

# Chapter 34

## LFG and Semitic languages

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This chapter surveys the work in LFG on the Semitic languages of Arabic, Hebrew and Maltese. The overview is structured around a number of themes and topics where there is LFG work on one or more of the Semitic languages. Successive sections look at basic clause structure, verbal complementation (including temporal and aspectual auxiliaries, phasal verbs, and perceptual report verbs), copula constructions, construct state nominals, mixed categories, negation and unbounded dependency constructions.

### 1 Introduction

The Semitic languages are part of the Afro-Asiatic family and the genus includes Arabic, Amharic, Tigrinya, Hebrew, Tigré, Maltese, Mehri and Jibbali *inter alia*. Of these, Arabic (including its many modern vernaculars, and the codified, formal variety Modern Standard Arabic (MSA)) is spoken over a very extensive geographical area with in the order of 250–300 million native language speakers, while Amharic, Tigrinya, Hebrew and Tigré all have numbers of speakers in excess of 1 million. Most work in LFG on this family is on (Modern) Hebrew, Arabic (Modern Standard (MSA) and the modern vernaculars) and Maltese (a mixed language with a Maghrebi/Siculo-Arabic stratum). Kifle (2007) and Kifle (2011) are concerned respectively with differential object marking and the applicative construction in Tigrinya, a Semitic language of Eritrea and Ethiopia; see Bodomo & Che 2023 [this volume] for further discussion of Tigrinya.<sup>1</sup>

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<sup>1</sup>Example sentences in this chapter have been taken from a number of different sources. In each case, the examples are given using the author's own transcription, with the exception of long vowels, where the notation has been standardised. On the other hand, some standardisation of glossing has been adopted to increase transparency.



## 2 Basic clause structure

Word order is relatively free in Arabic: there are two basic word orders generally claimed for MSA (svo and vso), while svo structures predominate in the spoken vernaculars. Beyond LFG, a considerable literature has addressed the question of whether the preverbal position in svo structures is a genuine subject position or alternatively a dislocated or topicalised position, in particular in connection with MSA which exhibits full agreement in the svo order and partial agreement in the vso order. While none of the LFG work on Arabic has a primary focus on matters of constituent structure (unlike quite a considerable volume of the theoretical work in other frameworks), basic clause structure for Arabic is covered to some extent in the theses by Alsharif (2014) (MSA), Alotaibi (2014) (Hijazi), ElSadek (2016) (Egyptian), Alruwaili (2019) (Turaif) and Camilleri (2016) (Maltese). This work generally reflects the view that Arabic has two structural subject positions, [Spec, IP] and a lower position, and places the tensed verb in I.

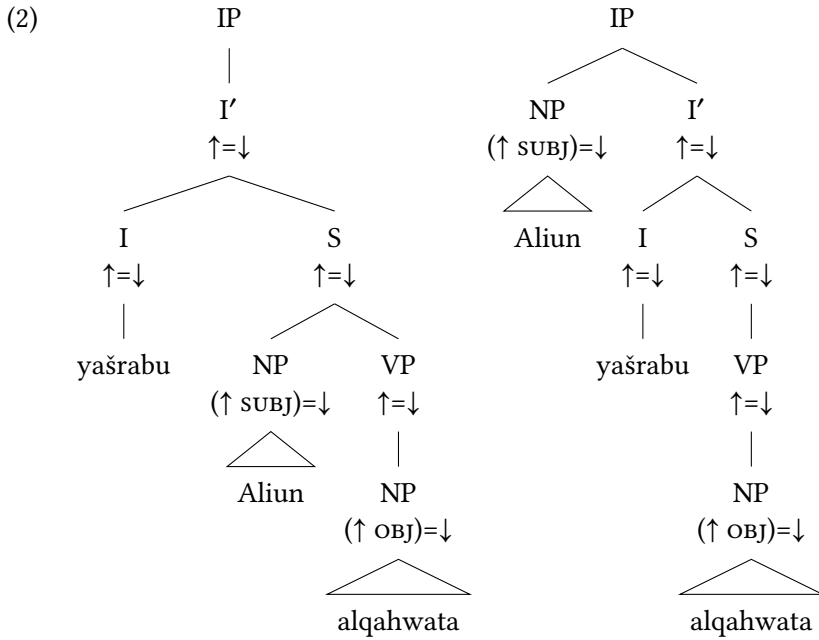
Alsharif (2014) adopts an I+S (subject-predicate) analysis for the two basic word orders of MSA, in which the subject appears in a different position in each word order, as shown in (2) (Alsharif 2014: 49–50),<sup>2</sup> and a similar position is adopted for vso and svo structures in Hijazi Arabic in Alotaibi (2014).

