THE SYNTAX OF TEMPORAL ADVERBIAL CLAUSES IN NAJDI ARABIC

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Abstract

This research investigates the derivation of temporal adverbial clauses in Najdi Arabic (NA) with special reference to argument and adjunct fronting. It argues that NA exhibits the dichotomy between central adverbial clauses (CAC) and peripheral adverbial clauses (PAC) in the sense of Haegeman (2003, 2010). The adverbial clauses introduced by *gablla, gablma* 'before', and *baʕdma* 'after' are CAC, whereas the adverbial clauses introduced by *yoom* and *lamma* 'when' are PAC. Both negation and epistemic modality are used as diagnostics of bearing out this assumption. Additionally, the current paper argues that CAC has a truncated left periphery in that no Force Phrase, Topic Phrase, nor Focus Phrase are projected. It is impossible for arguments and adjuncts thus to be fronted in such clauses since there are no dedicated projections for them. The current research advocates for the truncation approach, instead of the operator movement approach, to account for the reason why arguments and adjuncts resist fronting. Unlike CAC, PAC in NA has a fully-articulated CP where both argument and adjuncts can be displaced to the left periphery without imposing any restriction.

1   Introduction and study aims

Much recent work in cross-linguistic syntax has addressed syntax of adverbial clauses (Hengeveld 1996, Haegeman 2003, 2006, 2010, and Lahousse *et al*., 2014). The main reason for this cross-linguistic investigation of such clauses has been ascribed to the assumption that certain types of adverbial clauses resist argument fronting, hence the possibility that these types of adverbial clauses exhibit reduced left periphery (Danckaert 2011). For instance, while arguments, e.g. the direct object, cannot be topicalized in certain English adverbial clauses, these arguments can be fronted in Romance languages such as Italian and French. In addition, asymmetry between arguments and adjuncts is held with regard to fronting in adverbial clauses (Haegeman 2010: 632). Unlike the case in the matrix clauses, arguments and adjuncts do not behave similarly concerning fronting in adverbial clauses. These observations have attracted much attention from scholars, arguing for the notion that the left periphery of some types of adverbial clauses is different from that of the root clauses (see, Demirdache and Uribe-Etxebarria 2004, Nilsen 2004, and Munaro 2005).

On the other hand, less agreement has been gained on the actual structure of adverbial clauses in natural languages, which are, in turn, different in placing certain restrictions on argument and/or adjunct fronting within adverbial clauses (Haegeman 2010). Several calls have reportedly been made for a wider cross-linguistic investigation in order to determine the syntax of adverbial clauses (cf. Cinque 2004, Frey 2012, and Endo & Haegeman 2014, among others). Along these lines, the current research looks into the syntax of adverbial clauses in one Arabic dialect, Najdi Arabic (henceforth, NA), which has never been investigated in respect of this particular point.[1] Generally speaking, the main aim of the current research is twofold. Firstly, it provides a full description of one type of adverbial clauses, namely the temporal adverbial clauses, in terms of their distribution and external syntax. Secondly, it attempts to account for the internal syntax of such clauses with emphasis placed on the issues related to their left periphery. To achieve these aims, the main assumptions of the Minimalist Program (Chomsky 1993, 1995, 2000, 2001) will be used.

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[1] NA is spoken in Najd region, a part of what is today known as 'Kingdom of Saudi Arabic' (Ingham 1994).

2   The structure of temporal adverbial clauses in NA:

Temporal adverbial clauses must begin with a subordinator. Table 1 shows the subordinators introducing the temporal adverbial clause in NA:

Table 1: The subordinators introducing the temporal adverbial clause in NA

The subordinator	The meaning
yoom	when
lam-ma	when
gabl-la	before
gabl-ma	before
baʕd-ma	after

As can be seen from Table 1, all subordinators with the exclusion of *yoom* 'when' consist of two parts. It should be stressed that nothing can intervene between the two parts of the compound subordinators whatsoever. See the following sentences where the temporal adverbial clauses are bracketed (S= subject; O= object):

(1) a. *[**gabl**   Fahd (S)   **ma**   yswe   al-ʕamliah
    before   Fahd   Particle   do.3SM.PRES   DEF-operation
    bi-l-mistaʃfa]   ʔaxδ   al-ʕladʒ
    in-DEF-hospital   take.3SM.PAST   DEF-medicine
    Intended: 'Before Fahd had the operation in the hospital, he had taken the medicine.'

b. *[**gabl**   al-ʕamliah(O)   **ma**   yswe   Fahd
   before   DEF-operation   Particle   do.3SM.PRES Fahd
   bi-l-mistaʃfa]   ʔaxδ   al-ʕladʒ
   in-DEF-hospital   take.3SM.PAST   DEF-medicine
   Intended: 'Before Fahd had the operation in the hospital, he had taken the medicine.'

c. *[**gabl**   bi-l-mistaʃfa (Adjunct)   **ma**   yswe
    before   in-DEF- hospital   Particle   do.3SM.PRES
    Fahd   al-ʕamliah]   ʔaxδ   al-ʕladʒ
    Fahd   DEF-operation   take.3SM.PAST   DEF-medicine
    Intended: 'Before Fahd had the operation in the hospital, he took the medicine.'

The same observation holds true of the other three compound subordinators *gabl-la* 'before', *lam-ma* 'when', and *baʕd-ma* 'after'. Furthermore, the subordinator must appear at the beginning of the adverbial clauses. No elements are permitted to appear to the left of the temporal subordinator.

Certain restrictions are placed on the word order utilized in the adverbial clause when the subordinators *gabl-la*, *gabl-ma* 'before', and *baʕd-ma* 'after' are used, whereas no such restrictions are noticed when *yoom* 'when' and *lamma* 'when' are used. When *gabl-la*, *gabl-ma* 'before', and *baʕd-ma* 'after' are used as subordinators, VS(O) is invariably used; SV(O) is ungrammatical. Consider the following sentences:

(2) a. Fahd   ʔaxð   al-ʕladʒ   [gablma
      Fahd   take.3SM.PAST   DEF-medicine   before
       yidʒi   (V)   ad-doctoor (S)]
       come.3SM.PRES   DEF-doctor
       'Fahd had taken the medicine before the doctor came.'

   b. *Fahd   ʔaxð   al-ʕladʒ   [gablma
      Fahd   take.3SM.PAST   DEF-medicine   before
       ʔad-doctoor (S)   yidʒi   (V)]
       DEF-doctor   come.3SM.PRES
      Intended: 'Fahd had taken the medicine before the doctor came.'

