Sluicing and Standard Arabic

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Abstract
This paper is an endeavor to account for some aspects of sluicing in Standard Arabic. It discusses the views of two main schools that consider sluicing as either a PF or LF phenomenon. The topic has been tackled within the framework of the Minimalist Approach of Chomsky (1993, 1995). The paper shows that the compiled Arabic data lends support to the account offered by many scholars that sluicing is an LF phenomenon, rather than a PF phenomenon. At LF level, the behavior of the wh-remnant is different from that of wh-phrases in non-elliptical questions. One strong piece of evidence is the lack of wh-island effect on sluicing. Thus, the wh-phrase in situ is viewed as base-generated at the surface level. This boils down to saying that sluicing does not violate Subjacency or ECP as there is no movement involved. Yet, it has to be maintained that there are still a number of unsettled issues that await future research, such as cases of: Three men came to my house but I don't know how many girls, and also whether and to what extent can the correlate be sensitive to island constraints while sprouting cannot.

Keywords: Sluicing, Standard Arabic, the Minimalist Approach, PF, LF, wh-island

1. Introduction
Sluicing is a sort of ellipsis. It refers to the structure where the wh-construction gets deleted thus leaving a wh-word alone in situ as a remnant. It could be applied to any sort of deletion of this nature, but the present paper will be limited to the ellipsis of a TP in an embedded CP as the examples show below.

Sluicing has garnered a lot of research. The first person who approached the phenomenon of sluicing was probably Ross (1969). He handled a number of sentences similar to those that follow:
(1) Sam has seen someone, but cannot remember who.
(2) This opera was written in the 19th century, but we are not sure by whom.

Chung et al. (1994, 3-4) state that there are three types of sluicing. These are:
A. The displaced constituent where the WH category is the only overt material in the sluice- is an adjunct that corresponds to nothing, as in this example
(3) He is writing, but you can’t imagine where/why/how fast/with whom
B. The displaced constituent corresponds to an overt adjunct or argument in the surrounding linguistic structure. In all the examples in the literature, this inner antecedent happens to be indefinite or other weak DPs.
C. The wh-phrase corresponds to an implicit argument licensed by an argument structure as in (4):
(4) John is reading, but I cannot imagine what.

Since the seminal work of Ross (1969), researchers have boosted to undertake works relevant to TP deletion. There has been a ramification of views regarding this sort of syntactic phenomenon. For
instance, Chung et al. (1994, 3) believe that deletion occurs at LF level ‘where there is an antecedent that is similar to the sluice,’ as in (5) below:

(5) A) John met someone, but I don’t know who
(B) John met someone, but I don’t know [who John met]

‘Where there is no correlate of the antecedent in the sluice clause, Chung et al. assume a process they call *sprouting*; in this assumption a variable is created via a second sluicing-process called sprouting’ (1994: 9). In this proposal, the ellipsis is assumed to be a null form whose antecedent is copied at LF level for the purpose of the *Full Interpretation Principle*. This principle demands that there be no superfluous step in derivation; every element in the LF representation must be legitimate.

Lobeck (1995) discussed a number of elliptical structures and classified them into two main groups:
a) the first group includes: gapping, pseudo-gapping and stripping.
b) the second group includes: VP-ellipsis, sluicing and NP ellipsis.

Merchant (2001) handled sluicing and claimed that it is a phenomenon that occurs in every language. He believes that there are two types of sluicing:
a) sluicing as in: John bought something, but I don’t know what.
b) pseudo-sluicing as in: Mary bought something, but I don’t know what [it was]

Unlike Ross (1969), who believes that sluicing is derived by IP-deletion from underlying wh-constructions at the level of PF, Merchant (2001) believes that the sluice with a preposition stranding captures the parallelism between sluicing and wh-questions. He advocates the account that handles sluicing and its interpretation at LF level. He believes that island violation of wh-island can simply be repaired by deleting the categories that cause such violation. Kimuru (2007, 2010)’s account proposes that the remnant wh-phrase in sluicing structure remains *in situ*. This account can explain the island insensitivity of sluicing, as there is no overt wh-movement taking place in the derivation of such structures. Abe (2015, 22) believes that this account strongly opposes the proposal of wh-island violation and island repair “in that it nullifies the necessity of a repair mechanism.”

In a study on Libyan Arabic, Alglyani (2012) considers sluicing as a syntactic construction where there is an example of a PF deletion, as the following examples show:

(6) Ali grëriwaya, lakan m-chedakær-š betəhid ? ayyariways
Ali read novel but neg-remember-1st –neg exactly which novel
"Ali read a novel, but I don’t remember exactly which novel"

(7) Ali šrësiyyara, w hattaanəšrët
Ali bought car and even me bought
“Ali bought a car and I too bought one.”

