2000). For example, while extraction of *pja Valkaniki glosa* (which Balkan language) out of the Relative clause (labelled as RC) in (4a) is ungrammatical (marked with “\*”), its sluicing counterpart is not (cf., (4b)) (data from Merchant op.cit., 42: (3a,b)).

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<sup>3</sup>In the sense intended here sluicing may be thought to be closer to what Hankamer & Sag (1976) have described as “deep” anaphora, which does not bear unpronounced structure, rather than “surface” anaphora, which does so (*pace* the authors’ “surface” anaphoric approach to sluicing). I will leave that matter open. Moreover, the analysis to be defended is much closer to the spirit, but not to the technical implementations, of the non-structural approaches favored by Ginzburg & Sag (2001) and Culicover & Jangendoff (2005), and it may be taken as a possible extension to that defended by van Riemsdijk’s (1978).

<sup>4</sup>The present analysis does not take into consideration (what I name as) “pragmatically controlled” SLUICES, such as *which room* in (i) (from Ginzburg & Sag 2001, 298: (5b)), where there is no linguistic “antecedent” available, but only the micro-discourse enclosed in brackets. Nevertheless, there may be ways for one to account for (i) under the framework to be proposed.

- (i) [Milling around on first day of conference, participants ignorant of location of talks go up to harried organizer:] Hey, could you tell us which room so we can go in and wait for things to start?

Note also that for structural approaches, such as the ones considered above, which define the syntactic and semantic representation of the SLUICE on the basis of an “antecedent” full-fledged sentence, (i) does seem to raise non-trivial questions, such as: a) on what sort of “semantic entailment” may PF-deletion take place? or, instead, b) what sort of terminals may be LF-copied?

<sup>5</sup>See Kotzoglou (2005) for a recent discussion of Greek islands.

- (4)a.\* [Pja Valkaniki glosa thelun na proslavun  
 which Balkan language-ACC want-3PL PRT hire-3PL  
 [DP kapjon [RC pu na mila t<sub>wh</sub> ]]]?  
 someone-ACC that PRT speaks-3SG  
 “\*Which Balkan language do they want to hire someone who speaks?”
- b. Thelun na proslavun kapjon pu na mila  
 want-3PL PRT hire-3PL someone-ACC that PRT speaks-3SG  
 mia Valkaniki glosa ala dhen thimame pja.  
 a Balkan language-ACC but NEG remember-1SG which-ACC  
 “They want to hire someone who speaks a Balkan language,  
 but I don’t remember which.”

Second, Merchant (2000, 2001) argues that the SLUICE which is associated with a term realized in a P(repositional) P(hrase) must also surface within a PP, as in (5a) (from Merchant 2000, 55: (36)). Nevertheless, my informants, 15 Greek natives speakers, as well as the Greek participants of both the workshop “Optionality of *wh*-movement” (ISTAL 2009) and the Linguistics Conference for Graduate Students (National and Kapodistrian University of Athens 2009) have considered (5a) grammatical, although all of them have shown a preference for the presence of the preposition, judging its absence deviant, at best (cf., the question-marked (5b)).<sup>6</sup>

- (5) a. I Anna miluse [PP me kapjon]  
 the Anna-NOM was-talking-3SG with someone-ACC  
 ala dhen ksero [PP \*(me) pjon].  
 but NEG know-1SG with who-ACC  
 “Anna was talking with someone but I don’t know with who.”
- b. ?I Anna miluse [PP me kapjon]  
 the Anna-NOM was-talking-3SG with someone-ACC  
 ala dhen ksero [pjon].  
 but NEG know-1SG who-ACC  
 “Anna was talking with someone but I don’t know who.”

Moreover, all the informants commented that the SLUICE must be realized as a PP only if its correlate is an implicit PP, as shown in (6), where the SLUICE *me pjon* (with whom) corresponds to the implied PP-object of the predicate *miluse* (was-talking).<sup>7</sup>

- (6) I Anna miluse ala dhen idha \*(me) pjon.  
 the Anna-NOM was-talking-3SG but NEG saw-1SG with who-ACC  
 “Anna was talking but I didn’t see \*(with) who.”