In sentence (2a), VS is the word order in the bracketed adverbial clause. In sentence (2b), SV is used instead; hence its ungrammaticality. The same observation holds of *gabl-la* 'before' and *baʕd-ma* 'after'. Consider the contrasts in the following sentences:

(3) a. Fahd   ʔaxð   al-ʕladʒ   [gablla
      Fahd   take.3SM.PAST   DEF-medicine   before
       yidʒi (V)   ad-doctoor (S)]
       come.3SM.PRES   DEF-doctor
       'Fahd had taken the medicine before the doctor came.'

   b. *Fahd   ʔaxð   al-ʕladʒ   [gablla
       Fahd   take.3SM.PAST   DEF-medicine   before
       ʔad-doctoor (S)   yidʒi   (V)]
       DEF-doctor   come.3SM.PRES
       Intended: 'Fahd had taken the medicine before the doctor came.'

   c. [baʕdma   kala (V)   Fahd (S)   wadʒbah   bi-l-maṭʕam]
      After   eat.3SM.PAST Fahd   meal   in-DEF-restaurant
      raḥ   li-l-mistaʃfa
      go.3SM.PAST   to-DEF-hospital
      'After Fahd had eaten a meal in the restaurant, he went to the hospital.'

   d. *[baʕdma   Fahd (S)   kala (V)   wadʒbah   bi-l-maṭʕam]
      After   Fahd   eat.3SM.PAST meal   in-DEF-restaurant
      raḥ   li- l-mistaʃfa
      go.3SM.PAST   to-DEF- hospital
      Intended: 'After Fahd had eaten a meal in the restaurant, he went to the hospital.'

In addition, other marked word orders including OVS or OSV are also prohibited in temporal adverbial clauses introduced by *gablla*, *gablma* 'before', and *baʕdma* 'after', i.e., no object fronting is allowed. Consider the following sentences:

(4) a. *[gabl-ma/la   al-ʕamliah (O)   yswe-ha (V)   Fahd (S)
       before   DEF-operation   do.3SM.PRES-it   Fahd
       bi-l-mistaʃfa]   ʔaxð   al-ʕladʒ
       in-DEF-hospital   take.3SM.PAST   DEF-medicine
       Intended: 'Before Fahd had the operation in the hospital, he had taken the
            medicine.'

b. *[baʕdma   al-ʕamliah (O)   sawa-ha (V)   Fahd (S) bi-l-mistaʃfa]
     After   DEF-operation do.3SM.PAST-it   Fahd   in-DEF-hospital
     ʔaxð   al-ʕladʒ
     take.3SM.PAST   DEF-medicine
     Intended: 'After Fahd had had the operation in the hospital, he took the
        medicine.'

This restriction on the position that the direct object can occupy indicates strongly the assumption that with such subordinators, the direct object cannot be fronted. Similarly, no adjunct fronting is allowed either. Summing up, neither arguments nor adjuncts can be fronted in the temporal adverbial clauses introduced by *gablla, gablma* 'before', and *baʕdma* 'after', and VS(O) is invariably used in such clauses. These observations will be accounted for below, arguing that the temporal adverbial clauses introduced by *gablla, gablma* 'before', and *baʕdma* 'after' have their left periphery truncated.

On the other hand, no such restrictions are placed when the subordinators used are *yoom* and *lamma* 'when'. Both unmarked word orders SVO and VSO are freely used. Also, other marked orders (e.g., OVS) can be used. Consider the following sentences for *yoom* 'when':

(5) a. [yoom   yʃtiri (V)   Fahd (S)   as-sayarah (O) min   al-ma ʕra ḍ]
       when   buy.3SM.PRES Fahd   DEF-car   from   DEF-car show
       kant   dʒadi:dah
       be.3SF.PAST   new
       'When Fahd bought the car from the car show, it was new.'

   B. [yoom   Fahd (S) yʃtiri (V)   as-sayarah (O) min   al-ma ʕra ḍ]
       when   Fahd   buy.3SM.PRES   DEF-car   from   DEF-car show
       kant   dʒadi:dah
       be.3SF.PAST   new
       'When Fahd bought the car from the car show, it was new.'

   c. [yoom   as-sayrah (O) yʃtiri-ha (V)   Fahd (S) min   al-maʕraḍ]
       when DEF-car   buy.3SM.PRES-it Fahd   from   DEF-car show
       kant   dʒadi:dah
       be.3SF.PAST   new
       'When Fahd bought the car from the car show, it was new.'

VSO, SVO, and OVS are all accepted, regardless of the interpretive differences between them. By the same token, adjunct fronting is allowed with these two subordinators. Consider the following sentences (fronted adjuncts are in italics for ease of explanation):

(6) a. [yoom   *min   al-maʕraḍ*   yʃtiri (V)   Fahd (S)   as-sayarah (O)]
       when   from   DEF-car show buy.3SM.PRES Fahd   DEF-car
        kant   dʒadi:dah
        be.3SF.PAST   new
        'When Fahd bought the car from the car show, it was new.'

b. [lamma   *bi-l-mazraʕah*   katb (V)   Fahd (S)   al-qaṣi:dah (O)]
   when   in-DEF-farm   write.3SM.PAST   Fahd   DEF-poem
   ʕrsal-ha   li:
   send.3SM.PAST-it   to me
   'When Fahd wrote a poem in the farm, he sent it to me.'

Following this, we are inevitably led to the conclusion that unlike the temporal adverbial clauses introduced by *gablla, gablma* 'before', and *baʕdma* 'after', the temporal adverbial clauses introduced by *yoom* and *lamma* 'when' permit both adjunct and argument fronting. These differences can be represented in Table 2:

Table 2: differences between adverbial clauses

Adverbial clauses introduced by:	SVO	VSO	Argument fronting (e.g. OVS)	Adjunct fronting
gablla, gablma baʕdma	NO	YES	NO	NO
yoom lamma	YES	YES	YES	YES

The current study aims primarily at providing an account of these differences within the recent relevant syntactic approaches. Prior working out these questions in detail, it is important to introduce the major assumptions held of adverbial clauses and sketching out the main proposals suggested for these clauses in cross-linguistic syntax, namely: the truncation approach and the operator movement approach.

3   Peripheral versus central adverbial clauses

In her extensive study of adverbial clauses, Haegeman (2002) distinguishes between two types of adverbial clauses, namely: central adverbial clauses and peripheral adverbial clauses. In addition to their differences with regard to the degree of syntactic integration with the matrix clause they are associated with, both types are assumed to be different in terms of their internal syntax. In the following discussion, these differences: the degree of integration as well as the internal syntax will be explored.

3.1   External syntax: degrees of integration

For Haegeman (2002, 2003), adverbial clauses differ with regard to their integration with the associated clause (i.e., matrix clause). She observes that certain adverbial clauses are more syntactically integrated with the associated clauses than other adverbial clauses. She claims that this difference in syntactic integration with the associated clauses affects their external syntax, in that those adverbial clauses with more syntactic integration are assumed to be merged with the matrix clause at an earlier point in the derivation than those with less syntactic integration with the associated clause (Haegeman 2003: 71). Haegeman calls the former type of adverbial clauses, with more syntactic integration with the associated clause, 'Central Adverbial Clauses (henceforth, CAC)', whilst the latter, with less syntactic integration with the associated clause, are 'the Peripheral Adverbial Clauses' (henceforth, PAC).