(1) MSA (Alsharif 2014: 49;50)

- a. ya-šrab-u                      Ali-un    al-qahwat-a  
      3M-drink.IPFV-SG.IND Ali-NOM DEF-coffee-ACC  
      ‘Ali drinks the coffee.’
- b. Ali-un    ya-šrab-u                      al-qahwat-a  
      Ali-NOM 3M-drink.IPFV-SG.IND DEF-coffee-ACC  
      ‘Ali drinks the coffee.’

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<sup>2</sup> Alsharif (2014) claims that for MSA the subject in Spec of IP is associated with additional pragmatic information, but this is not explored further. The agreement asymmetry between SVO and VSO structures in MSA where we find full agreement in SVO structures and partial agreement (person and gender) in VSO structures is not discussed but see Fassi Fehri (1988) for an early discussion of this issue. Many vernacular varieties lack this agreement asymmetry, but this is not the place to discuss this somewhat complex issue.

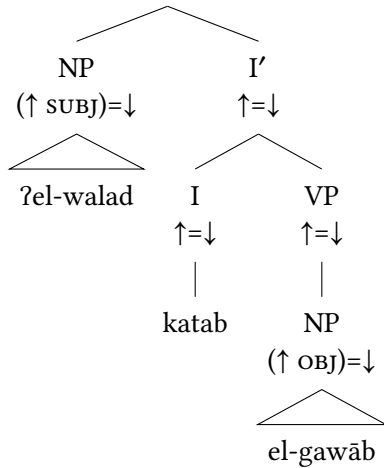


In a slight variant, both ElSadek (2016) and Alruwaili (2019) assume an I+VP structure for the basic neutral svo word order in Egyptian Arabic and Turaif Arabic respectively.<sup>3</sup>

- (3) Egyptian Arabic (ElSadek 2016: 90)  
 ?el-walad katab el-gawāb  
 DEF-boy write.PFV.3M.SG DEF-letter  
 'The boy wrote the letter.'
- (4) Turaif Arabic (Alruwaili 2019: 100)  
 ʕali kiteb l-wāḡib  
 Ali write.PFV.3M.SG DEF-homework  
 'Ali wrote the homework.'

<sup>3</sup>As with many other vernaculars, vso is a possible but less common variant in Turaif Arabic.

(5) (ElSadek 2016: 91)



In all of this work, an important motivation for the assumption that the verb expressing tense is in I is the fact that the very same (perfective and imperfective) forms express aspectual information when they occur in a lower position, in the compound tenses of Arabic (the examples (1a) and (6) provide a simple illustration of this property). There is some discussion of compound tenses in Arabic (involving forms of the ‘be’ verb as a temporal auxiliary) in a number of LFG sources and this literature includes both Aux-feature and Aux-PRED analyses for broadly comparable data across the dialects.

Alsharif (2014) adopts a single-tier or Aux-feature analysis for MSA examples such as (6), and a fuller development of this approach to compound tense formation in MSA is given in Alsharif & Sadler (2009).<sup>4</sup>

- (6) MSA (Alsharif 2014: 52)
- |              |         |                      |                |
|--------------|---------|----------------------|----------------|
| kāna         | Ali-un  | ya-šrab-u            | al-qahwat-a    |
| be.PFV.3M.SG | Ali-NOM | 3M-drink.IPFV-SG.IND | DEF-coffee-ACC |
- ‘Ali was drinking the coffee.’

<sup>4</sup>In the simple tenses of Arabic, the imperfective and perfective forms of the lexical verb are associated with TENSE. The compound tenses of Arabic and Maltese are formed by combining imperfective and perfective verb forms of the auxiliary ‘be’ (associated with TENSE) with perfective and imperfective forms of the lexical verb, which are then associated with ASPECT. Note that these forms still show subject agreement in their (embedded) aspectual use.

- (7) MSA (Alsharif & Sadler 2009: 18)

kun-tu      ʔaktub-u      t-taqrīr-a  
 be.PFV-1SG write-IPFV.1SG the-report-ACC  
 ‘I was writing the report.’

- (8) 
$$\left[ \begin{array}{ll} \text{PRED} & \text{'WRITE<SUBJ,OBJ>'} \\ \text{ASP} & \text{PROG} \\ \text{TENSE} & [\text{PAST } +] \\ \text{SUBJ} & \left[ \begin{array}{l} \text{PERS } 1 \\ \text{NUM } \text{SG} \end{array} \right] \end{array} \right]$$
 (Alsharif & Sadler 2009: 18)

The Aux-feature account is also adopted by Alotaibi (2014) for Hijazi (Taif) Arabic and Alruwaili (2019) for Turaif Arabic, and by Camilleri (2016) for Maltese. In (10) the auxiliary elements *kont* ‘be.PFV.1SG’ and *qed* respectively contribute TENSE=PAST and ASPECT=PROG to the f-structure of the predicate *wash*.