<sup>6</sup>I also share the informants’ intuitions.

<sup>7</sup>For a discussion of implicit correlates see CLM (1995), *to appear*.

Witness further that (6) patterns with the congeneric English cases whereby, as noted by Chung (2005) and exemplified in (7), the P *by* must be present (from Chung op.cit., 8: (19a)).

(7) Joe was murdered but we don't know \*(by) who.

Third, the SLUICE may optionally be present (put in parentheses in the examples to follow) if it associates with the *wh*-word/phrase that introduces an embedded interrogative (notated as CP). The previous is true with either *subject*, *object* or *adverbial* correlates.<sup>8</sup> In particular, the SLUICE *pjos* (who), in (8a), correlates with the *wh*-subject *pjos* (who), *ti* (what) with the *wh*-object *ti* (what) in (8b) and the adverbial SLUICE *pote* (when) (enclosed in curly brackets) is associated with the respective *wh*-adverbial in (8c).

- (8) a. [I Eleni rotise [CP *pjos* efighe]]  
the Helen-NOM asked-3SG who-NOM left-3SG  
ala dhen tis ipa (*pjos*).  
but NEG her-GEN tell-1SG who-NOM  
‘‘Helen asked who left, but I didn’t tell her (who).’’
- b. [I Eleni rotise [CP *pjo* vivlio na aghorasi]]  
the Helen-NOM asked-3SG which book-ACC PRT buy-3SG  
ala dhen mporusa na tis po (*pjo*).  
but NEG could-1SG PRT her-GEN tell-1SG which-ACC  
‘‘Helen asked which book to buy, but I couldn’t tell her (which).’’
- c. [I Eleni rotise [CP *pote* travmatistike  
the Helen-NOM asked-3SG when was-injured-3SG  
o Nikos]] ala dhen tis ipa (*pote*).  
the Nick-NOM but NEG her-GEN tell-1SG when  
‘‘Helen asked when Nick was injured, but I didn’t tell her (when).’’

To put the previous together, Greek sluicing circumvents, at least, RC islands, the SLUICE may not surface as a PP if its correlate is an explicit PP and it is optionally present if it corresponds to a *wh*-word/phrase that heads an indirect question.

With the previous in mind, the next section puts forward an analysis for the representation under consideration.

### 3 Proposal

In a nutshell, the proposal relies on two premises. Specifically, the SLUICE enters: a) a *local dependency* with the relevant predicate that selects for it and b) a *nonlocal dependency*, with an extrasentential antecedent. Both (a) and (b) determine the morpho-syntax and the interpretation of the SLUICE. Before the details of

<sup>8</sup>Although only *pote* (when) is exemplified, the same is true with all *wh*-adverbs, i.e., *pos* (how), *pu* (where) and *jati* (why).

the analysis are laid, let me clarify the field. By extrasentential antecedent I mean a linguistically expressed indefinite, which projects within a sentence other than the one containing the SLUICE. The previous claim also implies that the present account leaves aside both “pragmatically controlled” SLUICES (cf., the discussion revolving around (i), fn., 4) and implicit correlates (cf., (7)), since the former are not introduced by any sentence, while the latter are not linguistically expressed.

So, in section 3.1, I defend (a), in 3.2, I go over (b) and, in 3.3, I discuss the interpretation of the SLUICE.

### 3.1 Local dependency (a.k.a. selection)

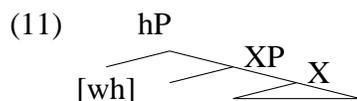
Witness (9) which exemplifies the local dependency, under consideration.

(9) [<sub>CP</sub> [<sub>TP</sub> Someone left]] and [<sub>CP</sub> [<sub>TP</sub> I [<sub>VP</sub> wonder who]]]

To be more precise, first, the SLUICE *who* is directly selected by the predicate *wonder*. The dependency in question is only possible with predicates like *wonder*, *ask* or *know* that may select for a *wh*-constituent (see Ross 1969; Merchant 2001). The previous means that the relevant predicate, either through its lexical semantics, such as *wonder* (cf., (9)) or *ask* (cf., (10a)), or in association with some other licensing operator, like *know* plus *negation* or *question* (cf., (10b)), selects for the SLUICE.<sup>9</sup>

- (10) a. I heard that someone left and I really want to *ask* you who.  
 b. Someone left but I *don't know* who. / *Do you know* who?

