Temporal/locative inversion in Arabic

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Abstract

This research scrutinizes the observation that when the thematic subject is extracted (i.e. questioned) in Jordanian Arabic, temporal/locative inversion may occur. Temporal inversion occurs irrespective of the verb being transitive or intransitive, whereas locative inversion is limited to contexts with an intransitive verb. This research argues that this distinction correlates with the base-generation of temporal/locative adjuncts; temporal adjuncts are base-generated adjoining TP, whereas locatives are base-generated adjoining VP. Temporal but not locative adjuncts resist fronting with vP, demand the use of a tense copula (or a tensed verb), and are not subject to deletion along with the lexical verb. With the assumption that Spec, SubjP must be filled by a non-silent copy due to the effects of Subject Criterion (Rizzi and Shlonsky 2007), a temporal or locative adjunct, if any, fills this position instead of the extracted thematic subject. Given its low position, a locative adjunct is accessible to $Subj^0$ only when there is no v*P, hence the account of the correlation between locative inversion and verb valency. Furthermore, this research explores existence of temporal/locative inversion in other two Arabic dialects, arguing for a micro-parametric view of this strategy across Arabic dialects.

Keywords: Arabic: Phase theory: subject extraction: temporal/locative inversion.

1   Introduction

Jarrah (2017, to appear) argues that the extracted subject in Jordanian Arabic (JA) does not land in Spec, SubjP (a mnemonic for Subject Phrase, a separate layer dominating TP but c-

commanded by CP; cf. Cardinaletti 2004) through its journey to the left periphery.[1] He argues that Spec, SubjP in this Arabic variety is a criterial position in the sense of Rizzi (2005, 2010, 2014) and Rizzi and Shlonsky (2007). As such, any phrase occupying this position is trapped in place and becomes unable to escape. Jarrah further argues that in order to facilitate subject extraction, Spec, SubjP is filled by either the D-linked particle *ʔilli,* a deictic locative/temporal, or a pro, depending on whether the subject wh-word is D(iscourse)-linked or not. Consider the following examples:

(1)   a. miin   *(ʔilli)   ʔaχað-t   ʔal-mafatiiħ?

         who   Prt   took-3SF   DEF-keys

      'Who took the keys?'

      b. miin   ʔimbaariħ   ʔaχað-t   ʔal-mafatiiħ?

         who   yesterday   took-3SF   DEF-keys

        'Who took the keys yesterday?'

    b. miin   bi-d-dukaanah   wigʕ-at?

     who   in-DEF-shop   fall down-3SF

    'Who fell down in the shop?'

    d. miin   ʔaχað   ʔal-mafatiiħ?

       who   took.3SM   DEF-keys

      'Who took the keys?'

In all examples in (1), the subject is extracted to the left periphery.[2] In (1a), Spec, SubjP is filled by *ʔilli,* whereas it is filled by the deictic temporal adjunct *ʔimbaariħ* in (1b) and the

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[1] Subject extraction refers here to cases where the subject is questioned as in '*Who left home late?'*
[2] See, Jarrah (2017 to appear) for several pieces of evidence that the subject us actually in the left periphery in examples like (1).

locative adjunct *biddukaanah* in (1c). Spec, SubjP is filled by a non-referential pro in (1d). The subject wh-word in (1a-c) is D-linked as it implies the existence of a set of contextually determined entities from which the speaker is asking for a choice (see, Fernández 2009), hence the use of *ʔilli* or temporal/locative adjuncts in Spec, SubjP.[3] Most relevant here is the observation that temporal inversion is indifferent to the type of the verb (i.e. transitive vs. intransitive), whereas locative inversion is subject to transitivity of the verb. Jarrah assumes that this follows from the base-generation of temporal and locative adjuncts. Temporal adjuncts are VP-external adjuncts (i.e. TP-adjuncts), whereas locatives are VP-internal adjuncts. This assumption was adopted with no evidence corroborating it. Furthermore, there is no examination of relevant facts from other Arabic dialects. Against this background, the current research aims to provide empirical evidence from three Arabic dialects supporting the view that temporal adjuncts in Arabic are base-generated adjoining TP, whereas locatives are based-generated adjoining VP.

Section 2 provides a background overview of subject extraction in Arabic in addition to Jarrah's (2017) account of the main observations related to this phenomenon in JA. Section 3 provides empirical evidence for the position of temporal adjuncts being adjoined to TP and of locatives being adjoined to VP. The evidence draws on facts from dislocation, coordination, and ellipsis. Section 4 explores to what extent other Arabic dialects behave similarly with respect to temporal/locative inversion with the presence of subject extraction. This section shows that temporal/locative inversion is subject to micro-parametric variation across Arabic dialects. Section 5 concludes the research.

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[3] Jarrah argues that the use of the D-linked particle *ʔilli* or a deictic temporal/locative adjunct follows from a condition operating in JA that demands Spec, SubjP be filled by an element with the same D-linking status of the Subject wh-word. See Jarrah (2017 to appear) for details.

2   Subject extraction in Arabic

Several works have shown that when the subject is extracted (questioned) in Arabic, there are certain effects that occur in response to subject extraction. One of these effects is the (optional) use of the word *ʔilli,* that appears between the subject wh-word and the verb. Consider the following examples from Palestinian Arabic, reported in Shlonsky (2002: 142):[4]

(2) a. miin   ħall   l-muʃkile?

     who   solved   the-problem

      'Who solved the problem?'

    b. miin   ʔilli   ħall   l-muʃkile?

     who   that   solved   the-problem

      'Who solved the problem?'

Shlonsky argues that *ʔilli* in (2b) is prompted because the speaker presupposes that there is one having solved the problem. (2a) does not imply such presuppositional effects. Furthermore, Shlonsky states that when the question lacks presupposition, the verb of the interrogative clause can only bear default [3MS] agreement. He also indicates that this pattern holds true also of Moroccan Arabic:[5]

(3) a. ʃkun   mʃa?