Depending on Merchant (1998), Alglyani (2012, 4) divided the above examples and other similar constructions into two types: sluicing and pseudo-sluicing. The latter is defined as "an elliptical construction that resembles a sluice in having only a wh-XP as remnant, but has the structure of a cleft, not of a regular embedded question.” A further example on this is (8):

(8) Ali zarwahd, bas mi š ?ariﬁmeen
Ali visited one, but don’t know who
"Ali visited one, but I don't know who.

Baker (2013) provides a framework that combines both syntax and semantics when he sees the relationship between the targeted sub-constituents and the remaining clause of the antecedent as a matter of sociability not that of movement or binding. He provided example (9):

(9) Mary said that [John saw somebody yesterday], but he did not say who.

The bracketed clause is the antecedent, but (who…..) is anaphoric to the scope remnant of [John saw somebody yesterday]. To him, this account should correctly predict that sluicing is sensitive to scope island, but not to syntactic islands. He also provided example (10) to show that the antecedent surrounds the sluiced clause, and thus it has scope over all that what follows it:

(10) Sally ate [I don't know what] today.

Leung (2014) studied Emirati Arabic and falsified what Merchant (2001) stated about the principle of Prepositional Stranding Generalization. However, some researchers have found that even when prepositional stranding is banned, there is sluicing as in Serbo-Croat. (See Nevins and Vicente, 2009)

There are several types of ellipsis: NP, VP, TP and an auxiliary are left after the deletion of a VP. To account for these types of deletion, syntacticians have proposed two approaches. The first is the structural approach where syntax is assumed to exist. The second is non-structural where syntax is absent. The sentences that follow illustrate these two approaches:

(11) Sami boiled eggs and Samira did e to o.
(12) Sami boiled eggs and Samira did [boiled eggs] too.

In sentence (11), syntacticians assume no lexical elements after the auxiliary did, but in sentence (12) they assume what is included between the square brackets. Deletion can be account for at the LF level in the first sentence as we do not see or hear what is included after did. Lobeck (1995) believes in this type of account. Researchers such as Chomsky and Lasnik (1993), Fox (2000), Johnson (2001) and Merchant (2002) assume that deletion can be accounted for at the PF level. There is, however, another approach that looks at deletion in such sentences as anaphoric where the anaphor receives its meaning from its reference.

Some researchers, such as Fiengo and May (1994), Merchant (2001) and Fox (2000) still believe that one has to look at the semantic identity of the antecedent and the sluice in the embedded clause, as we have seen in sentence (2) above. Other studies view ellipsis as VP-ellipsis for pseudo-gapping (Merchant 2008), and deletion for gapping constructions (Coppock 2001) or Across the Board Movement (henceforth ATB) (Johnson 2009).

The sluicing structures remain in situ. This account can explain the island insensitivity of sluicing, as there is no overt wh-movement taking place in the derivation of such structures. Abe (2015, 22) believes that this account strongly opposes the proposal of wh-island violation "in that it nullifies the necessity of a repair mechanism."

Fortin (2011, 88) believes that the "strongest empirical evidence for LF Copying, … involves cases in which the behavior of wh-remnants differs from the behavior of wh-phrases in non-elliptical questions."
Significant among these are the lack of island Subjacency effects in sluicing. This differential behavior, which includes a lack of effect, is straightforwardly predicted if and only if the wh-remnant does not undergo wh-movement. He provides this example:

(13) Chris was disappointed because he lost some contest, but I don’t know…

a. * … which contest [TP Chris was disappointed because [TP he lost which contest]

b. … [which contest?]

Fortin (2011, 88-90) summarizes his support of the LF approach by saying that Subjacency is a hybrid approach. It consists of two types: derivational and representational. The former places a * at a specific place in the structure and the latter includes the deletion of the island that eliminates the *. Both of these apply at the PF level. However, both cannot be in conformity with the Minimalist Approach of Chomsky (1995); the placing of * violates the Inclusiveness Condition, one basic principle of the Minimalist Approach. Consequently, within the Minimalist Approach this hybrid approach is not in principle valid. A better alternative is to say there are two choices: the strictly representational condition (Chomsky 1986) and the strict derivational condition (Chomsky 1995, 1998, 2001 and 2004) (See also Fortin 2011, 89)