Second, selection is satisfied and it is morpho-syntactically manifested to the extent that the SLUICE is a *wh*-item. For that matter, I presently adopt a representation of the SLUICE along the lines proposed by Tsai (1994) vis-à-vis the *wh*-items in English type languages, as exemplified in (11) (modified over Tsai's, op.cit., 22: (17)).



X stands for either Noun (e.g., *who*), Adverb (e.g., *how*) or Adjective (e.g., *how tall*) and accordingly XP for the relevant phrase. WhP stands for the maximal projection of whatever category is projected. The selection that I am proposing is a function of the semantic and morpho-syntactic properties of the participants involved. Specifically, the relevant predicate s(emantically)-selects for a Question (see Grimshaw 1979, 1981) and the SLUICE syntactically projects [wh], which is then licensed by the predicate.

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<sup>9</sup>See Adger & Quer (2001) for a recent discussion of the licensing of Selected and Unselected Embedded Questions, and Roussou (2010) for an implementation on Greek.

Third, the relevant predicate does not syntactically determine the formal properties of the SLUICE, i.e., agreement features (person, gender & number) and morphological case nor its syntactic category. From the previous perspective, the SLUICES in (9) and (10a–b) are selected and licensed in the same way as indirect *wh*-questions are, where the morpho-syntactic properties of the *wh*-item are not determined by the predicate that selects for the interrogative clause. The only difference with sluicing is that the SLUICE is instantiated in the form of a “*wh*-fragment” (see van Riemsdijk 1978). Note, however, that by “fragment” I do not imply that the SLUICE is “an isolated or incomplete part” (in the sense of Stainton 2006, 124), since no structural ellipsis is presently assumed.

To sum up thus far, the local dependency that is put forward consists of a predicate that selects for (either as part of its lexical properties or in association with an operator) the SLUICE. The latter, in turn, projects [wh] which is licensed by the predicate.

The next section examines the properties of the aforementioned nonlocal dependency.

### 3.2 Nonlocal dependency

In this section, I show that sluicing is an *anaphoric dependency* that holds between an extrasentential antecedent and the SLUICE. I take the dependency in question to be defined in terms of Williams’ (1997) General Pattern of Anaphoric Dependence (abbreviated as: GPAD). More precisely, the author argues that pronouns are licensed by their (extrasentential) antecedents under linear ordering, which conforms to (12) (his (26), p. 588), where *pro* stands for “pronoun”, *antec* for “antecedent” and *subord* for “subordinate (clause)”.

(12) *General Pattern of Anaphoric Dependence*

- |    |  |  |
|----|--|--|
| a. | [... <i>pro</i> ...] <sub>subord</sub>   | [... <i>antec</i> ...] <sub>subord</sub> |
| b. | *[... <i>pro</i> ...] <sub>matrix</sub>  | [... <i>antec</i> ...] <sub>matrix</sub> |
| c. | [... <i>antec</i> ...] <sub>matrix</sub> | [... <i>pro</i> ...] <sub>subord</sub>   |
| d. | [... <i>antec</i> ...] <sub>subord</sub> | [... <i>pro</i> ...] <sub>matrix</sub>   |

In line with (12), a pronoun can be licensed only if it linearly follows its antecedent (cf., (12c–d)), or if it is in a subordinate clause preceding its antecedent (compare (12a) with (12b)). Moreover, the case in which the pronoun precedes the antecedent (i.e., (12a–b)) is dubbed as *backward dependence*, while the one in which the antecedent precedes the pronoun (i.e., (12c–d)) is an instance of *forward dependence*. As an example of the sort of data discussed by Williams, consider a case of backward dependence violation, given in (22) (his (23b)), which falls under (12b).