- (9) Hijazi (Taif) Arabic (Alotaibi 2014: 37)

ʔaḥmad kân                      yigri                      fī al-ḥadīqah ʔams  
 Ahmad be.PFV.3M.SG run.IPFV.3M.SG in DEF-garden yesterday  
 ‘Ahmad was running in the garden yesterday.’

- (10) Maltese (Camilleri 2016: 19)

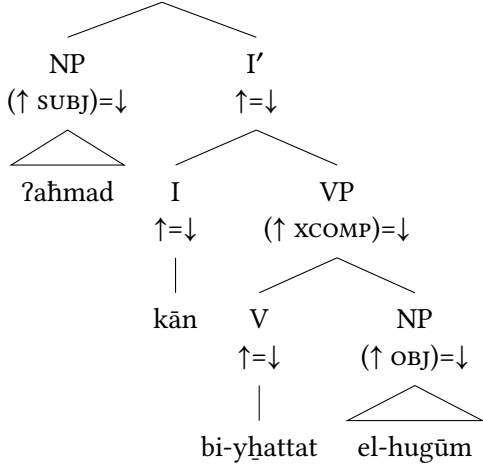
Kon-t      qed    n-a-ḥsel                      il-karozza  
 be.PFV-1SG PROG 1-FRM.VWL-wash.IPFV.SG DEF-car  
 ‘I was washing the car.’

On the other hand, ElSadek (2016) presents some arguments in favour of the Aux-PRED analysis for Egyptian Arabic, in which the tense-aspect auxiliary *kān* is treated as a raising verb taking a VP xCOMP complement. The c-structure for (11) and f-structure for (13) below illustrate this approach. In work on the aspectual system of Libyan Arabic, Börjars et al. (2016) also provide arguments in support of an Aux-PRED approach to the facts which they discuss.

- (11) Egyptian Arabic (ElSadek 2016: 91)

ʔaḥmad kân                      bi-yḥattat                      el-hugūm  
 Ahmed be.PFV.3M.SG BI-plan.IPFV.3M.SG DEF-attack  
 ‘Ahmed was planning the attack.’

(12) (ElSadek 2016: 91)



(13) Egyptian Arabic (ElSadek 2016: 90)

konna ḥa-nmūt  
be.PFV.1PL FUT-die.IPFV.1PL  
'We were going to die.'

(14) 

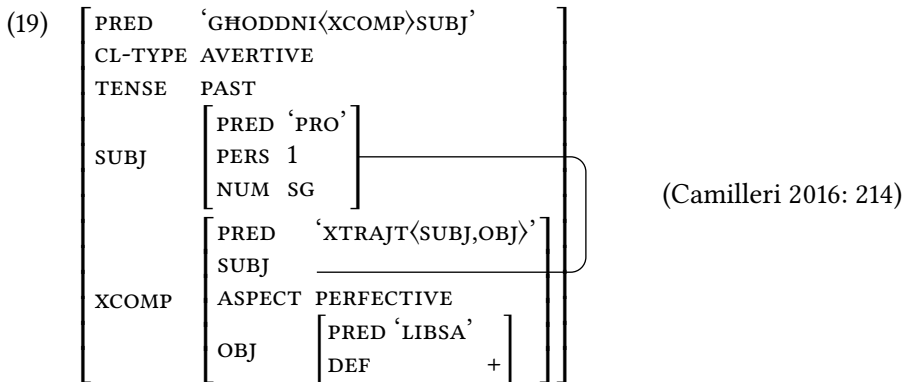
[	PRED	'BE⟨XCOMP⟩ SUBJ'	]
	TENSE	PAST	
	SUBJ	[ PERS 1 ]	
		[ NUM PL ]	
	XCOMP	[ PRED 'DIE⟨SUBJ⟩' ]	
		ASPECT PROSP	
		SUBJ	

(ElSadek 2016: 90)

### 3 Aspects of verbal complementation

Various further aspects of verbal complementation in the Arabic vernaculars are discussed in the LFG literature. Camilleri (2016) provides a detailed exploration of temporal and aspectual auxiliiation in Maltese, articulating an unusually large set of features and values for this domain at f-structure. She also explores the use of the pseudo-verbs *ghodd-* 'almost' *il-* 'to' and *ghad-* 'still' as aspectual auxiliaries expressing the PERFECT aspect. The term pseudo-verb is used descriptively in work on the Arabic vernaculars to refer to a form which plays the role of a finite verb in the syntax but which is derived from a participle, preposition or nominal stem and usually retains many aspects of morphosyntactic realization reflecting this origin, such as exhibiting non-canonical forms of subject agreement. These