To summarize the above studies, one could say that there are two schools of thought regarding sluicing and the level where it takes place. The two schools agree on many points regarding the sluice, but they differ on how it arrives at CP. The PF School believes that the TP where the sluice occurs is derived similar to the structure of non-elliptical wh-questions. In other words, the wh-phrase moves to the CP first, and then a deletion process occurs leaving the sluice alone in situ. Some of the scholars who advocate the PF account include: Ross 1969, Merchant 2001, Algryani 2013, Al-bukhari 2016, inter alia. The second school advocates the derivation of sluicing at LF level (see for instance, Chung et al. 1994, Lobeck 1995 and Fortin 2007). The strongest argument that the PF level group raises is that “sluicing or the remaining interrogative clause is subject to the same morpho-syntactic constraints as wh-phrases in the corresponding, non-elliptical question.” (Fortin 2007, 3). Fortin (2011, 88) states that even when the PF school believes in movement as a salvation by deletion strategy, it is wrinkled by the fact that “island effects are not universally obviated under ellipsis.” On the other hand, the LF copying school believes that the wh-phrase in sluicing constructions differs from wh-phrases in non-elliptical questions; there is no movement and thus no violation of island constraints in sluicing, especially Subjacency. As the sluicing phrase is phonetically vacuous, the interpretation of it is reached via connecting it to an antecedent in the main clause. If there is no similar antecedent, a variable is created via a process called Sprouting. In all these two ways, there is no movement of a wh-phrase and thus it does not violate Subjacency (i.e. a PF phenomenon).

Unlike some Arab researchers, such as Algryani (2013) and Al-bukhari (2016), this paper employs the LF copying approach to account for sluicing in Standard Arabic for all the reasons stated above.
2. Problem of the study

From the studies mentioned above, one can notice the discrepancies among the various schools regarding the position of sluicing and the level at which one can account for this construction. The topic itself raises a number of puzzles that await some reasonable solutions. Therefore, the crux of this study is an endeavor to offer an account of this linguistic phenomenon in association with Standard Arabic, a language that has not been tackled before regarding the present issue, sluicing.

3. Some operational terms

A) Correlate: the constituent in the antecedent that corresponds to the (wh-interrogation) (Al-bukhari 2016, 84).
B) PF: the level at which the ellipsis is base-generated with full syntactic structure in which non-pronunciation process happens. (Al-bukhari, 85).
C) LF: the level at which the ellipsis structure is base-generated or interpreted without syntactic content inside the ellipsis site in which the structure gets interpreted. (Al-bukhari, 85).

4. The Arabic Data

Standard Arabic shows a number of structures that may include sluicing. These structures are:

13) ?ishtara Ahmad shay'an lakinani la ?aCrifu maatha.
   Bought Ahmad something but-I not know what
   'Ahmad bought something, but I don't know what.'
14) Haatafani Khalid lakinani la ?aCrifu mata/kayfa, limaatha/?ayna.
   Called Khalid but-I not know what/how/why/where
   'Khalid called but I don't know what/how/why/where.'
15) kaana Ahmad yaktubu shay'an lakinani la ?aCrifu ?ayna/ limaatha/
   Was Ahmad writing something but not I-know where/why
   liman
   To-whom
   'Ahmad was writing something, but I don't know where/why/to Whom.'
16) kaana Ahmad yaqra'u shay'an lakinanni la ?adri maatha
   Was Ahmad read something but-I no know what
   'Ahmad was reading something but I don't know what.
17) kaana Ahmad yaqra'u lakinani la ?adri ?ayna/mata/ maC man.
   Was Ahmad reading but-I not I- know where/when/with whom
   'Ahmad was reading but I don't know where/when/with whom'
   Announced Hani that-he will-marry the-woman who
   yuHibuha?akthar laakin la ?aHad yaCrifu man
he-loved-her more but nobody knows who
'Hani announced that he will marry the woman he likes most, but no one knows who.'

5. Discussion of the data

The above type of data from Arabic and similar natural languages created a plethora of criticism and doubts regarding the interpretation of it and how to account for the sluice. Most linguists support one of two main schools, the PF school and the LF school. The present study advocates the account that says that there is no movement of the wh-phrase which is assumed to be base-generated and remains in situ after the deletion of an assumed structure in the sluice. Thus, there is no movement. This boils down to saying that there is no violation of any island constraints, ECP and Subjacency.

The above data are handled within the framework of LF copy theory. This theory assumes that ellipses are null-proforms into which the semantic content of the antecedent is copied at LF in order to ensure that the null empty category is provided with the correct interpretation (See Fiengo and May 1994, Chung et al. 1994 and Fortin 2007).