- (13) \*[He won the race]<sub>matrix</sub> and [we welcomed home JOHN]<sub>matrix</sub>

The pronoun *he*, which surfaces inside the left conjunct, linearly precedes *John* that appears in the right conjunct. In line with Williams, *John* is capitalized in order to

show that itself is not anaphoric to any other NP that has already been introduced in the discourse. Backward dependence then requires a relation of true subordination, which is not respected in (13). Crucially, if the pronoun is in a subordinate clause preceding the antecedent, this clause must depend on the clause containing the antecedent, as shown by the ungrammatical (14), where *there*, by being subordinate to conjunct 1, cannot depend on its antecedent that surfaces in conjunct 2 (his (25c), p. 588; I use numeric subscripts to exemplify the dependency).

- (14) \*[[If he is there<sub>6</sub>], John will try to visit Mary]<sub>conjunct 1</sub>, and [John will probably be in NY<sub>6</sub>]<sub>conjunct 2</sub>

With the previous as much, let me turn to the anaphoric dependency that I assume holds in sluicing between an antecedent and the SLUICE. By way of illustration, consider (15), where *who* depends on *someone*, but not vice versa.

- (15) [CP [TP [DP Someone]<sub>6</sub> left]] and [CP [TP I wonder [DP who]<sub>6</sub>]]

The dependency exemplified in (15) bears two requirements: a) *linearity* (pertaining to both forward and backward dependence) and b) *formal matching* (holding between the dependents).

Formal matching (i.e., (b)) enters the discussion at the end. Here, I want to concentrate on the requirement on precedence and the dimension of the dependence (i.e., (a)). Consider (16) and (17), which are instances of forward dependence. In (16) the antecedent *kapjos* (someone) is in a matrix clause, preceding *pjos* (who), which surfaces inside a complement clause (CP), as illustrated by the relevant bracketing.

- (16) [Kapjos<sub>6</sub> paretithike]<sub>matrix</sub> ala epemenan  
 someone-NOM resigned-3SG but insisted-3PL  
 [CP oti akoma dhen prepi na mathis pjos<sub>6</sub>]<sub>subord</sub>  
 that yet NEG must PRT learn-2SG who-NOM  
 “Someone resigned, but they insisted that you shouldn’t learn who, yet.”

In (17), the antecedent *mia Valkaniki glosa* (a Balkan language) appears in a subordinate, relative clause (cf., RC), preceding *pja* (who), which is in a matrix clause.

- (17) Thelun na proslavun kapjon [RC pu na mila  
 want-3PL PRT hire-3PL someone-ACC that PRT speaks-3SG  
 mia Valkaniki glosa<sub>6</sub>]<sub>subord</sub> ala [dhen thimame pja<sub>6</sub>]<sub>matrix</sub>  
 a Balkan language-ACC but NEG remember-1SG which-ACC  
 “They want to hire someone who speaks a Balkan language,  
 but I don’t remember which.”

(16) and (17) show that the antecedent may be in a matrix or a subordinate clause as long as it precedes the SLUICE, in line with the GPAD conditions on forward dependence, i.e., (12c) and (12d) respectively.

Regarding backward dependence, the SLUICE may not precede its antecedent if both appear in matrix clauses, as exemplified in the ungrammatical (18), which falls within (12b).

- (18) \*[Anarotieme pjos<sub>6</sub>]<sub>matrix</sub> ke [kapjos<sub>6</sub> efighe]<sub>matrix</sub>  
 wonder-1SG who-NOM and someone-NOM left-3SG  
 “\*I wonder who and someone left.”

On the other hand, the SLUICE *pjos* (who), in the grammatical (19), may surface inside a subordinate clause, preceding *kapjos* (someone), which is also in a subordinate clause, in accordance with (12a).

- (19) [An ke dhen thimate pjos<sub>6</sub>]<sub>subord</sub> ine sighuri  
 if and NEG remember-3SG who-NOM is-3SG certain-NOM  
 [oti kapjos su telefonise]<sub>subord</sub>  
 that someone-NOM you-CL called-3SG  
 “Although she doesn’t remember who, she is certain that someone called you.”

Moreover, it is not the case that the SLUICE may appear inside any subordinate clause, if it precedes its antecedent. Instead, the clause containing the SLUICE must be subordinate to the clause containing the antecedent, as shown in (20), which is on a par with (14), above. In particular, the SLUICE *pu* (where) is subordinate to conjunct 1 (cf., the bracketing) and it cannot depend on *kapu stin Eladha* (somewhere in Greece), which surfaces inside conjunct 2.