The syntax and morphosyntax of phasal verbs, that is verbs which denote the inception, duration, continuation, completion or termination of a state or event (such as (20)), in the Arabic vernaculars is addressed in Alotaibi et al. (2013) (see also Camilleri 2016 and ElSadek 2016 for more extensive discussion of Maltese and Egyptian respectively). These verbs take verbal complements (or, particularly in Modern Standard Arabic, nominalised verbal complements) and typically disallow intervening material between the aspectual verb and its verbal complement (which generally lacks a complementising particle). The aspectual verb and the embedded verb have the same subject, which is not expressed as an NP in the lower clause. The embedded verb shows subject agreement and is usually an imperfective form (Arabic lacks an infinitive form). Using standard tests, Alotaibi et al. (2013) show that a raising analysis is motivated for these verbs in examples such as (20) and (21) below.<sup>5</sup>

(20) Egyptian Arabic (Alotaibi et al. 2013: 17)

- a. el-walad ma-bada?-š                      ya-kul  
 DEF-boy NEG-start.PFV.3M.SG.NEG 3-eat.IPFV.M.SG  
 'The boy didn't start to eat.'
- b. el-walad bada?                      ma-ya-kul-š  
 DEF-boy start.PFV.3M.SG NEG-3-eat.IPFV.3M.SG.NEG  
 'The boy started to not eat.'

<sup>5</sup>In addition to occurring in a raising structure, some of the class of phasal verbs also occur in a 'subjectless' variant with a default 3M.SG phasal verb and a subject expressed within the embedded complement, a structure which provides an expletive subject counterpart to the raising structure.



- (21) a. Hijazi Arabic (Alotaibi et al. 2013: 20)  
 al-maḥṣūl bada ya-n-ḡimf  
 DEF-harvest start.PFV.3M.SG 3-PASS-gather.IPFV.M.SG  
 ‘The harvest started being gathered.’
- b. Maltese (Alotaibi et al. 2013: 20)  
 L-iltiema bde-w j-i-n-ḡabr-u  
 DEF-orphans begin.PFV.3-PL 3-FRM.VWL-PASS-gather.IPFV-PL  
 ‘The orphans started being gathered (together).’

Camilleri et al. (2014b) discuss perceptual report predicates in MSA and in Maltese. The MSA verb *yabdū* ‘seem, appear’ occurs in an expletive subject (or ‘subjectless’) construction taking a complement introduced by the declarative complementising particle *?anna*. While it does not permit subject raising (SSR) they argue that it does permit copy raising (CR) with the complementising particle *ka?anna* ‘as if’. In the CR construction, the copy pronoun is not restricted to the embedded SUBJ role and may occur in a wide range of nominal GFS in the embedded complement.

In Maltese the perceptual report predicates include the verb *deher* ‘seem/appear’ and the pseudo-verbs *donn*+PRN (diachronically the imperative of ‘believe/think’) and *qis*+PRN, both meaning ‘seem/appear/taste/sound as.though/as.if’. (22) exemplifies the expletive construction with the verb *deher*, in which the verb appears in the default 3M.SG form and the subject is expressed only in the embedded COMP. In (23) the subject is in the matrix clause and both matrix and embedded verbs agree with it. Camilleri et al. (2014b) argue that evidence from standard tests for raising (idiom chunks, meaning preservation under passivisation, expletives, etc) suggests that (23) and similar examples are SSR.

- (22) Maltese (Camilleri et al. 2014b: 191)  
 J-i-dher t-tfal sej-r-in taj-jeb  
 3-FRM.VWL-appear.IPFV.M.SG DEF-children going.ACT.PTCP-PL good.M.SG  
 ‘It seems the children are doing well.’
- (23) Maltese (Camilleri et al. 2014b: 191)  
 It-tfal dehr-u qed j-ieħd-u gost  
 DEF-children appear.PFV.3-PL PROG 3-take.IPFV-PL pleasure  
 ‘The children seem (as though) they are enjoying themselves (lit: taking pleasure).’

However, Maltese *deher* also occurs in what looks like a copy raising (CR) construction, in which a pronominal coreferential with the SUBJ of the raising predicate *deher* occurs as an argument within the embedded complement. This is illustrated in (24) where the OBJ pronominal inflection *-ha* in the form *wegġagħ-ha* ‘hurt.CAUS.PFV.3M.SG-3F.SG.ACC’ is coreferential with the (inflectionally-expressed) matrix SUBJ (indicated by the dashed line between anaphor and antecedent in (25)).

- (24) Maltese (Camilleri et al. 2014b: 195)
- |                 |  |      |
|-----------------|--|------|
| Marija t-i-dher | wegġagħ-ha   | sew, |
| Mary            | 3-FRM.VWL-appears.F.SG hurt.CAUS.PFV.3M.SG-3F.SG.ACC | well |
| Mario           |  |      |
| Mario           |  |      |
- ‘Mary seems as though Mario hurt her a lot.’