Accordingly, CACs and PACs are different in terms of their (semantic) interpretation and relation with the event of the matrix clause. For Haegeman (2002) and depending on English data, the CACs main semantic function is to structure the event, which is expressed in the associated clause, whereas the PACs main function is to structure the discourse. PACs express propositions, which are to be processed as part of the discourse background for the

proposition, which is expressed in the associated clause. In order to appreciate this point, consider the following examples in (7a) and (7b) (both adapted from Haegeman 2002: 62):

(7) a. According to Smith, a group of Arkansas state troopers who worked for Clinton **while** he was a governor wanted to go public with tales of Clinton's womanising. (event time: 'during the time that')

b. **While** [Dr Williams'] support for women priests and gay partnerships might label him as liberal, this would be a misleading way of depicting his uncompromisingly orthodox espousal of Christian belief. (background assumption: 'whereas',)

In (7a), the adverbial clause introduced by *while* provides a temporal specification of the event, whereas in (7b) the adverbial clause introduced by *while* provides a background proposition which, combined with the proposition expressed by the associated clause, will yield contextual implications. In order to confirm this dichotomy between CAC and PAC with respect to the degree of their syntactic integration with the associated clause, many pieces of evidence have been adduced in the literature, including coordination of likes, scope phenomena, VP ellipsis and strict/sloppy identity.

3.1.1   Co-ordination of likes

Co-ordination of likes has been taken as hard evidence for the distinction between CAC and PAC, given the typical assumption that only adverbial clauses with parallel interpretations can be coordinated. Haegeman (2002) provides the following sentences in (8a) and (8b) to account for the difference in interpretation between CAC and PAC, bearing in mind that CAC is assumed to be event-related, whilst PAC to be discourse-related (Haegeman 2002; 2003): (adapted from Haegeman 2002: 63):

(8) a. The party is also in danger of alienating older people above the poverty line, Mr Cable argues. 'Both these groups will swing to the Conservatives **if** the Tories are smart enough and **if** we have nothing much to offer them.'

b. But **if** Sir Richard has been tainted by the affair, and **if** Mr Sixsmith's role may not have been as entirely well intentioned as he claims, the individual most damaged by the row remains Stephen Byers.

In (8a), both conditional clauses have the same event-related interpretation, whereas adverbial conditionals in (8b) have the same discourse-related interpretation, which is seen as peripheral to the main event in the associated clause.

3.1.2   Scope phenomena

Haegeman (2002) argues that scopal properties can distinguish between CAC and PAC. The main argument maintained is that CAC can be interpreted within the scope of operators in the associated clause. By contrast, PAC is outside the scope of the operators in the associated clause. This scopal difference can be illustrated in a number of different ways, such as negation and focus.

3.1.2.1   Negation

Similarly, matrix clause negation has scope over CACs rather than PACs which cannot fall within the scope of a negative operator in the associated clause. Consider the contrast in (9):

(9) a. He doesn't drink while he is driving.
   b. He never drinks while he is driving.
   c. My husband doesn't smoke cigarettes, while he does occasionally smoke a cigar.

In (9a) and (9b), the negation can be said to range over the whole complex event: 'he does not drink-drive', while in (9c) the two propositions (of the matrix clause and of the PAC) are interpreted in parallel, hence only one of them is negated (Haegeman 2002: 66).

3.1.2.2 Focus

A focus operator in the matrix clause may range over CAC (as in 10a) but cannot do so over PAC as in (10b). (Haegeman 2002: 68):

(10)   a. It was after I left that I realised he was my former teacher.
        b. *It was while my mother was a housewife that my father used to work in a
           brickyard.

In (10a), clefting, as one manifestation of focus, holds grammatical in the sentence with CAC but proves ungrammatical in sentence (10b) with PAC being located outside the scope of the focus operator of the matrix clause.[2]

3.1.2.3 *VP ellipsis and strict/sloppy identity*

Haegeman (2002) indicates that CAC and PAC are also different with regard to VP ellipsis. CAC may be affected by VP-ellipsis. When CAC contains a pronoun, VP-ellipsis may lead to the so-called sloppy identity reading. Consider sentence (11) and its two readings in (12) (adapted from Haegeman 2002: 69):

(11)   John$_i$ will leave the meeting before his$_i$ paper is discussed and so will Bill.

(12)   a. Bill will also leave the meeting before John$_i$'s paper is discussed.
        b. Bill$_j$ will also leave the meeting before Bill's$_j$ paper is discussed.

The conjunct *so will Bill* can be interpreted as in (12a) or as in (12b), which signals the sloppy identity reading. On the other hand, the PAC is not affected by VP-ellipsis and VP-ellipsis does not lead to sloppy readings. The sentence in (13) has only one reading in (14):

(13)   While his$_i$ wife is unemployed, John$_i$ has a high-powered job in the city and so
        does James$_j$.

(14)   James$_j$ also has a high powered job in the city.

Commenting on the sentence in (13), Haegeman (2002: 70) states that 'there is no way in which one will assign a sloppy identity interpretation to the pronoun *his* assuming that James's wife is also unemployed'. For her, the blocking of VP-ellipsis in the PAC is qualified as evidence that PACs are attached outside the VP of the associated clause; hence, VP-ellipsis cannot affect the adverbial clause.

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[2] Additionally, it was noted that interrogative operators in the matrix clause range over the CAC but cannot do so over PAC (Haegeman 2002, 2003).

3.1.3   Conclusion

The whole discussion in this section shows clearly that a distinction between CACs and PACs must be made. Unlike PACs, CACs are much more syntactically integrated with the associated clause. This integration renders CACs local and positioned within the scope of (the operators in) the associated clause. Accordingly, CACs are assumed to merge with the matrix clause at an earlier point in the derivation than PACs. The former is adjoined to VP/vP, while the latter is merged with a CP.

3.2   Internal syntax: root phenomena and main clause phenomena

It is well known that there exists a range of syntactic phenomena whose application is limited to root clauses as well as embedded clauses with root properties (Haegeman 2004: 158). For instance, Emonds (1970), Maki *et al* (1999), and Heycock (2006), among others, indicated that English topicalization is one of these phenomena, termed as 'root phenomena' (Emonds 1970, 2000) or 'main clause phenomena' (MCP) (Hooper and Thompson 1973). Haegeman (2002, 2003, 2004, 2009, and 2010) assumed that MCP is not available in CAC. She builds her argument on the fact that while argument fronting is available in root clauses and PACs, it is prohibited in CACs. Consider the contrast between the sentences in (15) with CACs and sentences in (16) with PACs (Haegeman 2002: 74):

(15)   a. *Before this book, Mary read, John had already read it.
          b. *Before my book, Mary bought, John had already bought yours.
          c. *If some of these precautions you take, you will pass the exam.