- (20) \*[[An ke dhen thimame pu<sub>6</sub> akrivos]<sub>subord</sub>  
 if and NEG remember-1SG where exactly  
 [o Janis tha prospathisi na milisi sta pedhia]]<sub>conjunct 1</sub>  
 the John-NOM will try-3SG PRT talk-3SG to-the guys-ACC  
 ke [pithanon na vriskete ja lighes meres  
 and probably PRT be-3SG for a-few days  
 kapu stin Eladha<sub>6</sub>]<sub>conjunct 2</sub>  
 somewhere to-the Greece  
 “\*Although I don’t remember where exactly, John will try to talk to the guys and he will probably be for a few days somewhere in Greece.”

To put the previous together, the SLUICE enters a nonlocal dependency with an extrasentential antecedent. One of the requirements of the dependence is linear precedence, of the kind observed with ordinary pronouns and their antecedents.<sup>10</sup>

Let me next concentrate on the second requirement of the dependency mentioned above; that is, formal matching. The idea pursued is that the dependency is evaluated after Spell-Out, at the interpretive systems and requires, perhaps for reasons of anaphora resolution, that certain morpho-syntactic information between the

<sup>10</sup>Or with VP-ellipsis, as discussed by Williams (1997).



- (23) Kapjos efighe ala dhen idha pjos.  
 someone-NOM left-3SG but NEG saw-1SG who-NOM  
 “Someone left but I didn’t see who.”

Moreover, since the relevant case feature is not locally valued by the predicate that selects for the SLUICE, the latter may also surface with predicates that do not (usually) value case, such as adjectival ones. The previous has long been observed for English sluicing, as exemplified in (24) (from Merchant 2001, 46: (26b)), where the SLUICE merges with the predicate *clear* that does not (usually) case-mark its complements.

- (24) One of these approaches is correct but [it isn’t clear which of them].

Morphological case marking of a term that depends on another (non case-assigning) term, with which the former matches in  $\phi$ -features, is also observable in the case of primary predication in Greek.<sup>11</sup> For example, the adjectival predicate *eksipnos* (clever), in (25), carries Nominative on a par with the subject *o Janis* (the John) of the copular *ine* (is).

- (25) o Janis ine eksipnos.  
 the John-NOM-SG-MASC is clever-NOM-SG-MASC  
 “John is clever.”

Whatever the analysis of (25) is, it is clear that there is no case assigner that values, in any current minimalist sense, the Nominative of *eksipnos* (clever).

Finally, as regards the issue of the syntactic category, I suggest that the SLUICE is minimally represented in syntax, where its syntactic category may sometimes pattern with its lexical one. By way of illustration, witness (26), where the SLUICE may be represented either as a PP (i.e., *ja pjon* (for which)) or, minimally, as an Adv(erb)P(hrase) (i.e., *jati* (why)).

- (26) O Janis efighe [PP ja kapjon logho]  
 the John-NOM left-3SG for some reason  
 ala dhen ksero [PP ja pjon] / [AdvP jati]  
 but NEG know-1SG for which why  
 “John left for some reason but I don’t know which / why.”

In the previous manner, there is no one-to-one matching between the category of the SLUICE and that of its antecedent, as long as the dependency is interpretable at the interfaces. In particular, *jati* (why) is an AdvP, while its antecedent is a PP, which syntactically occupies an adjunct position. Furthermore, if the SLUICE projects with a functional head, such as P, this head must be the same as the one that its antecedent projects with. This is because the SLUICE must morpho-syntactically “not contradict” the grammatical function of its antecedent, which derives from the

<sup>11</sup>This is also true for secondary predication; see Spyropoulos (2005).

event structure of the proposition that the antecedent is integrated in. So, in (26), the SLUICE depends on a PP, which is headed by the preposition *ja* (for) and serves as the modifier of the predicate *efighe* (left). The preposition then that the SLUICE may merge with must be *ja* (for). This is because the SLUICE is associated with and picks up the same referent as its antecedent PP.