- (25)
- |      |   |                       |   |                               |
|------|---|-----------------------|---|-------------------------------|
| SUBJ | [ | PRED ‘SEEM<COMP>SUBJ’ | ] | (Camilleri et al. 2014b: 196) |
|      |   | PRED ‘MARIJA’         |   |                               |
|      |   | NUM SG                |   |                               |
|      |   | GEND FEM              |   |                               |
| COMP | [ | PRED ‘HURT<SUBJ,OBJ>’ | ] |                               |
|      |   | SUBJ [PRED ‘MARIO’]   |   |                               |
|      |   | OBJ [PRED ‘PRO’]      |   |                               |
- (Camilleri et al. 2014b: 196)

The analysis which Camilleri et al. (2014b) develop of the syntax and semantics of these perceptual report predicates builds on Asudeh & Toivonen’s (2012) work on English and Swedish. Because Maltese (and Arabic in general) is both a pro-drop language and uses the imperfective form of the verb in non-finite complement clauses (lacking an infinitive form), examples such as (23) could in principle involve either raising or copy raising. They argue that there is a clear contrast between SSR examples such as (23), in which any aspect of the eventuality can be the perceptual source, and CR examples such as (26) in which it is the raised SUBJ itself that is necessarily the individual PSOURCE. In the Maltese CR construction, the pronominal copy can correspond to a very wide range of embedded functions. It is also not limited to the immediately embedded COMP but within the topmost embedded COMP it is restricted to non-subject functions.

- (26) Maltese (Camilleri et al. 2014b: 192)

T-i-dher                      ġa              ta-w-ha                      xebgħa  
 3-FRM.VWL-seem.IPFV.F.SG already give.PFV.3-PL-3F.SG.ACC smacking  
 xogħol x't-a-ġħmel!  
 work    what.3-FRM.VWL-do.IPFV.F.SG  
 'She<sub>i</sub> seems like they already gave her<sub>i</sub> a whole load of work to do!'

While Camilleri et al. (2014b) are concerned with canonical verbal perceptual report predicates in MSA and Maltese, ElSadek & Sadler (2015) look at the expression of perceptual reports in Egyptian Arabic using the active participle *bāyen* 'show, appear' and in particular at the use of the (noun-derived) pseudo-verb *šakl* (>'form, shape') as a perceptual report predicate. *bāyen* can occur in a construction in which the active participle is followed by a PP which expresses the (visible) individual *PSOURCE* with either the standard sentential complementiser *?in* (corresponding to the MSA complementiser *?anna*) or the 'evidential' complementiser *ka?in* (cognate with MSA *ka?anna*). The active participle must be in the default form but a temporal auxiliary may agree with the nominal *PSOURCE* in the PP, as illustrated in (27), in what may be a case of parasitic or miscreant agreement.

- (27) Egyptian Arabic (ElSadek & Sadler 2015: 92)

konti              bāyen                      ?alē-ki    ?inn-ik  
 be.PFV.2F.SG show.ACT.PCTP.M.SG on-2F.SG that-2F.SG  
 mabsūt-a  
 happy.PASS.PTCP.SG-F  
 'You seemed happy.'

With *šakl*, there is rather clearer evidence of raising. (28) illustrates a very common means of expressing a perceptual report. It involves what appears morphosyntactically to be a nominal form *šakl* 'form, shape' with a dependent 'possessor' corresponding to the individual about whom the report is made. Notice in (28) that it is the dependent 'possessor' (the pronominal affix) which controls agreement on the ACT.PTCP, and similarly in an example such as (29). Synchronically, this form appears to operate as a pseudo-verb here, in a raising structure.

- (28) Egyptian Arabic (ElSadek & Sadler 2015: 95)

šakl-ohom mestaney-in              hāga mohemma  
 form-3PL wait.ACT.PTCP-PL thing important  
 'They seem to be waiting for an important thing.'  
 'It seems they're waiting for an important thing.'

- (29) Egyptian Arabic (ElSadek & Sadler 2015: 98)  
 šakl el-welād kānu biyitderbo  
 form DEF-boys be.PFV.3PL beat.BI.IPFV.PASS.3PL  
 ‘The boys seem to have been (being) beaten.’

In structures such as (28) and (29) the dependent NP or pronoun is not obligatorily interpreted as the individual *PSOURCE*. In a different structure, illustrated in (30), we find a sentential complement introduced by the complementising particle *kaʔin*, with no requirement that the dependent NP/pronoun be co-referential with the subject of the (embedded) predication, and these structures *are* associated with a clear individual *PSOURCE* interpretation.