(16)   a. His face not many admired, while his character still fewer felt they could praise.
          b. [He had brought a number of records.] Although some of them I really enjoyed, others were note very inspiring.

In (15), *this book, my book,* and *some of these precautions* are all topicalized in the given CACs, hence the ungrammaticality of all sentences. However, topicalization does not incur sentence ungrammaticality when it occurs in PACs as clearly shown in sentences (16) where *his character* and *some of them* are topicalized, respectively. This contrast is also attested in some other languages, including Japanese (Heycock 2006) and Bulgarian (Krapova 2002).

          Following this line of reasoning, it has been advanced that CAC and PAC also differ in terms of their internal syntax. Such difference in the internal syntax of CAC and PAC can be illustrated by speaker-oriented epistemic modals and illocutionary Force (in addition to argument fronting) (Haegeman 2003).

3.2.1   The speaker-oriented epistemic modals

CACs are different from PACs in that the latter may contain expressions of epistemic modality, which is in principle speaker-related since it expresses the speaker's evaluation regarding the likelihood of event (as in 17a). However, such expressions cannot be contained within CACs (as in 17b). See the contrast: (Haegeman 2002: 71)

(17)   a. *Mary accepted the invitation without hesitation after John may have accepted it.
          b. The ferry will be fairly cheap, while/whereas the plane may/ will probably be too expensive.

3.2.2   Illocutionary force

Following Declerck and Reed (2001), Haegeman (2002 and 2003) stated that PACs have illocutionary force, whereas CACs do not have independent illocutionary potential, and they are hence integrated in the speech act conveyed by the associated clause. One piece of evidence for the availability of illocutionary force in the PACs and its absence in CACs comes mainly from the observation that PACs may and CACs may not have their own question tags associated with them (Haegeman 2003: 164). See the contrast in (18):

(18)
   a. Mary went back to college after/before her children had finished school, didn't she?
   b. *Mary went back to college after/before her children had finished school, hadn't they?

In (18aa) the tag *didn't she* is related to the matrix clause; a tag *hadn't they*, which would have to be related to the CAC, *after/before her children had finished school*, is not possible, hence the ungrammaticality of sentence (18b). PAP such as, a contrastive *while* clause, may have its own tag. Consider sentence (19) (Haegeman 2002: 73).

(19)   a. Bill took a degree at Oxford, didn't he, while his daughter is studying at UCL.
          b. Bill took a degree at Oxford, while his daughter is studying at UCL, isn't she?

Furthermore, it has been attested that PACs not CACs may also contain adjuncts pertaining to the speech act, such as *frankly*, as illustrated by the following example:

(20)   '[A referendum on a united Ireland]…will be a 'good thing, because **frankly** they need to be taken down a peg and come down to earth and be a little bit more sober in their approach to things.

Additionally, Verstraete (2002: 146) points out that some PACs may also have imperative force markers, while CACs may not. Consider the contrast in (21).

(21)   a. The fees should bring in more money, **because** *remember we are expecting a drop in the department funding*.
          b. *Mary should accept the invitation without hesitation **while** *remember we tell her the secret*.

     In conclusion, CACs and PACs are different with regard to their internal syntax. The former does not have independent illocutionary potential and is integrated in the speech act conveyed by the associated clause, while the latter does not. In order to account for the asymmetry between PACs and CACs in terms of argument fronting, epistemic modality, and illocutionary force, two main approaches have been proposed in the literature: the truncation approach and the operator movement approach. The main assumptions of these two assumptions altogether with their theoretical motivation are highlighted in the following section.

3.2.3   A syntactic account

As stated above, there are two approaches advanced in the literature attempting to account for the asymmetries between arguments vs. adjunct fronting. These two approaches are the truncation approach and the operator movement approach.

3.2.4   The truncation approach

In this proposal, the reason why no fronting is permitted in CAC is that fronting, e.g., topicalization, is related to assertive illocutionary force which is encoded by the functional head Force in the left periphery (Haegeman 2002). In CACs there is no any assertive illocutionary force. Such clauses are thus structurally deficient in the sense that their left periphery is reduced. They lack the functional projection 'Force' that encodes assertive illocutionary force. Due to this deficiency, Topic Phrase and Focus Phrase being dependent on Force Phrase are not projected either in CACs, and argument fronting is, consequently, ungrammatical (Haegeman 2003: 188). In other words, a constituent affected by a root transformation such as topicalization and focalization is moved to a particular domain within the peripheral part of a clause. A clause without such projections (e.g., CAC) cannot offer a landing site for a preposed constituent, and hence, blocks the relevant transformation (Haegeman 2003, 2006, Munaro 2005, Bocci 2007, Julien 2008, Nasu 2014).

This approach crucially assumes that there is a distinction between the head which encodes illocutionary force (i.e., ForceP) and the head which serves simply to subordinate a clause (i.e., to make it available for categorial selection independently of its force). (Haegeman 2003: 335). The ForceP (in the sense of Rizzi 1997) is split into two different projections: Sub (a place where the subordinator is positioned) and Force (encoding illocutionary force of the clause). In CACs, only Sub is available and Force and other projections depending on Force (i.e., Topic Phrase and Focus Phrase) are truncated, which prevents argument fronting. On the other hand, in PACs all projections in the left periphery (i.e, Sub, ForceP, TopP, and FocusP) are available for any fronting, resulting in no restrictions in argument and/or adjunct fronting. In such clauses, truncation is prohibited because PACs serve as a root clause having its own assertive illocutionary force. Consider Table 3 (adapted from Haegeman 2003: 335).

Table 3 left periphery of clauses

Clause Type	Projections available
Central adverbial	Sub>Fin
Peripheral adverbial	Sub>Force>Top>Focus>Top>Fin
Root clauses	Force>Top>Focus>Top>Fin

On the basis of Table 3, CACs, PACs, and root clauses differ with regard to the projections in their left periphery. This analysis makes available a straightforward account of the differences between the temporal adverbial clauses introduced by *gablla, gablma* 'before', and *baʕdma* 'after' are the temporal adverbial clauses introduced by *yoom* and *lamma* 'when', in that the former has a truncated left periphery exactly the same as CACs, whereas the latter do not, and so both adjunct and argument fronting are permitted, as will be explained later in section 5.

3.2.5   The operator movement approach

Under this approach, a subordinate clause resisting a root transformation (such as CAC) involves movement of an empty operator (Op) to its CP domain. As a result, this Op blocks any argument fronting because the relevant transformation is ruled out as a minimality violation (Haegeman 2007, 2010, and Haegeman & Ürögdi 2010). Following this approach, a central adverbial clause is derived by movement of Op to a clause-initial position. As a result, a topicalized argument landing in the peripheral position intervenes between the base positions and the surface positions of the moving operator, giving rise to a minimality violation (Haegeman 2010). Consider the following sentence and its schematic representation.