    Who   left(3MS)

     'Who left?'

    b. *ʃkun   mʃat/   mʃaw?

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[4] The gloss in examples (2) and (30 are Shlonsky's.
[5] In Moroccan Arabic *ʔilli* appears reduced as *lli*.

who	left.3FS	left.3MPL

'Who left?'

c. ʃkun   Illi   mʃa/   mʃat/   mʃaw?

who	that	left.3MS	left.3FS	left(3MPL)

'Who left?'

The question in (3a) is grammatical even if ʔilli is not used, given that the verb shows default agreement. (3b) is ungrammatical as the verb is inflected for agreement, and ʔilli is not used. When the verb is inflected for agreement, ʔilli must be used as (3c) demonstrates.

Shlonsky (2002) proposes a bi-clausal analysis for such questions. He claims that questions with ʔilli are copular clauses that consist of a subject DP and a predicate, which is here a free relative clause that functions as a nominal predicate providing a definite description, a statement of identity. The wh-phrase is base-generated in Spec TP of the copular clause and then moves to Spec of the higher CP. Consider the following schematic presentation (Shlonsky 2002: 152):

(4)
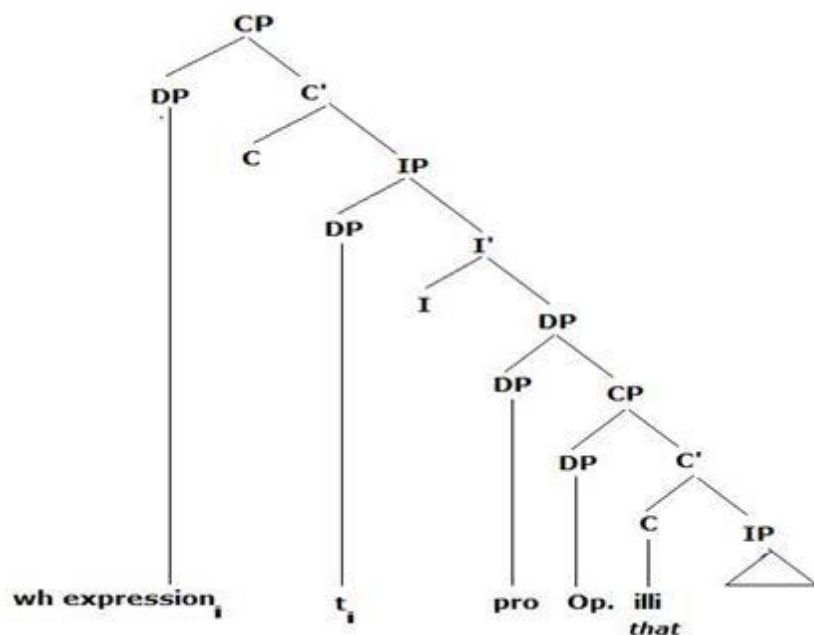
Under this proposal, *ʔilli* is treated as C^0 that heads the lower CP (see, Cheng 1997 for a different approach and Algryani 2012, among others, for discussion of the two proposals).[6]

On the other hand, Jarrah (2017) takes a different tack for JA. He observes that the use of a fronted (non-topicalized) locative or temporal adjunct militates against the use of *ʔilli* in JA even if the verb is inflected for agreement, as exemplified in the following pair.

(5) a. miin   *(ʔilli)   ʔaχað-at   ʔal-mafatiiħ   ʔimbaariħ?

      who   Prt   took-3SF   DEF-keys   yesterday

      'Who took the keys yesterday?'

      b. miin   ʔimbaariħ   ʔaχað-at   ʔal-mafatiiħ?

      who   yesterday   took-3SF   DEF-keys

      'Who took the keys yesterday?'

Jarrah argues that *ʔilli* in (5a) fills Spec, SubjP to meet the requirement of the so-called Subject Criterion to have Spec, SubjP filled. Drawing on evidence from several unrelated languages, Rizzi and Shlonsky (2007) argue that Spec, SubjP is a criterial position that it is paired with a criterial property of aboutness; and hence any movement out of this criterial position is barred, the constraint that is known as the Subject Criterion. Due to the effects of this criterion, the extracted subject would not land in Spec, SubjP en route to the left periphery; otherwise it gets frozen in place and becomes unable to move further. With the presence of mounting evidence that extracted subject is in the left periphery in JA (e.g. its occurrence to the left of topicalized elements as well as the use of an expletive *fiih* in existential questions), Jarrah argues that demands of the Subject Criterion is met using *ʔilli* in Spec, SubjP when the thematic subject is

extracted. Under this analysis, *ʔilli* is an XP element, given its complementary distribution with the expletive *fiih* as well as its obligatory occurrence to the right of all de facto left periphery material. Furthermore, Jarrah argues that Spec, SubjP can be alternatively filled by a deictic temporal/locative or a pro. This accounts for the lack of *ʔilli* in presence of inverted locative/temporal adjunct as in (5b) or the absence of *ʔilli* or a fronted temporal/locative when the verb shows default agreement. Jarrah observes that locative adjuncts unlike temporal adjuncts can only replace *ʔilli* in intransitive questions.

(6) a. miin   bi-ddukaanah   *(ʔilli)   ʔaχað-at   ʔal-mafatiiħ?

      who   in-DEF-shop   Prt   took-3SF   DEF-keys

     'In the shop, who took the keys?'

   b. miin   bi-d-dukaanah   wigʕ-at?

      who   in-DEF-shop   fall down-3SF

     'Who fell down in the shop?'

Jarrah assumes that this follows from the base-generation of temporal and locative adjuncts. Temporal adjuncts are VP-external adjuncts (i.e. TP-adjuncts), whereas locatives are VP-internal adjuncts. Nevertheless, this proposal was taken for granted with no empirical evidence for the position of temporal and locative adjuncts in the clause. From here the current research emerges. Examining facts from left-dislocation, coordination, and ellipsis, this research corroborates the view of the discrepancy between locative and temporal adjuncts with respect to base-generation and hence the difference with respect to accessibility to $Subj^0$. Additionally, this research is significant as it shows that this type of inversion is subject to micro-parametric variation across Arabic dialects.