Summing up, the dependency between the SLUICE and the antecedent, which is evaluated at the interpretive systems, requires that the participants formally match. Furthermore, the SLUICE is minimally represented in syntax, sometimes surfacing with its lexical category. Or it may project in a phrase, which must coincide with the one that its antecedent projects in, while its case is dependent on that of its antecedent.

In the next section, I examine the way LF interprets the SLUICE.

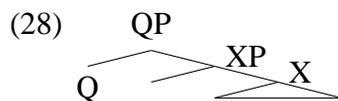
### 3.3 Interpretation: ‘from less to more’

As the title of this section suggests, the goal for the present approach to sluicing is to derive the propositional reading of the SLUICE, under the assumption that there is no relevant structure available. In somewhat more technical terms, the issue boils down to the question in (27):

(27) How does syntax and LF interact so as for the SLUICE to yield the available interpretation?

(27) is answered as follows: the interrogative reading is a (hybrid) function of a) the selecting predicate and the SLUICE and b) the anaphoric relation between the SLUICE and its antecedent. This function provides all the necessary information at LF.

To start with, suppose that, along familiar lines of reasoning defended by Tsai (1994), among others, a Q(uestion)-operator projects as the specifier of the *wh*-item, as schematically illustrated in (28). In the scope of the present discussion, the *wh*-item is the SLUICE.



As regards generally the interpretation of (indirect) *wh*-questions, Karttunen (1977) proposes that a Q-operator, which is responsible for the interrogative reading of the clause, projects (usually at a designated C-head) and ranges over a set of (true) propositions (see also Berman 1991). Within a similar vein of reasoning, I suggest that the Q-operator in (28), which is available at LF and it is licensed by the relevant predicate that selects for the SLUICE, quantifies over the variable produced by the SLUICE (adapting Karttunen’s proposal).

Let me now examine the content of the aforementioned variable. It has long been proposed that *wh*-words/phrases are represented as (existential) indefinites,

patterning in this respect with *some*-indefinites or (basic) noun phrases introduced by the indefinite determiner *some* (see for details Chomsky 1964, Katz & Postal 1964, Klima 1964, Reinhart 1995, 2006, among others). Maintaining that *wh*-words/phrases pattern with such indefinites, I want to suggest that the SLUICE yields a free function variable  $f$  which contains an implicit argument  $x$  that is anaphorically bound by an (quantificational) antecedent. More precisely, consider (29a) represented as in (29b). *Which* is represented as a free function variable  $f$  that maps the set “books” into a function that is defined for just one argument, the set of all books, and picks that “book” from that set. That is,  $f$  returns a member of that set. Furthermore,  $f$  contains an implicit argument  $x$ , represented as a subscripted variable of  $f$ , which is able to receive a bound variable interpretation.<sup>12</sup>

- (29) a. John bought some book and I wonder which book.  
 b. John bought some book and I wonder ( $x$ ,  $f_x(\text{book})$ ).

*Some book* anaphorically binds the implicit argument of  $f$  (i.e.,  $x$ ) and this binding ensures that the member that  $f$  returns necessarily corresponds to “the book that John bought”. The function variable will then be bound by the relevant Q-operator, as (informally) illustrated in (30). The question denotes the set of true propositions  $P$ , each stating that for some function variable ( $f_x$ ), if  $x$ , which is the implicit argument of  $f$ , equals to “some book bought by John”, then  $P$  asserts that John bought the book selected by  $f$ .

- (30) John bought some book and I wonder for which  $f_x$ ,  $x$  a book that John bought, it is true that John bought  $f(\text{book})$ .

Put it differently, LF “fills-in” the necessary information, which is provided by the available output, without the need to structurally recover any part of the previous clause.

To sum up, the relevant predicate with the SLUICE yield an interrogative interpretation. The SLUICE, which patterns with *some*-indefinites, contains an implicit argument  $x$  that is anaphorically bound by its antecedent. This anaphoric relation is enough for LF to identify the propositional content of the SLUICE, yielding the effect of “ellipsis”.

Next, I illustrate how the data discussed in section 2 provide empirical support to the present approach to sluicing.