(22)   a. *John left when the office Sheila left.
         b. *John left [CP wheni the officej [IP Sheila left tj ti]]
                                      Ø

Here, the topicalized DP *the office* blocks Op movement. Haegeman (2010) argues that truncation of CACs' is a by-product of Op movement. On the other hand, PACs are not derived by Op movement; hence no restrictions are placed on the argument fronting. The main advantage of this approach over the truncation one is that the latter cannot account for adjunct fronting in CACs, if any, as in the example below (adapted from Haegeman 2009:5).

(23)   When last year she started to write this column, I thought she would be fine.

The argument is that since the left periphery of CACs is truncated, how the adjunct fronting can be accounted for, given the fact that in English and in some other languages, adjuncts can be fronted to the left periphery of CACs. However, based on data from NA, it appears that truncation approach is better than operator movement approach in accounting for the discrepancies between the temporal adverbial clauses introduced by *gabla, gablma* 'before', and *baʕdma* 'after' and the temporal adverbial clauses introduced by *yoom* and *lamma* 'when'. That is because both adjuncts and arguments are not allowed to show at the CP-domain of the former, the issue which we are out to argue for in the next section.

4   CAC-PAC dichotomy in NA

Having shown the two prominent approaches most adopted in the related literature in accounting for the inner structure of adverbial clauses, let us explore NA data. In subsection 5.1 the external syntax of NA temporal adverbial clauses is addressed, assuming that the division between PAC and CAC is present in NA. In subsection 5.2 the argument is extended to the internal structure of temporal adverbial clauses in NA, proposing that the truncation approach is the one, which is valid in accounting for NA data.

4.1   External syntax of temporal adverbial clauses in NA

Indeed, the discrepancy found between *gabla, gablma* 'before', and *baʕdma* 'after' on one hand, and *yoom* and *lamma* 'when' on the other provides us with a tangible clue that temporal adverbial clauses in NA are not the same. Applying some diagnostic tests attested in the literature for the dichotomy between CAC and PAC with respect to the degree of their syntactic integration with the associated clause, it turns out that the temporal adverbial clauses introduced by *gabla, gablma* 'before', and *baʕdma* 'after' are central, whereas the temporal adverbial clauses introduced by *yoom* and *lamma* 'when' are peripheral. Prior to applying some of these tests to corroborating this finding, it should be ascertained that the temporal adverbial clauses introduced by *gabla, gablma* 'before', and *baʕdma* 'after' are amenable to the generalization that CAC functions to structure the event which is expressed in the associated clauses, while the temporal adverbial clauses introduced by *yoom* and *lamma* 'when' function as a structuring-discourse device. Consider the following sentence:

(24)   Fahd   ʔaxð   al-ʕladʒ   [gablma   yidʒi
         Fahd   take.3SM.PAST   DEF-medicine   before   come.3SM.PRES
         ad-doctoor]
         DEF-doctor
         'Fahd had taken the medicine before the doctor came.'

The temporal adverbial clause introduced by *gablma* 'before' structures the event expressed in the matrix clause in that it indicates/entails that the event of the associated clause occurs prior to the event of the temporal adverbial clause. This temporal entailment is actually built in the meaning of the temporal subordinator *gablma* 'before'. In other words, the whole event of the entire sentence in (24) is divided into two temporal sub-events which are chronological in order. Using the temporal subordinator *gablma* 'before', the speaker is able to structure these two sub-events chronologically. The same logic is applied to *gablma* 'before' and *baʕdma* 'after' which exhibit the same structuring role except for the fact that the latter (i.e., *baʕdma* 'after') entails the reverse order between the sub-events of the entire sentence containing the adverbial clause introduced by *baʕdma* 'after'. See the following sentence:

(25)   [baʕdma   kala (V)   Fahd (S)   wadʒbah   bi-l-matʕam]
        After   eat.3SM.PAST   Fahd   meal   in-DEF-restaurant
        raḥ   li-l-mistaʃfa
        go.3SM.PAST   to-DEF-hospital
        'After Fahd had eaten a meal in the restaurant, he went to the hospital.'

In sentence (25), the speaker explicitly indicates that Fahd had eaten a meal before showing up to the hospital. The event of the adverbial temporal clause occurs before the event of the main clause. The role these adverbial temporal subordinators play in structuring the sub-events of the entire clause can be diagrammed as follows (>>>>>= preceding; <<<<<= following):

(26)   [*gablma*; *gablla* 'before']: Event of matrix clause >>>> Event of temporal
        clauses
[*baʕdma* 'after']:   Event of matrix clause <<<< Event of temporal clauses

On the other hand, this structuring role is not exhibited when *yoom* and *lamma* 'when' are used. Although these two subordinators are followed by some events, nothing in the sentence can entail whether the event of the matrix clause precedes or follows that of the adverbial temporal clause. In addition, the event of the adverbial temporal clause introduced by *yoom* 'when' or *lamma* 'when' is in principle intended to structure the discourse. The speaker using such adverbial temporal clauses attempts to provide some background related to the event introduced in the matrix clause. This background is discourse in nature since it might be the context, setting, or even the reason for the event of the matrix clause. Consider the following sentence:

(27)   [yoom yʃtiri   Fahd   as-sayarah   min   al-maʕraḍ]
        When   buy.3SM.PRES   Fahd   DEF-car   from   DEF-car show
        kant   dʒadi:dah
        be.S.PAST   new
        'When Fahd bought the car from the car show, it was new.'

Using the temporal subordinator, *yoom* 'when', the speaker introduces some discourse-related information about the new car. For example, the car was bought from the car show. Unlike the temporal clauses introduced by *gablla, gablma* 'before', and *baʕdma* 'after', the speaker does not want to determine the chronological relation between the sub-events of the entire clause. Rather, he/she introduces some discourse-related information about the car in that it was new when it was bought from the car show. The same reasoning holds of the adverbial temporal clauses introduced by *lamma* 'when'. Pertinently, in order to negate the temporal clauses introduced by *gablla, gablma* 'before', and *baʕdma* 'after', there is no way possible to negate

the adverbial clause *per se* but rather the only way permissible is to negate the event in the matrix clause. Consider the following sentences:

(28)   a. *Fahd   ʔaxð   al-ʕladʒ   [gablla
          Fahd   take.3SM.PAST   DEF-medicine   before
          ma   yidʒi   ad-doctoor]
          NEG   come.PRES   DEF-doctor
       Intended: 'Fahd had taken the medicine before the doctor did not come.'

       b. Fahd   ma-ʔaxð   al-ʕladʒ   [gablla
          Fahd   Neg-take.3SM.PAST   DEF-medicine   before
          ayidʒi   ad-doctoor]
          come.PRES   DEF-doctor
       'Fahd had not taken the medicine before the doctor came.'