3   Position of temporal and locative adjuncts

In this section, I provide evidence from left-dislocation (section 3.1), coordination (section 3.2), ellipsis and cross-linguistic evidence (section 3.3), for the high position of temporal adjuncts and low position of locatives in the clause whereby they merge.

3.1   Left-dislocation

The first piece of evidence that temporal adjuncts are high in the clause and adjoin TP comes from the observation that such elements are not preposed along with the verb and its object in, among others, sentences with the past tense copula *kaan* 'was' that occupies mainly T^0 in the Arabic sentence (cf., Fassi Fehri 1993, 2012). Consider the following examples from JA (7a represents the unmarked case of the word order in JA):

(7) a. ʔibin   ʕamm-i   kaan   jiʕmal   buʃaar   ʔimbaarih

     son   uncle-my   was.3SM   make.3SM   popcorn   yesterday

  'My cousin was making popcorn yesterday.'

b. jiʕmal   buʃaar   ʔibin ʕamm-i   kaan   ʔimbaarih

    make.3SM   popcorn   son   uncle-my   was.3SM   yesterday

  'Make popcorn is what my cousin did yesterday.'

c. *jiʕmal   buʃaar   ʔimbaarih   ʔibin ʕamm-i   kaan

    make.3SM   popcorn   yesterday   son   uncle-my   was.3SM

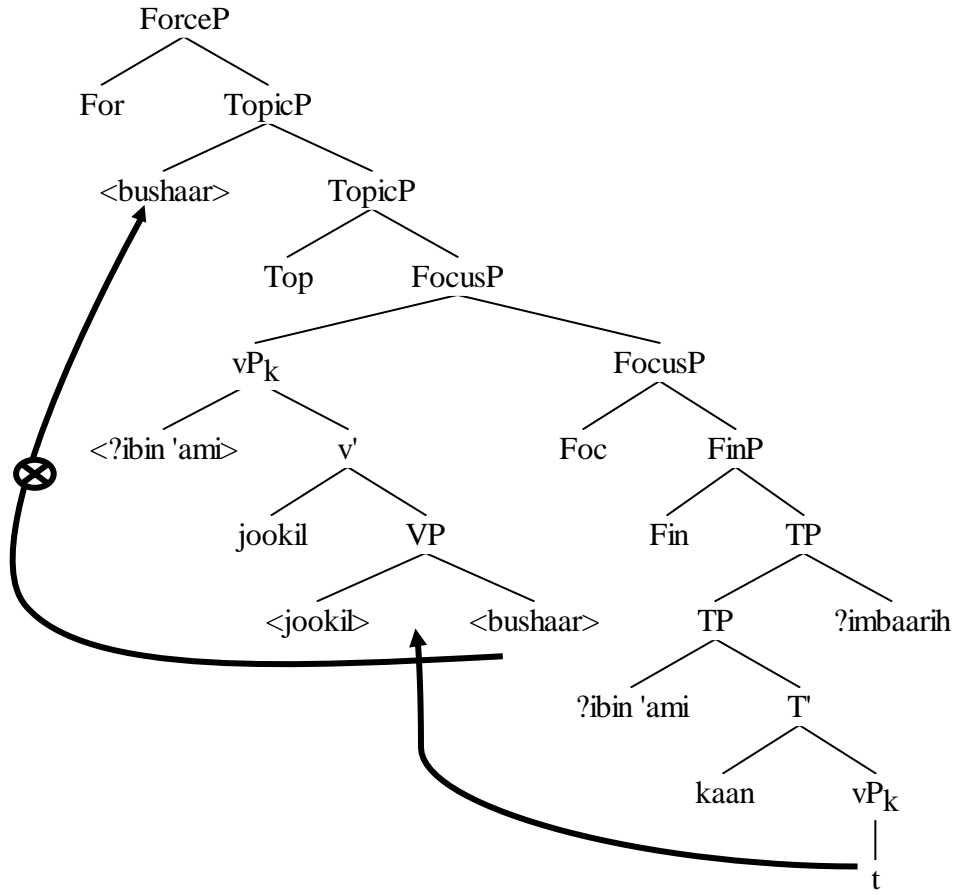 Intended: 'Make popcorn is what my cousin did yesterday.'

In (7b), the temporal adjunct *ʔimbaarih* 'yesterday' is not pied-piped along with the verb *jiʕmal* 'making' and the object *buʃaar* 'popcorn', whereas the temporal adjunct is proposed in (5b), something that leads to the sentence being ungrammatical. This observation can be accounted

for assuming that the complex V+O moves to the left periphery (Spec, Focus Phrase, cf. Rizzi 1997) as one unit. Given that the lexical verb in Arabic moves to little v in narrow syntax (V^0 head-adjoins v^0, Fassi Fehri 2003, 2012, Balushi 2011, and Alshamari & Jarrah 2016, among many others)), it is most likely that the whole phase v*P in (7b) is what moves to the left periphery. If the temporal adjunct *ʔimbaarih* 'yesterday' adjoins vP/VP, it would be preposed all along with the fronted VO, contrary to fact. The evidence that fronted VO is one unit occupying one slot in the left periphery comes from the observation that the object cannot appear to the left of the preposed V, as asserted by ill-formedness of sentence (8).

(8) * buʃaar   jiʕmal(uh)   ʔibin   ʕamm-i   kaan   ʔimbaarih

      popcorn   make.3SM-3SM   son   uncle-my   was.3SM   yesterday

    'Make popcorn is what my cousin did yesterday.'