- (30) Egyptian Arabic (ElSadek & Sadler 2015: 98)  
 šakl el-welād kaʔenn-aha darabet-hom  
 form DEF-boys as.if-3F.SG beat.PFV.3F.SG-3PL  
 ‘The boys seem as if she’s beaten them.’

Other work on aspects of complementation includes the following. ElSadek (2016) discusses the causative *χalla* ‘make’, aspectual/phasal verbs and modal verbs, proposing analyses involving functional and anaphoric control. Alotaibi et al. (2013) concerns the description and analysis of experiencer-object psychological predicates (*frighten* or *please* class – EOPVS) in Hijazi Arabic, Egyptian Arabic and Maltese and proposes that the interaction of EOPVS with aspectual raising predicates involves copy raising (CR). An analysis of aspectual object marking in Libyan Arabic is provided in Börjars et al. (2016). In Libyan Arabic, the presence of the preposition *fi* before the direct object of a transitive verb in the imperfective form provides a continuous or habitual aspectual value to the clause (see (31)), which Börjars et al. (2016) model by means of a clause feature *INTERIOR=+*.

- (31) Libyan Arabic (Börjars et al. 2016: 126)
- a. aḥmed kle el-koski  
 Ahmed eat.PST.3M.SG DEF-couscous  
 ‘Ahmed ate couscous.’
  - b. aḥmed yākil fi el-koski  
 Ahmed eat.IPFV.3M.SG FI DEF-couscous  
 ‘Ahmed eats/is eating couscous.’

## 4 Copula sentences

Both Hebrew and Arabic have copula sentences without an overt copula head, as well as copula sentences with a ‘pronominal copula’, and a variety of copula-type elements which mark existential constructions of various sorts. Predicative (copula) sentences with no copula receive present tense interpretations, while an appropriate form of *be* signals other temporal interpretations. The examples in (32) illustrate this alternation between the ‘null’ and overt copula in Hebrew with adjectival, nominal and prepositional predicates.

- (32) a. Hebrew (Falk 2004: 227)  
 Pnina nora xamuda/ tinoket/ b-a-bayit  
 Pnina awfully cute.F/ baby.F/ in-DEF-house  
 ‘Pnina is awfully cute/a baby/in the house.’  
 b. Pnina hayta nora xamuda/ tinoket/ b-a-bayit  
 Pnina be.PST.3F.SG awfully cute.F/ baby.F in-DEF-house  
 ‘Pnina was awfully cute/a baby/in the house.’

As well as the zero realisation in the predicative clauses in (32), the so-called pronominal copula also occurs with predicative complements in Hebrew, as well as with a definite NP complement in an equative copula construction, in paradigmatic opposition with forms of *be* giving temporal interpretations other than the present.<sup>6</sup>

- (33) a. Hebrew (Falk 2004: 227)  
 Pnina hi nora xamuda/ ha-tinoket  
 Pnina PRON.3F.SG awfully cute.F/ DEF-baby.F  
 ‘Pnina is awfully cute/the baby.’  
 b. Pnina hayta nora xamuda/ ha-tinoket  
 Pnina be.PST.3F.SG awfully cute.F/ DEF-baby.F  
 ‘Pnina was awfully cute/the baby.’

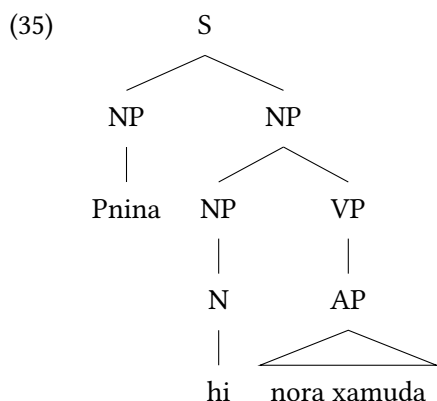
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<sup>6</sup>The distribution of the null copula and the pronominal copula strategy in Arabic is similar, but not identical. For example, in Hebrew examples with predicative nominals and PPs are well-formed in the complement of the pronominal copula, but these structures are not found in (most) Arabic vernaculars.

- (i) Hebrew (Sichel 1997: 296)  
 Rina hi talmid-a/xaxam-a/b-a-bayit  
 Rina PRON.3F.SG student-F/intelligent-F/in-DEF-house  
 ‘Rina is a student/intelligent/at home.’