As is clear from the ungrammaticality of sentence (28a), it is not possible to negate the adverbial temporal introduced by *gablla* 'before' since it should be contained within the scope of the matrix clause. Negating the adverbial temporal introduced by *gablla* 'before' renders the sentence anomaly with sharp ungrammaticality. The only way possible is to negate the content of the adverbial temporal clauses introduced by *gablma* 'before' is to negate the matrix clause whose scope is over the embedded adverbial clause, as in sentence (28b). The same conclusion can be drawn to *gablma* 'before' and *baʕdma* 'after' alike. Consider the following sentences:

(29)   a. *Fahd   ʔaxð   al-ʕladʒ   [gablma   ma
             Fahd   take.3SM.PAST   DEF-medicine before   NEG
             ayidʒi   ad-doctoor]
          come.PRES   DEF-doctor
          Intended: 'Fahd took the medicine before the doctor did not come.'

       b. Fahd   ma   ʔaxð   al-ʕladʒ   [gablma
          Fahd   Neg   take.3SM.PAST   DEF.medicine before
          ayidʒi   ad-doctoor]
          come.PRES   DEF-doctor
          'Fahd had not taken the medicine before the doctor came.'

       c. *Fahd   ʔaxð   al-ʕladʒ   [baʕdma
             Fahd   take.3SM.PAST   DEF-medicine   after
             ma   ayidʒi   ad-doctoor]
          NEG   come.PRES   DEF-doctor
          Intended: 'Fahd took the medicine after the doctor did not come.'

       d. Fahd   ma   ʔaxð   al-ʕladʒ   [baʕdma
          Fahd   Neg   take.3SM.PAST   DEF-medicine after
          ayidʒi   ad-doctoor]
          come.PRES   DEF-doctor
          'Fahd had not taken the medicine after the doctor came.'

However, the adverbial temporal clauses introduced by *yoom* and *lamma* 'when' can be negated on their own without the requirement of negating the matrix clause. Even if the matrix clauses

were negated, the negation does not have scope over the adverbial temporal clauses introduced by such subordinators. Consider the following sentences:

(30)   a. [yoom   ma   ʔʃtara   Fahd   as-sayarah
           when   NEG   buy.3SM.PAST   Fahd   DEF-car
           min   al-maʕraḍ]   radʒaʕit   ʔal-floos
           from   DEF-car show return.1S.PAST   DEF-money
           'When Fahd did not buy the car from the car show, I returned the money.'

        b. [yoom ʔʃtara   Fahd   as-sayarah
           when   buy.3SM.PAST   Fahd   DEF-car
           min   al-maʕraḍ]   ma   radʒaʕit   ʔal-floos
           from   DEF-car show   NEG   return.1S.PAST DEF-money
           'When Fahd bought the car from the car show, I did not return the money.'

As is evident in both (30a) and (30b), the adverbial clause fronted by *yoom* 'when' is not associated with the matrix clause. In (30a), the adverbial clause is negated, whilst the matrix is not. In (30b), the picture is to the reverse; the adverbial clause is declarative but the matrix is negated. Furthermore, in (30b) the adverbial clause does not fall within the scope of the negation as is clear from the translation, i.e., Fahd did actually buy the car from the car show although the speaker did not return the money. If the negation has a scope over the adverbial clause, it follows that Fahd did not buy the car from the car show, contrary to fact. The same observation is held if the adverbial clause is posited to the right of the matrix clause as in (31a) or the adverbial subordinator is replaced by *lamma* 'when' as in (31b,c).

(31)   a. radʒaʕit   ʔal-floos   [yoom ma   ʔʃtara   Fahd
           return.1S.PAST DEF-money   when   NEG   buy.3SM.PAST   Fahd
           as-sayarah   min al-maʕraḍ]
           DEF- car   from   DEF-car show
           'When Fahd did not buy the car from the car show, I returned the money.'

        b. [lamma   ma   ʔʃtara   Fahd   as-sayarah
           when   NEG   buy.3SM.PAST   Fahd   DEF-car
           min   al-maʕraḍ]   radʒaʕit   ʔal-floos
           from   DEF-car show   return.1S.PAST   DEF-money
           'When Fahd did not buy the car from the car show, I returned the money.'

        c. [lamma   ʔʃtara   Fahd   as-sayarah
           when   buy.3SM.PAST   Fahd   DEF- car
           min   al-maʕra ḍ]   ma   radʒaʕit   ʔal-floos
           from   DEF-car show   NEG   return.1S.PAST DEF-money
           'When Fahd bought the car from the car show, I did not return the money.'

Reasoning along these lines, I assume that the adverbial clauses introduced by *gablla, gablma* 'before', and *baʕdma* 'after' are much integrated with the associated matrix clause than the adverbial clauses introduced by *yoom* and *lamma* 'when'. An additional argument for the difference between adverbial temporal clauses in NA can be adduced in reference to the observation made by Haegeman (2002, and elsewhere) that the expressions of epistemic modality cannot be contained in CACs. If we apply this observation to temporal adverbial clauses in NA, it turns out that the adverbial clauses introduced by *gablla, gablma* 'before', and

baʕdma 'after' cannot contain epistemic expressions, whilst the adverbial clauses introduced by *yoom* and *lamma* 'when' allow such expressions. Witness the contrast in the following sentences (ESP= epistemic):

(32)   a. *Fahd ʔaxδ   al-ʕladʒ   [gablla/galma yimkin
           Fahd take.3SM.PAST   DEF-medicine before   ESP
           yidʒi   ad-doctoor]
           come.3SM.PRES   DEF-doctor
           Intended meaning: 'Fahd took the medicine before the doctor might come.'

       b. *Fahd   ʔaxδ   al-ʕladʒ   [baʕdma   yimkin
           Fahd   take.3SM.PAST   DEF-medicine after   ESP
           yidʒi   ad-doctoor]
            come.3SM.PRES   DEF-doctor
           Intended meaning: 'Fahd took the medicine after the doctor might come'

       c. [yoom/lamma   yimikin ʃaaf-u   ʔʃ-ʃurtˤah   as-sayarah
           when   EPS   see.3PM.PAST   DEF-police DEF-car
           bil-al-maʕraḍ]   ʔʃtareena   sayarah   θanjjeh
           in-DEF-car show   buy.1P.PAST   car   second
           'When police might have seen the car in the car show, we bought another car.'

The ungrammaticality of sentences (32a) and (32b) is facia prima evidence for the fact that the adverbial clauses introduced by *gablla, gablma* 'before', and *baʕdma* 'after' are quite different from the adverbial clauses introduced by *yoom* and *lamma* 'when'. Additionally, this discrepancy signals the differences in their syntactic structure in that the former does not possess a projection dedicated to epistemic modality while the latter does. What is important to emphasise here is the assumption that the former adverbial clauses are not speaker-oriented given the fact that epistemic modality is only permitted in clauses with speaker's orientation (as explained in the previous section).