It is hard to account for the ban against the object to appear preverbally in such situations if the two categories would move singly to the left periphery. Notice that *jiʕmal* is a head that does not block movement of an XP category such as the DP object *buʃaar*, given the relativized minimality (Rizzi 1990, 2013). On the other hand, ungrammaticality of sentence (8) is automatically explained under the proposal that VO is one consistent. By extending the proposal that there is no sub-extraction out of a previously moved domain (Stepanov 2001: 52, following Wexler & Culicover's 1980 Freezing Principle) to JA, ungrammaticality of sentence (8) follows. The object is sub-extracted out of the v*P phase which already moves to the left periphery. Consider the schematic representation in (8).

(9)

Tree diagram (9):

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                          ForceP
                         /      \
                       For      TopicP
                              /        \
                      <bushaar>        TopicP
                                     /        \
                                   Top         FocusP
                                             /        \
                                          vPk          FocusP
                                        /     \       /       \
                               <ʔibin 'ami>   v'    Foc        FinP
                                            /    \            /      \
                                        jookil    VP        Fin       TP
                                                /    \              /      \
                                        <jookil>    <bushaar>      TP      ʔimbaarih
                                                                 /    \
                                                           ʔibin 'ami   T'
                                                                      /    \
                                                                   kaan     vPk
                                                                             |
                                                                             t
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The object is not allowed to move out of the v*P, while the latter occupies Spec, Focus Phrase. As shown in tree (9), the temporal adjunct *ʔimbaarih* 'yesterday' adjoins TP and hence the ban against its movement along with v*P material is motivated.[7] As what moves to the left periphery is the whole phrase (vP), the linear order between the verb and object remains intact in their new position in the left periphery. Additionally, the assumption that verb and the object in (7b) are not part of one phrasal unit in the left periphery is undermined by the fact that VO material is not discontinuous. Consider the following example, where the locative adjunct *ʔibdaarna* 'at our house' intervenes between the verb and the object, the matter that yields ungrammaticality.

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[7] I depart here from Kayne's (1994) *Linear Correspondence Axiom* and follow, instead, Abels & Neeleman's (2006) proposal that allows for right adjunction (caused by base-generation).

(10) *jiʕmal   ʔib-daar-na   buʃaar   ʔibin   ʕamm-i   kaan

make.3SM   at-house-our   popcorn   son   uncle-my   was.3SM

ʔimbaarih

yesterday

'Make popcorn at our house is what my cousin did yesterday.'

Along these lines, there exists strong evidence that sentences with VOST word order (where T stands for Tense) involve VO phrasal movement to the left periphery. Had temporal adjuncts adjoined VP, they would have preposed along with v*P rather than being stranded, contrary to fact.

On the other hand, the situation in (7a,b) appears not to be the case with respect to the locative adjunct *ʔibdaarna* 'at our house'. The situation is actually reversed, as demonstrated in the following examples:

(11) a. ʔibin   ʕamm-i   kaan   jiʕmal   buʃaar ʔib-daar-na

son   uncle-my   was.3SM   make.3SM   popcorn at-house-our

'My cousin was making popcorn at house our.'

b. *jiʕmal   buʃaar   ʔibin   ʕamm-i   kaan   ʔib-daar-na

make.3SM   popcorn   son   uncle-my   was.3SM   at-house-our

'Making popcorn at our house is what my cousin did.'

c. jiʕmal   buʃaar   ʔib-daar-na   ʔibin ʕamm-i   kaan

make.3SM   popcorn   at-house-our   son   uncle-my   was.3SM

'Making popcorn at our house is what my cousin did.'

Sentence (11b) is ill-formed as the locative adjunct *Ɂibdaarna* appears to the right of the past tense copula *kaan*, while sentence (11b) is grammatical with dislocation of the locative along with verb and the accompanying object. The behaviour of the locative adjunct *Ɂibdaarna* in the aforesaid examples in (11) is strongly indicative of the fact that locatives adjoin VP and thus must be preposed when the vP is fronted as one unit (to the left periphery).[8] In view of this, we are led to the conclusion that temporal adjuncts adjoin to a projection different than what locative adjuncts adjoin to. I argue that temporal adjuncts adjoin to TP, while locatives adjoin to VP.

In the following section, I provide a further line of evidence from coordination in favour of the view that locatives adjoin VP, whereas temporal adjuncts adjoin TP.

3.2   Coordination

Empirical support to the proposal that temporal adjuncts adjoin TP can also be offered by facts from coordination in JA. When two constituents (i.e. conjuncts) contain each a temporal adjunct, they must consist of at least as much structure as TP. This observation becomes clearer again in the context of the past tense copula *kaan*. Consider the following example:

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[8] It is worthwhile to note here that the locative cannot also occur to the left of the fronted verb, the observation that supports our proposal that the locative is part of the moved material and hence lends credence to Wexler & Culicover's 1980 Freezing Principle.

(12) ʔaboo-i   kaan   ʔiwaddi   ʔaχoo-i   ʔiz-zaʁiir

    father-my   was.3SM   send.3SM   brother-my   DEF-young

    ʕa-l-midrasih ʔissaaʕah   sabʔah ʔisˤubuħ   w-*(kaan)   jigraʔ

    to-DEF-school hour   seven morning   and-was.3SM read.3SM

    ʔidʒdʒariidah ʔissaaʕah   tisʕah ʔisˤubuħ

    newspaper   hour   nine   morning

'My father was taking my younger brother to the school at 7 AM and was reading the newspaper at 9 AM.