The pronominal copula forms of Hebrew and Arabic have received considerable analytic attention outside LFG. Within LFG, Falk (2004) develops a mixed category analysis of the pronominal copula *hi* and its inflectional counterparts in Hebrew, taking it to be categorially nominal but functionally verbal. It is argued to have categorially mixed properties in taking ‘verbal’ complements (e.g. accusative objects) and heading a constituent with a clausal distribution, but occurring in an N position.<sup>7</sup> (34) is the lexical entry for the copula use of *hi*; the c-structure and f-structure for (33) are shown in (35) and (36) respectively.<sup>8</sup> The final line in (34) is satisfied if the category VP is a member of the set of c-structure nodes mapping to the f-structure denoted by  $\uparrow$ . This requirement is satisfied in the c-structure shown in (35).

- (34) *hi*                    N    (↑ PRED)=‘BE⟨SUBJ,PREDLINK⟩’                    (Falk 2004: 233)  
                                   (↑ TENSE)=PRES  
                                   (↑ SUBJ GEND)=F  
                                   (↑ SUBJ NUM)=SG  
                                   VP ∈ CAT(↑)



<sup>7</sup>In Hebrew, the sentential negator *lo* appears before a verb but between the pronominal copula and the following predicative element, which is taken to support the conclusion that the pronominal copula is not a V in c-structure.

<sup>8</sup>Note that although this is a mixed category analysis, because Falk (2004) assumes an NP node dominating the N *hi*, the N is not the extended head of VP and AP, according to the standard definition of extended head (Bresnan et al. 2016: 136).

- (36) 
$$\left[ \begin{array}{ll} \text{PRED} & \text{'BE<SUBJ, PREDLINK>'} \\ \text{TENSE} & \text{PRES} \\ \text{SUBJ} & \left[ \begin{array}{l} \text{PRED 'PNINA'} \\ \text{GEND F} \\ \text{NUM SG} \end{array} \right] \\ \text{PREDLINK} & \left[ \begin{array}{l} \text{PRED 'CUTE'} \\ \text{ADJ } \{["\text{AWFULLY}"]\} \end{array} \right] \end{array} \right]$$
 (Falk 2004: 234)

While the pronominal copula is treated as a PRED-bearing element with a PREDLINK complement (see (34) above), giving a closed, two-tier analysis of these copula sentences, those with no copula are treated as simple single-tier predications (“such sentences are most naturally analysed as involving an exocentric S, with direct predication by the non-verbal element” (Falk 2004: 235)). The analysis of an example such as (32a) which lacks the pronominal copula is along the lines shown in (37–38). On this analysis, non-verbal predication elements which appear in both the null copula and the pronominal copula constructions must be associated with two lexical entries, the predication (i.e. SUBJ-subcategorising) PRED value (for the null copula construction) being a lexical extension of the non-predicational one (as can be seen by comparing the relevant PRED values in (36) and (38) respectively).

- (37)
- ```

      S
     / \
    NP  AP
    |   / \
    |  AdvP AP
    |   |   |
    |  Adv  A
    |   |   |
    |  nora xamuda
  
```

- (38) 
$$\left[ \begin{array}{ll} \text{TENSE} & \text{PRES} \\ \text{SUBJ} & \left[ \begin{array}{l} \text{PRED 'PNINA'} \\ \text{GEND F} \\ \text{NUM SG} \end{array} \right] \\ \text{PRED} & \text{'CUTE<SUBJ>'} \\ \text{ADJ} & \{["\text{AWFULLY}"]\} \end{array} \right]$$
 (Falk 2004: 235)

An interesting consequence of this analysis is that the distinction between individual level predication and stage-level predication is reflected in f-structure. Individual level predication uses the pronominal copula and therefore is associated with a two-tier analysis, while stage-level predication (with no copula) is associated with a single simple f-structure (Falk 2004: 236). This contrast in interpretation is illustrated in (39).

(39) Hebrew (Falk 2004: 236–237)

- a. ha-dinozaur hu vsikor  
DEF-dinosaur PRON.M.SG drunk.M.SG  
'The dinosaur is a drunkard.'
- b. ha-dinozaur vsikor  
DEF-dinosaur drunk.M.SG  
'The dinosaur is drunk.'

Copula clauses with forms of the verb *haya* 'be' are functionally equivalent to both the zero and the pronominal copula constructions, as shown in (32b) and (33b) above. This means that the lexical entry for *haya* must have an optional PRED value (see (40)). As a consequence, a sentence such as (41) will be associated with one c-structure and the two f-structure analyses shown in (42) and (43), that is, it will be analysed as functional ambiguous.

(40) *hayta* N ((↑ PRED)=‘BE<SUBJ, PREDLINK>’)  
(↑ TENSE)=PAST  
(↑ SUBJ GEND)=F  
(↑ SUBJ NUM)=SG

(41) Hebrew (Falk 2004: 227)  
Pnina hayta nora xamuda  
Pnina be.PST.3F.SG awfully cute.F  
'Pnina was awfully cute.'