        Additionally, there is no way possible to coordinate adverbial clauses introduced with either *gablla, gablma* 'before', and *baʕdma* 'after' with those introduced by *yoom* and *lamma* 'when'. The only way possible as far as coordination of adverbial clauses is combine an adverbial clause introduced by *gablla* 'before' with one introduced by *gablma* 'before' or *baʕdma* 'after' and vice versa. The same thing is extended to adverbial clauses introduced by *yoom* and *lamma* 'when' which can be combined with one another. These observations are compelling evidence for the assumption that the adverbial clauses introduced by *gablla, gablma* 'before', and *baʕdma* 'after' are CACs, whilst the adverbial clauses introduced by *yoom* and *lamma* 'when' are PACs. In this connection, following the related literature (e.g., Haegeman 2002; 2003), I propose that the former type of adverbial temporal clause functions as an adjunct to the vP phrase, whereas the latter type enters the derivation as an adjunct to the TP or CP. This assumption is supported by the fact the adverbial clauses introduced by *gablla, gablma* 'before', and *baʕdma* 'after' are much integrated with the associate clause more than the adverbial clauses introduced by introduced by *yoom* and *lamma* 'when'.
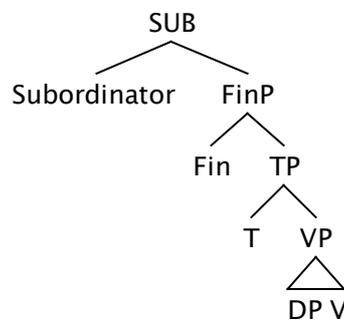
        Having argued for the existence of the dichotomy between CAC and PAC in NA, let us now examine why the truncation approach has priority over the operator movement approach in accounting for the derivation of temporal adverbial clauses in NA.

4.2   Internal syntax of temporal adverbial clauses in NA

In this section, we argue for the contention that the derivation of the temporal clauses in NA fares better within the truncation approach. As clearly explained above, within the operator movement approach, arguments are blocked from fronting to the left periphery of adverbial clauses not because there is no dedicated positions for them but rather because their movement incurs locality violations. However, such a disruption (or locality violation) is not triggered in case of adjunct movement. This being so, we argue that the operator movement approach is not borne out in accounting for the ban in displacement to the left periphery in NA. That is because simply both arguments and adjuncts are disallowed to be fronted. If we adopt the operator movement approach, we are left with no options to account for the ban on adjunct fronting. One possibility is to propose that adjunct fronting also triggers intervention effects. However, this assumption is not supported by either theoretical or empirical considerations in cross-linguistic syntax. Much literature attests that adjuncts movement is subject to different principles as compared to argument movement, the same argument that has been taken as a conceptual and empirical ground for the operator movement approach (cf. Danckaert 2012, De Cat 2012, Yoshimoto 2012, and Authier & Haegeman 2015).

The ban on argument and adjunct fronting in adverbial clauses in NA is best analysed with reference to the assumption that no dedicated projections for these items are available in the left periphery of CAC. In line with this assumption, no Force Phrase is projected in NA CACs. This assumption can be in part supported by the fact that no speaker's oriented expressions are permitted in such clauses. The lack of Force Phrase impinges on the existence of Topic Phrase and Focus Phrase. Since there is no movement whatsoever to the left periphery of the CAC in NA, it follows directly that these two projections which are discourse-directed are not available, the assumption which accounts for the ban on argument and adjunct fronting in NA CAC. Accordingly, CACs derivation in NA is schematically presented as follows:

(33)

```
                        SUB
                       /    \
              Subordinator   FinP
                             /  \
                           Fin   TP
                                /  \
                               T    VP
                                    /\
                                  DP  V
```

Applying this derivation to all examples where the adverbial clauses in NA introduced by *gablla, gablma* 'before', and *baʕdma* 'after', we end up with an account for the ban on argument and adjunct fronting. For instance, the derivation of the temporal adverbial clause in the ungrammatical sentence below is schematically represented in (35):

(34)   *[gablma   al-ʕamliah   yswe-ha   Fahd   bi-l-mistaʃfa]
       Before   DEF-operation   do.3SM.PRES-it   Fahd   in-DEF-hospital
       ʔaxð   al-ʕladʒ
         take.3SM.PAST   DEF-medicine
       'Before Fahd had the operation in the hospital, he had taken the medicine.'

(35)
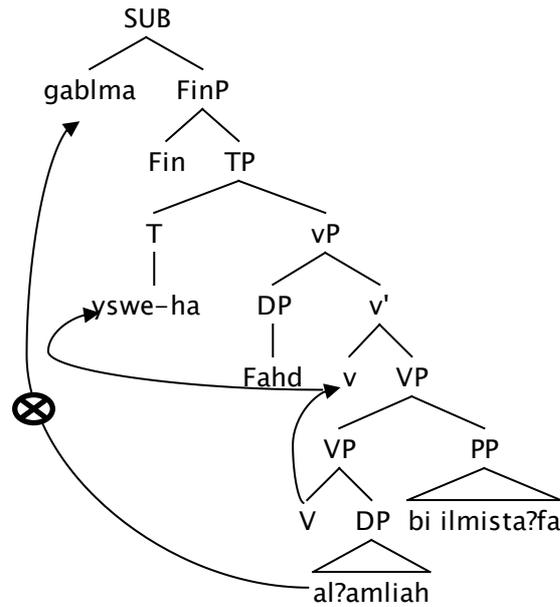
It is impossible to move the direct object to the left periphery of NA CAC since there is no any dedicated position in the left periphery in which the displaced DP can be accommodated in. Additionally, the adjunct movement is also non-permitted for the same reason. Consider the following ungrammatical sentence with its derivation.

(36)   *[gablma   bi-l-mistaʃfa   yswe-ha   Fahd   al-ʕamliah]
         Before   in-DEF- hospital   do.3SM.PRES-it Fahd   DEF-operation
         ʔaxδ   al-ʕladʒ
         take.3SM.PAST   DEF-medicine
         'Before Fahd had the operation in the hospital, he had taken the medicine.'