Here the second *kaan* is obligatory as long as the temporal adjunct *ʔissaaʕah tisʕah ʔisˤubuħ* 'at 9 AM' is used in the second conjunct. This observation bears implication for the position of temporal adjuncts in the clause. Suppose that temporal adjuncts are only licensed if they adjoin TP; their occurrence in the clause thus requires the projection of TP which in turn can house *kaan*.[9] Following Williams's (1978) Law of Coordination of Likes (a constraint that demands the conjuncts be of the same syntactic category),[10] sentence (12) involves two coordinated TP's, each is headed by the past tense copula *kaan.* If *kaan* had been dropped out the second conjunct, the coordination conjunction *w-* would conjoin two vP's in presence of *kaan* in the first conjunct and in absence of any evidence of the second conjunct being in the past. It is a well-established assumption across Arabic dialects that imperfective does not head-move to T^0; the mere presence of this form of the verb in the second conjunct is thus never indicative of TP projection (cf. Benmamoun 1999, 2000). Accordingly, the second conjunct must project TP to license the temporal adjunct and be in the past to be felicitously equivalent of the first conjunct in tense, hence the use of *kaan.* To sum up, the said temporal adjunct is a

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[9] This discussion gives rise to Eisele's (1988) old assumption that temporal adverbs/adjuncts are anchored in the sentence by tense. See also Shlonsky (1997: 31) for a similar argument.

[10] See van Koppen and Rooryck 2008 for a feature-based reinterpretation of Williams's (1978) Law of Coordination of Likes.

TP-modifier rather than a VP modifier; otherwise the obligatoriness of the use of *kaan* in the second conjunct becomes a mystery.

Now. Let's throw light on cases with locatives. Consider the following example:

(13) ʔaboo-i   kaan   jitfarradʒ   ʔal-l-mubraha   bi-l-beet

       Father-my   was.3SM   watch.3SM   at-DEF-match   in-DEF-house

       w-(kaan)   yigraʔ   ʔidʒdʒariidah bi-l-maħall

       and-was.3SM read.3SM   newspaper   in-DEF-supermarket

'My father was taking watching the match at home and (was) reading the newspaper at the supermarket.

That *kaan* is optional in (13) is supportive evidence that locatives are not licensed in their clauses by TP. Following the proposal that locatives adjoin VP, their presence is not tied to TP, and hence whether *kaan* is present or not becomes irrelevant for their licensing, unlike the case of temporal adjuncts. Actually, this discussion provides us with an answer of why some verbs, e.g. *put*, sub-categorize for locatives, while there are verbs, to the best of my knowledge, that subcategorize for temporal adjuncts. A verb does not subcategorize for an element which it does not license.

In the following section, I present further evidence from ellipsis for the low position of locatives and the high position of temporal adjuncts.

3.3 Ellipsis

Another case in favour of the proposal on locative vs. temporal base-generation has to do with ellipsis. Consider the following two examples where the second conjunct undergoes VP deletion.

(14) a. Balqees kaan-t tursum Sarah ʔimbaarih w-hashem

Balqees was-3SF draw.3SF Sarah yesterday and-Hashem

kaan ʔawal ʔimbaarih

was.3SM First yesterday

'Balqees was drawing Sarah yesterday, and Hashem was doing so the day before yesterday.'

b. *Balqees kaan-t tursum Sarah bi-l-beet w-hashem

Balqees was-3SF draw.3SF Sarah at-DEF-house and-Hashem

kaan bi-l-ħadiigah

was.3SM at-DEF-garden

Intended: 'Balqees was drawing Sarah at our house, and Hashem was doing so in the garden.'

As the temporal adjunct *ʔawal ʔimbaarih* 'the day before yesterday' adjoins TP, its occurrence is not affected by deletion of VP, as illustrated in (14a). On the other hand, sentence (14b) is ill-formed because of the presence of the locative adjunct *bilħadiigah* 'in the garden', which is expected not to appear when VP deletes. A similar observation is reported in Moroccan Arabic (MA). Kortobi (2002) shows that when the adverb in MA is a TP-adverb, it is adjoined to TP which is higher than Aspect Phrase (AspP). It follows that when AspP deletes, time adverbials can stay, as it is unaffected by deletion (see, 15a below). On the other hand, manner adverbs are affected by deletion, given that they are anchored by AspP (see, 15b) (The two examples are adapted from Kortobi 2002: 233-234):

(15) a.?Yasin kan ka-yᶜum   lbarəħ   w-Yousre   kan   əwwel lbarəħ.

Yasin was   PROG-swim yesterday   and-Yousre   was __ day before

'Yousef was swimming yesterday, and Yousre was doing so the day before.'

b. *Yasin   kan   ka-yakul   bəzzərba   w-Yousre   kan __ bʃswiya.

Yasin   was   PROG-eat   fast   and-Yousre   was __ slowly

'Yasin was eating fast and Yousre was doing so slowly.'

It is therefore reasonable to conclude that temporal adjuncts adjoin TP, whereas locative adjuncts adjoin a lower position, i.e. VP.

From a cross-linguistic point of view, one finds a plethora of examples from natural languages (unrelated to Arabic) advocating this view. A case in point here is Modern Greek. Rivero (1992: 291) rightfully notes that a clear dichotomy between adverbs that function as VP-modifiers internal to the VP and those that are external to the VP can be established in Modern Greek. She argues that the former includes locatives and adverbs that are related to the modification of the action expressed by the verb or *Aktionsart*,[11] whereas the latter includes time adverbs. Rivero hinges on the observation that the former class of adverbs may incorporate into the verb (i.e. the adverb occurring strictly before the verb forming a grammatical morphological unit), whilst the latter class of adverbs fail to incorporate, as evidenced by the contrast in the following examples from Modern Greek:

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[11] Traditional European structuralist studies of languages establish a semantic division between *Aspect* and *Aktionsart* or 'kind of action (see, Bache 1982). Rivero (1992: 304) states that *Aspect* refers to the dichotomy often labelled Perfective/Imperfective. On the other hand, *Aktionsart* refers to the characteristics of the inherent meaning of verbs and the internal properties of States of Affairs as expressed by predicates. Distinction between states (e.g. *know*), achievements (e.g. *reach the summit*), activities (e.g. *run*) are under *Actionsart* (see, Vendler 1967, Comrie 1972, and Grimshaw 1990)