Following Chung et al. (1994, 3-4), the present study classifies the above structures into three classes. The first class comprises sentences (14) and (15) where there is no antecedent that corresponds to the sluice (when/how/why/where, in (14), and where/when/ to whom, in (15) in the embedded clause. The verbs in these sentences, namely, call and write, are not necessarily subcategorized for a direct object in these locations. The second class includes sentence (16) where there is no overt antecedent that corresponds to the sluice (where/when). The third class includes sentences (13), (17) and (18). In these constructions the sluice corresponds to an overt antecedent, namely, shay?an, shay?an, and ?almar?ata).

For illustrative purposes and based on the Principle of Conformity, the analysis assumes that sentence (13) includes the sluice (what), which is related to the whole antecedent clause (maatha ?ishtara Ahmad). Furthermore, the above principle states that we can interpret a sluice as such if the sluice and the antecedent conform to each other, and as the language does not allow such repetition of the same constituent, the bracketed clause gets deleted later at the LF level as the following sentence shows:

(19) ?ishtara Ahmad shay?an lakinani la ?aCrifu
Bought Ahmad something but-I not know maatha (?ishtara Ahmad)
"Ahmad bought something but I don't know what (Ahmad bought)."

The bracketed clause does not appear as it gets deleted later. Besides, the assumed structures in the sluice have to be deleted as a repair strategy lest it violates any island constraints (See Merchant 2001). Moreover, this account is based on the Principle of Full Interpretation (FI) which demands that there be no superfluous step in the derivation of any element; that is, every element in an LF representation must be legitimate. (See Al-bukhari 2016) The sluice in this sentence comes into being from what is called the process of reconstruction effect.

The latter process is based on a semantic interpretation. The word (maatha) cannot stand alone, but is semantically related to (ma?shtarahu Ahmad, 'what Ahmad bought').
Sentences (14) and (15) show no antecedent to the sluice in the embedded clause. However, on empirical grounds, the two sentences mean what sentences (20) and (21) indicate:

(20) Haatafani Khalid lakinani la?aCrifu mata (Khalid haatafa)
Called Khalid but-I not know when (Khalid called)
/kayfa (Khalid hatafa), limaatha (Khalid hatafa) /?ayna (Khalid haatafa)
How (Khalid called) why (Khalid called) why (Khalid called)
'Khalid called but I don't know when/how/why/where.'
(21) kaana Ahmad yaktubu shay?an lakinani la ?aCrifu ayna/ limaatha/
Was Ahmad writing something but not I-know where/why
liman
To whom
'Ahmad was writing something, but I don't know where/why/to Whom.'

Based on the subcategorization properties of the verb call in sentence (14), the analysis has to assume a direct object for this verb at the LF level only, since it does not appear at the PF level. The assumed phrase is base-generated and the wh-phrase remains in situ. After the deletion of the assumed IP, it leaves a variable or trace and, as Chomsky (1995) assumes, traces are copies that exist at LF level only and cannot be deleted. Chung et al. (1994) believe that there must be co-indexed at the LF level between the wh-phrase in Spec, CP and its copied correlate in TP in that both have to bear the same case and phi-features. In other words, the interpretation of this sentence, and again sentence (15), has to be at the LF level only and can never be otherwise.

One has to be cautious of the principle of generalization as some of the data cannot be handled totally within the framework of the LF approach. This is one of the conclusions that Chung et al. (1995) and Merchant (2001) arrived at. Furthermore, it has to be clear that the assumption here is that the LF level is indeed semantic but not structural, thus opposing what Chung et al. (1995) stated.

The interpretation of the data above will be handled when the sluice can be interpreted at the LF level. However, if it cannot be interpreted, then this boils down to saying that it cannot be interpreted. (See Chung et al. 1994, 5; see also Wasow 1979 and Chao 1987). The interpretation of the sluice is based on assuming that it is filled with an internal structure as Merchant (2001) mentioned when he assumed a feature he called GIVEN (i.e. the intimate relationship between the displaced constituent and the internal antecedent), or in some cases, the subcategorization framework explained by Carnie (1996).

The issue of sluicing is so much related to the syntactic process of prepositional stranding, as the following English sentence shows:

(22) John was playing but I don't know who he was playing with.