(37)
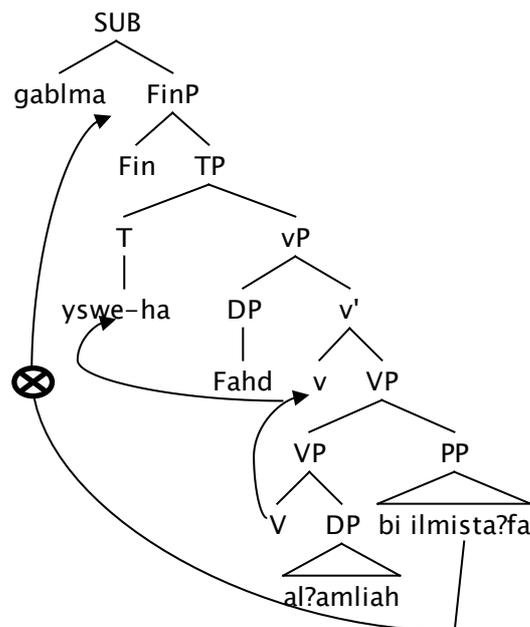
The same reasoning extends to other adverbial clauses introduced by *gablla* 'before' and *baʕdma* 'after'. Under this approach, there is no need to assume that subordinators are moved

from downwards but instead they are externally merged in Sub position dedicated to them. This stipulation on their first merge of Sub goes hand in hand with the minimalist spirit on movement which is only triggered when needed. However, even if CACs are derived in NA via operator movement, the ban on adjunct and agreement fronting is only ascribed to the deficiency of the left periphery of such clauses.

What is worth mentioning at this point is the observation that in NA CAC, the subject is also unpermitted to move to Spec TP:

(38)
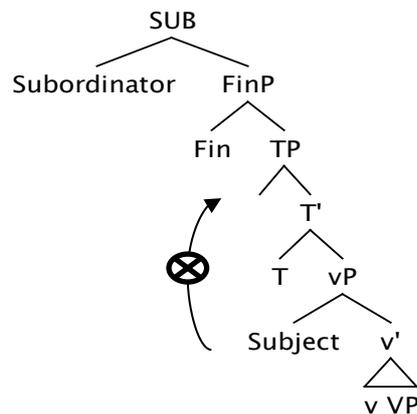
As indicated above, the only word order allowed in adverbial clauses introduced by *gablla, gablma* 'before', and *baʕdma* 'after' is VS. The possibility that the verb moves to Focusº or even Topicº should be dispensed with, given first that there is no any discourse-related reading obtained for the verb and second following our line of investigating Focus Phrase or Topic Phrase are not projected. The apparent conclusion is that the subject remains *in situ* in NA CAC. This can be accounted for in assuming that the Spec of TP in NA CAC is also unavailable. Non-availability of Spec of TP might be related to the lack of EPP in such clauses. In addition to the fact that the thematic subject must show up to the right of the verb, no expletive element is allowed to occur in such clauses. A different view that we can make is that the truncation of the CP has a negative consequence on the EPP in that it is not triggered; however, I leave this issue open pending further research.

On the other hand, the adverbial clauses introduced by *yoom* and *lamma* 'when' have a full-fledged CP so both argument and adjuncts can be fronted. In addition, since the Force Phrase is present in these clauses, speaker's oriented expressions are valid. Furthermore, CP being non-truncated and can be split when needed, no consequences on EPP are made, hence both VSO and SVO are permitted in neutral-discourse occasions. In relation to this, the sentence below where the direct object is fronted has the schematically representation in (40):

(39) [yoom as-sayrah (O) yʃtiri-ha (V)   Fahd (S) min   al-maʕraḍ]
      When   DEF-car   buy.3SM.PRES-it   Fahd   from DEF-car show
      kant   dʒadi:dah
      be.S.PAST   new
      'When Fahd bought the car from the car show, it was new.'

(40)

```
                    SUB
                   /    \
              yoom      TopP
                       /    \
                assayrah    Top'
                            /    \
                          Top    FinP
                                /    \
                              Fin    TP
                                    /   \
                               y?tiriha  vP
                                        /   \
                                      DP    v'
                                      |    /  \
                                    Fahd  v    VP
                                             /    \
                                           VP     PP
                                          /  \
                                        V   DP   min al-ma?ra?
```
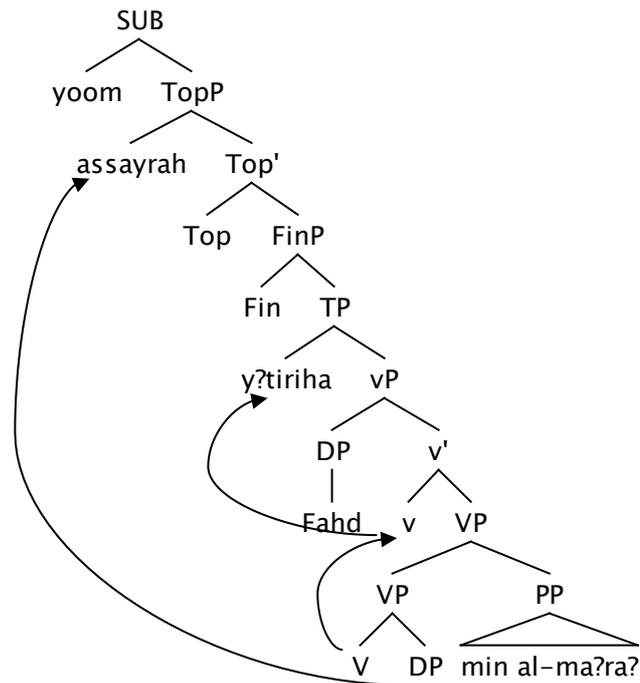
In addition, in these clauses the subject can appear to the left of the verb, occupying Spec of TP.

5   Conclusion

This research tackled the derivation of temporal adverbial clauses in NA with special reference to argument and adjunct fronting. Firstly, it concluded that NA exhibits the dichotomy between CAC and PAC like other languages such as English and Italian. In particular, it argued for the notion that the CAC is much integrated within the syntax of the associated matrix clauses, the issue that has certain consequences in their interpretation. On the other hand, NA PAC, as it has been confirmed in cross-linguistic syntax, is less integrated with a unique interpretation and scope. Both negation and epistemic modality were taken as diagnostics of bearing out this assumption. The adverbial clauses introduced by *gablla, gablma* 'before', and *baʕdma* 'after' are CAC whereas the adverbial clauses, introduced by *yoom* and *lamma* 'when' are PAC. As for the internal syntax of adverbial clauses in NA, it has been advanced that CAC has a truncated left periphery in that no Force Phrase, Topic Phrase, nor Focus Phrase are projected. The left periphery of such clauses contains only Sub position where the subordinators are situated alongside Fin Phrase. The poverty of the discourse/speaker-related projections in NA CACs precludes the use of epistemic modality. In a related vein, the deficiency of the CP of such clauses makes it impossible for arguments and adjuncts alike to be fronted since there are no dedicated projection for them. Thus, the current research does away with the operator movement approach and adopts instead the truncation approach to account for the reason why arguments and adjuncts resist fronting. Unlike CAC, NA PAC has a fully-articulated CP where both argument and adjuncts can be displaced to the left periphery without imposing any restriction, a result which on its own corroborates our main finding that operator movement approach is not valid at least with regard to NA.

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