(16) a. I   Maria   tha   to   girisi   anapoda

     the   Mary   will   it   turn   upside + down

'Mary will turn it upside down.'

b. I   Maria   tha   to   anapoda-girisi

   The   Mary   will   it   upside + down -turn

'Mary will turn it upside down.'   (the two examples from Rivero 1992: 289)

c. I   ginekes   den   kapnizun   tora

   the   women   not   smoke   now

'women do not smoke now.'

d. *I   ginekes   den   tora-kapnizun

   the   women   not   now-smoke

'women do not smoke now.'   (the two examples from Rivero 1992: 314)


In (16b), the adverb *anapoda* 'upside-down' incorporates with the verb *girisi* 'turn', both forming one morphological unit. On the other hand, (16d) is indicative of the impossibility of incorporation of time adverb into the verb. The time adverb *tora* 'now' is prohibited to occur strictly before the verb *kapnizun* 'smoke', failing to incorporate, i.e. to form one grammatical morphological unit with the verb. The same observation extends to other time adverbs that refer to deictic points in time, including *xthes* 'yesterday' and *avrio* 'tomorrow'. For Rivero, the examples in (16) are strong evidence that time adverbs are base-generated VP-externally, and they modify inflectional layers that encode Tense (p. 296).[12, 13]

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[12] See Koster (1986) and Ojea Lopez (1994) for similar arguments in Italian and Spanish, respectively. See also Stroik (1990) for further evidence that locatives are VP-internal entities.

[13] Cinque (1999) does not postulate a specific 'fixed' position for temporal adjuncts. For instance, he assumes that deictic temporal adverbs such as 'now' and 'then' are base-generated in a position different from that of other temporal adverbs' (p. 87). See though Frey (2000: 113) and Ernst (2001. CH 7) for counterarguments of Cinque's (1999) proposal. These two authors argue that temporal adjuncts are base-generated in positions high in the clause structure.

With this being the case, we are led to the conclusion that temporal adjuncts occupy a high position in the clause, whereas locative adjuncts adjoin their clause in a lower position. Said this, we can account for the restriction against locatives to occupy Spec, SubjP in transitive clauses. Chomsky (2000, 2001, and 2008) argues that clause derivation proceeds by phases. Typical phases are the propositional categories: CP and v*P. Consider the following representation:
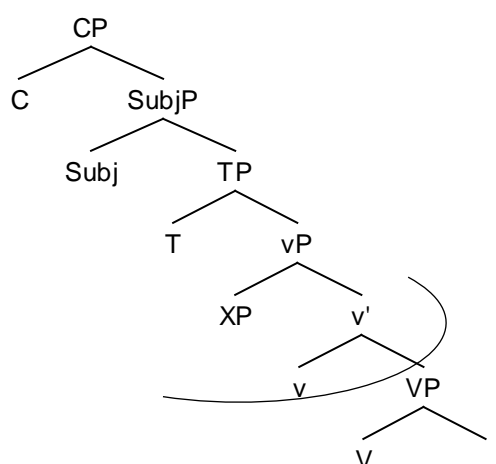
(17)
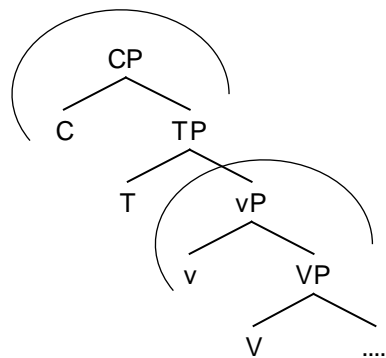
Most relevant here is the so-called Phase Impenetrability Condition (PIC), which is a constraint that contributes to efficient computation (see, Müller 2011). This condition constrains accessibility of phase materials to higher probes; only the head and the edge of the phase are accessible to a higher probe. The PIC is formulated as follows:

(18)   The domain of a head X of a phase XP is not accessible to operations outside XP;
        only X and its edge are accessible to such operations. (Chomsky 2000, 108) and
        (Chomsky 2001, 13).

For instance, due to the PIC, the edge of v*P and the head v are accessible to $Subj^0$, as schematically presented in (19):

(19)

```
                    CP
                 ┌──┴──┐
                 C    SubjP
                    ┌──┴──┐
                  Subj    TP
                       ┌──┴──┐
                       T    vP
                          ┌──┴──┐
                         XP    v'
                             ┌──┴──┐
                             v    VP
                                ┌──┴──┐
                                V    .....
```

Let's explore how this line of analysis accounts for locative/temporal inversion while the subject is extracted. In case of temporal adjuncts, they are adjoined to TP. It follows that they are always accessible to $Subj^0$ to fill Spec, SubjP following the demands of the subject criterion. In other words, temporal adjuncts' high position being adjoined to TP makes them impervious to the type of the verb (transitive vs. intransitive). On the other hand, locatives being adjoined to VP are subject to the effects of the PIC. $Subj^0$ cannot attract them in presence of v*P unless they are at the edge of v*P. This amounts to saying that locatives must vacate their base-generation position and raise to the edge of v*P to be within the accessible domain of $Subj^0$. The question that arises here is why locatives do not raise to the edge of v*P, so they can be an accessible strategy to fill Spec, SubjP. The answer to this questions lies in the lack of motivation to do so. That Spec, SubjP must be filled does not demand a matching feature on the category that occupies it. There is no +SUBJ feature, unlike [TOP] or [FOC] that must be part of the featural bundle of the element that fills Spec, Topic Phrase or Spec of Focus Phrase, respectively. This line of analysis, if correct, accounts for why

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locative/temporal inversion yields no change in interpretation of the question at issue.[14] By contrast, when there is no phrase boundary between $Subj^0$ and the locative, the state of affairs we find with intransitive (passive and unaccusative) predicates, nothing can prevent the former from attracting the latter, the mater that leads to locative inversion.