#### 4 Predictions

Before discussing some empirical predictions, let me revisit one of the arguments that have been proposed against a non-structural approach to sluicing of the kind presently defended.

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<sup>12</sup>The proposal assumes a “choice functions” framework along the lines of Reinhart (1995), (2006) and its refinement in the scope of *some*-indefinites by Kratzer (1998); due to space limitations, the details of both are presently left aside.

In particular, it is usually argued (see Ross 1969, Merchant 2001) that *wonder* may not select for a non-clausal complement without the mediation of a preposition (cf., (31a)), as opposed to *ask* (cf., (31b)) or *know* (cf., (31c)) (the same holds for Greek).

- (31) a. I'm wondering \*(about) the time.  
 b. I asked the time.  
 c. I don't know the time.

The argument, then, is that, in sluicing, *wonder* may not directly select for a non-clausal complement, i.e., the SLUICE.

I want to empirically weaken the previous argument by showing that the congeneric Greek predicate *anarotieme* (wonder), which shares similar selectional properties with its English counterpart, may select for a non-clausal complement, as illustrated in (32), where the relevant predicate, in the right conjunct, takes the DP *to idhio praghma* (the same thing) as its complement.<sup>13</sup>

- (32) [O Janis anarotiotan [CP pja itan i lisi  
 the John-NOM was-wondering-3SG which was the solution  
 tu provlimatos]] ke [i Maria anarotiotan  
 to-the problem-GEN and the Mary-NOM was-wondering-3SG  
 [DP to idhio praghma]  
 the same thing-ACC  
 “John was wondering what the solution to the problem was and Mary was wondering the same thing.”

It appears that *anarotieme* (wonder) may select for a non-clausal complement, if that complement is anaphorically interpreted with respect to an interrogative clause; that is, the embedded CP in (32). The previous is a similar, but not identical, case to sluicing, in that *wonder* selects for the (non-clausal, interrogative) SLUICE, which is anaphorically interpreted and it corresponds to a full clause.

Let me now concentrate on the data in section 2, examining in turn: a) RC islands, b) optionally present P-SLUICES and c) optionally present SLUICES. Regarding RC islands, the present analysis predicts that in the absence of any relevant structure there is no island, as in (33) (where I repeat the English congeneric cases from (4)). Thus (33a) is not comparable to (33b).

- (33) a.\*[CP Which Balkan language do [TP they want to hire [DP someone [RC who speaks t<sub>wh</sub>]]]]?  
 b. They want to hire someone who speaks a Balkan language but [CP I don't remember [DP which (Balkan language)]]].

<sup>13</sup>See Nathan (2006), 42: (23) & (24) for similar examples in English, although captured under a different reasoning.

Which is directly selected by *remember*, (under the facilitation of the negative operator) and it is dependent on the antecedent *a Balkan language*, both matching in  $\phi$ -/D-features and case morphology. The SLUICE, which is bound by the *a Balkan language* in the manner described in section 3.3, yields the relevant propositional reading.

With respect to optionally present P-SLUICES, consider again (5b), repeated as (34).

- (34) ?I Anna miluse [PP me [DP kapjon]  
 the Anna-NOM was-talking-3SG with someone-ACC  
 ala dhen ksero [pjon].  
 but NEG know-1SG who-ACC  
 “Anna was talking with someone but I don’t know who.”

Under the present line of reasoning, the dependency between the SLUICE and its antecedent makes use of the most minimal (morpho-syntactic and semantic) resources necessary for the successful interpretation of the anaphoric relationship.<sup>14</sup> For instance, the DP *pjon* (who) in (34) does not need to project with a P, since there is an overt antecedent DP (i.e., *kapjon* (someone)) on which the SLUICE depends. Interestingly, Nykiel & Sag (2010), also favoring a non-structural view of sluicing, have conducted a number of experiments using Polish stimuli, which show that preposition omission in sluicing “exhibits signs of gradient linguistic knowledge. Preposition omission depends on the ease with which a SLUICE’s correlate may be recovered from the preceding antecedent.” Certainly, such tests suggest that cases like (34) have to do with broader parsing issues involving anaphoric dependencies. That parsing is particularly relevant seems to be confirmed by the fact that Greek native speakers have shown a preference for the use of the preposition *me* (with) in (34), while no one has considered its absence ungrammatical. In that sense, it is also reasonable to expect that language-specific properties may determine “how much” morpho-syntactic/semantic information is required for successful representations of the form (34). In Greek (and Polish; or Brazilian Portuguese (see Almeida & Yoshida 2007)) (34) is grammatical, under the absence of P, because this much information is required by Greek grammar for the dependency to be interpreted. But equivalents of (34) may or may not be permitted in other grammars.