Standard Arabic, as well as the different varieties of Arabic, does not allow prepositional stranding. Consider the following sentences:

(23) *kaana Ahmad yalCabu lakinani la?aCrif man kaana yalcabu maC
Was Ahmad playing but-I not know who was playing with
"Ahmad was playing but I don't know who he was playing with."
Both of the above sentences are ill-formed and cannot be acceptable as Arabic sentences as neither Standard Arabic nor Arabic varieties allow prepositional stranding. Al-bukhari (2016) gave ambivalent answers as to whether Jordanian Arabic allows prepositional stranding. In one position of her dissertation, namely page 88, she stated that this Arabic variety allows prepositional stranding. However, later on and on pages 101 and 132, she stated that this Arabic variety does not allow this syntactic process. [sic].

One has also to say that prepositional stranding in Arabic in all its varieties can be saved by resumptive pronouns, as the sentences blow show:

(25) rasama Ahmad lawHatan lakin na ?aClamu maathara rasama bihi
Drew Ahmad portrait but-I not know what drew with-**it**
"Ahmad drew a portrait but I don't know what" **

(26) Calimtu bizawji Ahmad lakin na ?adri man ?illati tazwwaja biha
know-I marriage Ahmad but-I not know who that married with-**her**
"I knew about Ahmad's marriage, but I don't know whom he got married to"

It is so obvious in the above sentences that the bold and italicized pronouns have rescued the sentences from being ungrammatical, for the deletion of them yields ungrammatical and ill-formed Arabic sentences:

(27) rasama Ahmad lawHatan  lakin na ?aClamu maatharasama bi
Drew Ahmad portrait but-I not know what drew with 
* "Ahmad drew a portrait but I don't know what he drew with."

(28) Calimtu bizawji Ahmad lakin ila ?adri man ?illati taxwwaja bi
Knew-I with-married Ahmad but-I not know who that married to 
**" I knew about Ahmad's marriage but I don't know who he married to."

6. Conclusion

Sluicing is a syntactic phenomenon that has attracted the attention of many linguists. They are mainly divided into two groups: one that supports the PF account of sluicing and the other that advocates the LF account. Both groups share a number of points, but they differ on how and the way the wh-phrase arrives at C of the CP. Unlike the account offered by some researchers, such as Al-gryani (2013) who believes on the PF account, the present paper supports the LF account as it fits better for the framework of Standard Arabic, a language where case plays a role as a marker of the sluice. Also, the sluice is viewed as base-generated at the surface level, and thus, there is no movement involved, since there are cases where the behavior of the sluice is different from the behavior of the wh-phrases in non-elliptical questions. This means that there is no movement involved and hence island violation shows no effect here. However, there are a number of points that await some account related to cases, such as where the correlate is finite as in: Three men came to my house but I don't know how many girls. Moreover, we
تحاول هذه الدراسة تفسير ظاهرة الحذف ضمن إطار اللغة العربية الفصحى، فهي تناقش أراء مدرستين تناولتا هذه الظاهرة. وهما مدراً مستوى الصوتي ومدرسة المستوى المنطقي، وقد تناولت الدراسة هذا الموضوع ضمن إطار نظرية تشومسكي المعروفة باسم البرنامج المصغر.

وأظهرت المعلومات التي جمعت أن ظاهرة الحذف ظاهرة تتعلق بالمستوى المنطقي، وليس بالمستوى الصوتي، ويعود السبب في ذلك إلى أن السلوك اللفظي لما تبقى من الحذف (Wh-remnant) يختلف تماماً عن السلوك اللغوي لـ wh-island في تركيب جمل الاستفهام التي لا تسمح بالحذف. وهناك دليل قوي يدعم هذا التوجه وسياقه: تأثير على أنك موجود أصلاً في التركيب ظاهر للحملة، وهذا يعني بالضرورة Subjacency and ECP، وذلك لعدم وجود أي نوع من التقل أو الحركة داخل الجملة. ومع كل هذا، فلا بد من الإشارة إلى أنه ما يزال هناك بعض النقاط التي هي حاجة إلى المزيد من الأبحاث المستقبلية، مثل: ثلاثة رجال أتوا إلى بيتي لكتني لا أعرف كم بنتاً، هذا زيادة على ضرورة إيجاد المستوى الذي يعرفنا إلى أي حد يتأثر المحذوف بقبول الجزيرة، في حين لا يتأثر sprouting بذلك.

كذلك البيانات المفتاحية: الحذف، اللغة العربية الفصحى، نظرية البرنامج المصغر، المستوى اللفظي، المستوى المنطقي، wh-island.

need more research on whether and to what extent can the correlate be sensitive to island constraints while sprouting cannot.
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