Having discussed the evidence that temporal adjuncts adjoin TP, whereas locative adjoin VP, let's explore whether temporal/locative inversion is used in other Arabic dialects.

4   Temporal/locative inversion across Arabic dialects

The question that suggests itself here is whether temporal/locative inversion is an idiosyncratic property of JA or a permissible strategy whose effect can be discerned in other Arabic dialects. In order to answer this question, I examine data from two Arabic varieties: Iraqi Arabic (IA) and Najdi Arabic (NA). Data reveals that temporal/locative inversion is used in IA, whereas it is not allowed in NA. As a step prior to this investigation, it is instructive to note that temporal and locative adjuncts merge in the same position in IA and NA in comparison to JA, as they give rise to the same (un)grammaticality. Consider first the examples from left-dislocation (examples in (20) from NA, and examples in (21) from IA).

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[14] This discussion gives rise to the question whether filling Spec, SubjP occurs at PF rather than narrow syntax. The subject criterion demands Spec, SubjP be filled by some category, irrespective of its content, whence the use of pleonastic elements. In this regard, Rizzi and Shlonsky (2007: 12) state:

> True, the use of expletives seems to be more widespread in subject position than in A' constructions, in that 'many languages lack any kind of partial A' movement, while some form of overt or null subject expletive is presumably available in all languages. Still, this state of affairs is not difficult to understand if we think of the special status that the Subject Criterion must inevitably be assumed to have in the system of Criteria. The Subj layer defines a structural zone connecting the CP and the IP systems. As such, it may be assumed to share properties with both systems. The CP zone is specialized in creating dedicated positions to express scope-discourse properties, topicality, focus, scope of different kinds of sentential operators; such positions are formally optional…..On the other hand, a notable characteristic of the IP zone is obligatoriness, at least the obligatoriness of the heads forming the backbone of the 'functional' IP hierarchy.

(20) a. ʔibin   ʕamm-i   kaan   jʕamil   fuʃaar   ʔams

       son   uncle-my   was.3SM   make.3SM   popcorn   yesterday

       'My cousin was making popcorn yesterday.'

   b. jʕamil   fuʃaar   ʔibin ʕamm-i   kaan   ʔams

    make.3SM   popcorn   son   uncle-my   was.3SM   yesterday

  'Making popcorn is what my cousin did yesterday.'

   c. * jʕamil   fuʃaar   ʔams   ʔibin ʕamm-i   kaan

    make.3SM   popcorn   yesterday   son   uncle-my   was.3SM

   Intended: 'Making popcorn is what my cousin did yesterday.'

(21) a. ʔibin   ʕamm-i   tʃaan   jsʰaawi   ʃaamijjah   ʔil-baarha

       son   uncle-my   was.3SM   make.3SM   popcorn   yesterday

       'My cousin was making popcorn yesterday.'

   b. jsʰaawi   ʃaamijjah   ʔibin ʕamm-i   tʃaan   ʔil-baarha

    make.3SM   popcorn   son   uncle-my   was.3SM   yesterday

  'Making popcorn is what my cousin did yesterday.'

   c. * jsʰaawi   ʃaamijjah   ʔil-baarha   ʔibin ʕamm-i   tʃaan

    make.3SM   popcorn   yesterday   son   uncle-my   was.3SM

   Intended: 'Making popcorn is what my cousin did yesterday.'

In the two dialects, the temporal adjunct must remain to the right of the past tense copula; otherwise the resulting sentence would ungrammatical. When the temporal adjunct is replaced with a locative adjunct; the situation is switched. Consider the following examples (the examples of (22) from NA; examples of (23) from IA).

(22) a. *jiʕmal   fuʃaar   ʔibin ʕamm-i   kaan   ʔib-daar-na

make.3SM   popcorn   son   uncle-my   was.3SM   at-house-our

'Making popcorn at our house is what my cousin did.'

b. jʕamil   fuʃaar   ʔib-daar-na   ʔibin ʕamm-i   kaan

make.3SM   popcorn   at-house-our son   uncle-my   was.3SM

'Making popcorn at our house is what my cousin did.'

(23) a. * jsʰaawi   ʃaamijjah   ʔibin ʕamm-i   tʃaan   ʔib-daar-na

make.3SM   popcorn   son   uncle-my   was.3SM   at-house-our

'Making popcorn at our house is what my cousin did.'

b. jsʰaawi   ʃaamijjah   ʔib-daar-na   ʔibin ʕamm-i   tʃaan

make.3SM   popcorn   at-house-our son   uncle-my   was.3SM

'Making popcorn at our house is what my cousin did.'

Ungrammaticality of sentences (22a and 23a) in one hand and grammaticality of (22b) and (22b) on the other are evidence that locatives are VP-internal adjuncts. In addition, NA and IA behave identically with respect to coordination facts in comparison to JA. Consider the following examples (the examples of (24) from NA; examples of (25) from IA).

(24) A. ʔaboo-i   kaan   ʔiwaddi   ʔaχoo-i   ʔisˤ-sˤiɣiir

father-my   was.3SM   sent.3SM   brother-my   DEF-young

la-l-madrisah ʔassaaʕah   sabʕah ʔasˤubuħ   w-*(kaan)   yagraʔ

to-DEF-school hour   seven morning   and-was.3SM read.3SM

ʔal-dʒiriidah ʔassaaʕah   tisʕah ʔasˤubuħ

newspaper   hour   nine   morning

'My father was taking my younger brother to the school at 7 AM and was reading the newspaper at 9 AM.

    b. ʔaboo-i   kaan   jitfarradʒ   ʔal-almubraha   bi-l-beet

    father-my   was.3SM   watch.3SM   DEF-match-my   in-DEF-house

    w-(kaan)   yigraʔ   ʔidʒariidah   bi-l-maħall

    and-was.3SM   read.3SM   newspaper   in-DEF-supermarket

'My father was taking watching the match at home and (was) reading the newspaper at the supermarket.