Finally, consider cases where the SLUICE is optionally present. One such case, namely (8a) repeated as (35), suffices to illustrate the argument.

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<sup>14</sup>Perhaps, a different wording may appear to be more accurate. In particular, it may prove to be correct that the more complex the antecedent is, the less complex the SLUICE may need be and vice versa (see Nykiel & Sag 2010). I leave this to future research.

- (35) [I Eleni rotise [CP pjos efighe]]  
 the Helen-NOM asked-3SG who-NOM left-3SG  
 ala dhen tis ipa (pjos).  
 but NEG her-GEN tell-1SG who-NOM  
 “Helen asked who left, but I didn’t tell her (who).”

I suggest that if the complement of the relevant predicate can be exhaustively recovered at LF by the semantic type of the antecedent, the SLUICE may literally be absent. In particular, the complement of *ipa* (tell) in (35), i.e., the *pjos* (who), is anaphorically identified by the antecedent DP *pjos* (who), which is of the form [wh]. (35) is consequently contrasted with normal cases of sluicing, where the SLUICE cannot be absent because the antecedent is not of the form DP[wh] (cf., (36)).

- (36) Kapjos efighe ala dhen idha \*(pjos).  
 someone-NOM left-3SG but NEG saw-1SG who-NOM  
 “Someone left but I didn’t see who.”

Moreover, the relevant predicate must typically allow for its complements to be absent. Thus, (37a) is ungrammatical, contrary to (35), because *anakalipsi* (discover) does not permit null complements, although it selects for *wh*-interrogatives (cf., (37b)).

- (37) a. \*O astinomos Sainis dhjatahthike na vri  
 the inspector Gadget-NOM was-ordered-3SG PRT find-out-3SG  
 pjos dholofonise ton James Bond  
 who-NOM murdered-3SG James Bond  
 ala dhen mporuse na anakalipsi.  
 but NEG could-3SG PRT discover-3SG  
 “\*Inspector Gadget was ordered to find out who murdered  
 James Bond, but he couldn’t discover.”
- b. O astinomos Sainis dhen mporuse na  
 the inspector Gadget-NOM NEG could-3SG PRT  
 anakalipsi pjos dholofonise ton James Bond  
 discover-3SG who-NOM murdered-3SG James Bond  
 “\*Inspector Gadget couldn’t discover who murdered James Bond.”

To sum up, it is independently attested in grammar that the predicates that select for SLUICES are generally able to select for non-clausal complements. Also, sluicing is not comparable to illicit cases of *wh*-extraction out of islands. What is more, instances of preposition omission are regulated by general laws of anaphora resolution that impose certain morpho-syntactic requirements on the participants of the dependency. Finally, the SLUICE may literally be absent (assuming that the relevant predicate permits null complements), if it is exhaustively recoverable by the semantic type of its antecedent: an interrogative *wh*-item.

## 5 Conclusion

The present paper dealt with (Greek) sluicing. After presenting some unnoticed data, I proposed that the *wh*-item (termed as SLUICE) is void of additional structure. In terms of syntax, the SLUICE projects a Q-operator as its specifier, which is licensed by a predicate that may select for ordinary indirect *wh*-questions. The SLUICE anaphorically depends on an (extrasentential) antecedent with which it matches in  $\phi$ /D-features, while its morphological case and syntactic category are regulated by the dependency. As regards interpretation, the Q-operator, which is available at LF, ranges over the variable produced by the SLUICE, which is bound by the antecedent. Due to this anaphoric relation, LF recovers the “missing” propositional interpretation of the SLUICE, albeit the absence of the relevant structure. Finally, the empirical data considered, provided further support to the present analysis.

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