(25)   a. waald-i   tʃaan   jaaχað   ʔaχoo-i   ʔisˤ-sˤiʁiir

    father-my   was.3SM   sent.3SM   brother-my   DEF-young

    ʕal-l-madrisah ʔassaaʕah   sabʕah ʔasˤubuħ   w-*(ʃaan)   yiqrə

    to-DEF-school hour   seven   morning   and-was.3SM read.3SM

    ʔal-dʒiriidah   ʔassaaʕah   tisʕah ʔasˤubuħ

    DEF-newspaper   hour   nine   morning

'My father was taking my younger brother to the school at 7 AM and was reading the newspaper at 9 AM.

    b. waald-i   tʃaan   jitfarradʒ   ʔal-almubraha   bi-l-beet

    father-my   was.3SM   watch.3SM   DEF-match-my   in-DEF-house

    w-(kaan)   yiqrə   ʔal-dʒiriidah   bi-l-maħall

    and-was.3SM   read.3SM   DEF-newspaper   in-DEF-supermarket

'My father was taking watching the match at home and (was) reading the newspaper at the supermarket.

I extend my analysis to JA sentences to the examples in (24) and (25). The past tense copula is obligatory when the conjunct includes a temporal adjunct, implying that temporal adjuncts but not locative adjuncts are licensed in the clauses being adjoined to TP. Ellipses behaves similarly, as asserted from the examples below. (The examples of (26) from NA; examples of (27) from IA).

(26)   a. Balqees   kaan-t   tarsum   Sarah ʔams   w-hashem

        Balqees   was-3SF   painting   Sarah yesterday   and-Hashem

        kaan   qabul   ʔams

        was.3SM first   yesterday

‘Balqees was painting yesterday, and Hashem was doing so the day before yesterday.’

    b. *Balqees   kaan-t   tarsum   Sarah ba-l-beet   w-hashem

      Balqees   was-3SF   painting   Sarah at-DEF-house and-Hashem

      kaan   ba-l-ħadiigah

     was.3SM   at-DEF-garden

Intended: ‘Balqees was painting at our house, and Hashem was doing so in the garden.’

(27)   a. Balqees tʃaan-it   tirsim   Sarah ʔalbaarhə   w-hashem

        Balqees   was-3SF   painting   Sarah yesterday   and-Hashem

         tʃaan   ʔawal   ʔalbaarhə

        was.3SM first   yesterday

‘Balqees was painting yesterday, and Hashem was doing so the day before yesterday.’

b. *Balqees tʃaan-it   tarsum   Sarah   ba-l-beet   w-hashem

   Balqees   was-3SF   painting   Sarah   at-DEF-house and-Hashem

   tʃaan   ba-l-ħadiigah

   was.3SM   at-DEF-garden

Intended: 'Balqees was painting at our house, and Hashem was doing so in the garden.'

It is patently clear that JA, NA, and IA all behave the same way with the respect to the position of locative and temporal adjuncts. Locative adjuncts are low elements adjoin VP, whilst temporal adjuncts are high elements adjoin TP. The question now is whether temporal locative inversion occurs also in these dialects. Data reveals that IA lines with JA in that temporal/locative inversion militates against the use of *ʔilli*, whereas NA behaves differently in that temporal/locative inversion results in sentence ungrammaticality (25 from NA; 26 from IA):

(28)   a. *man   *(ʔilli)   ʔams   ʔiχað-t   ʔal-mafatiiħ?

             who   Prt   yesterday   took-3SG.F   DEF-keys

          'Who took the keys yesterday?'

          b. miin   *(ʔilli)   bi-d-dukaanah   wigʕ-at?

             who   Prt   in-DEF-shop   fall down-3SG.F

          'Who fell down in the shop?'

(29)   a. menu   ʔil-baarha   ʔiχað-t   ʔal-mafatiiħ?

             who   yesterday   took-3SG.F   DEF-keys

          'Who took the keys yesterday?'

          b. menu   bi-d-dukaanah   wigʕ-at?

             Who   in-DEF-shop   fall down-3SG.F

'Who fell down in the shop?'

The examples in (28) demonstrate that the temporal inversion does not salvage question grammaticality in NA, hence the obligatory use of the whe word *ʔilli*. On the other hand, IA lines up with JA in that temporal inversion can fill Spec, SubjP. We are thus led to conclude that temporal/locative inversion is not always a legitimate strategy to fill Spec, SubjP in all Arabic dialects. NA does not avail itself of this strategy. Temporal/locative inversion is as such subject to micro-parametric inversion across Arabic dialects. This might be related to some restriction on the element occurring in Spec, SubjP in this dialect, which is lifted in the dialects allowing this inversion. It is the task of any future work addressing this point to reveal the exact nature of this restriction. This would essentially be a step closer to understanding subject extraction not only in Arabic proper but also in cross-linguistic syntax.

5   Conclusion

The aim of this research was twofold. First, it attempted to provide empirical evidence supporting the view that temporal adjuncts adjoin their clause in a position different than that of the locative adjunct. All facts from left-dislocation, coordination and ellipsis point to the conclusion that temporal adjuncts adjoin TP, whereas locatives adjoin VP. Such a difference between these two types of adjuncts with respect to base-generation accounts for their nuanced behaviour concerning filling Spec, SubjP. Given their high position, temporal adjuncts are accessible strategy to fill Spec, SubjP, regardless of verb transitivity. On the contrary, locatives adjuncts are limited to fill Spec, SubjP when the verb is intransitive as there is no phase boundary that prevents $Subj^0$ from attracting it, given the PIC. Second, this research explores examples from two Arabic dialects namely NA and IA to find out whether temporal/locative inversion is a strategy used across over other dialects. As NA does not patterns with JA and IA in using this strategy even though examination of relevant examples

from NA illustrates that both types of adjuncts behave the same way as in JA and IA, it turns out this temporal/locative inversion is subject to micro-parametric variation across Arabic dialects.

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