(42) 
$$\left[ \begin{array}{ll} \text{TENSE} & \text{PAST} \\ \text{SUBJ} & \left[ \begin{array}{ll} \text{PRED} & \text{'PNINA'} \\ \text{GEND} & \text{F} \\ \text{NUM} & \text{SG} \end{array} \right] \\ \text{PRED} & \text{'CUTE<SUBJ>'} \\ \text{ADJ} & \{ \text{["AWFULLY"]} \} \end{array} \right]$$
 (Falk 2004: 237)



$$(43) \left[ \begin{array}{ll} \text{PRED} & \text{'BE<SUBJ, PREDLINK>'} \\ \text{TENSE} & \text{PAST} \\ \text{SUBJ} & \left[ \begin{array}{l} \text{PRED 'PNINA'} \\ \text{GEND F} \\ \text{NUM SG} \end{array} \right] \\ \text{PREDLINK} & \left[ \begin{array}{l} \text{PRED 'CUTE'} \\ \text{ADJ } \{["\text{AWFULLY}"]\} \end{array} \right] \end{array} \right] \quad (\text{Falk 2004: 237})$$

For MSA, Attia (2008) discusses predicative and locational copula clauses lacking an overt copula form and associates a *be* PRED with the absence of a copula, treating the predicative complement as a PREDLINK. His contention is that the adjective cannot be the head because the subject and the adjective both take what is considered to be default nominative case, while in the presence of an overt copula the adjective will have accusative case. (44) and (45) show this contrast.

- (44) MSA (Attia 2008: 94)  
 al-marʔat-u                      karīmat-un  
 DEF-woman.F.SG-NOM generous.F.SG-NOM  
 'The woman is generous.'

- (45) MSA (Attia 2008: 100)  
 kāna ar-rağul-u                      karīm-an  
 was DEF-man.M.SG-NOM generous.M.SG-ACC  
 'The man was generous.'

While agreement between the adjective and the clausal subject could be captured simply and transparently by a local SUBJ agreement statement on a two-tier analysis with an open predication complement (that is, an xCOMP analysis along the lines of a raising predicate) this mechanism is not available on the (closed complement) PREDLINK analysis, since the PREDLINK does not contain a SUBJ. Attia (2008) suggests that agreement specifications should be associated with the c-structure rules, as in (46), adapted from Attia (2008: 104).

$$(46) \quad S \rightarrow \begin{array}{c} \text{NP} \\ (\uparrow \text{SUBJ})=\downarrow \end{array} \left\{ \begin{array}{l} \text{VCop} \\ \uparrow=\downarrow \end{array} \middle| \begin{array}{l} \epsilon \\ (\uparrow \text{PRED})=\text{'NULL-BE<SUBJ, PREDLINK>'} \\ (\uparrow \text{TENSE})=\text{PRES} \end{array} \right\} \begin{array}{l} \{ \text{NP} \mid \text{AP} \} \\ (\uparrow \text{PREDLINK})=\downarrow \\ (\downarrow \text{GEND})=(\uparrow \text{SUBJ GEND}) \\ (\downarrow \text{NUM})=(\uparrow \text{SUBJ NUM}) \end{array}$$

The f-structure of a simple predicative copula sentence such as (47) is (48) on this analysis.

- (47) MSA (Attia 2008: 107)

huwa ṭālib-un  
 he student.NOM  
 ‘He is a student.’

- (48) 
$$\left[ \begin{array}{ll} \text{PRED} & \text{‘NULL-BE<SUBJ, PREDLINK>’} \\ \text{TENSE} & \text{PRES} \\ \text{SUBJ} & [\text{PRED ‘HE’}] \\ \text{PREDLINK} & [\text{PRED ‘STUDENT’}] \end{array} \right]$$
 (Attia 2008: 107)

The ‘null-be<SUBJ, PREDLINK>’ analysis is not adopted across the board for the Arabic copula clause. Alsharif (2014) treats verbless predication in MSA with a single-tier analysis and no ‘null-be’ PRED, as does Alruwaili (2019) for Turaif Arabic. In these analyses the lack of an overt verb is associated simply with TENSE=PRES. Alruwaili (2019) treats the Arabic pronominal copula of equational sentences, illustrated in (49), as an element in I with the PRED value ‘hi<SUBJ,OBJ>’, though without providing much discussion of this analytic choice.

- (49) Turaif Arabic (Alruwaili 2019: 109)

huda hī l-mudīr-a  
 Huda COP.3F.SG DEF-director-F.SG  
 ‘Huda is the director.’

## 5 Construct state nominals

A considerable theoretical literature addresses the syntax of the *construct state nominal* (or *construct*) (CSN) in Modern Hebrew and Arabic, a construction of central importance in the grammar of these languages. This construction, illustrated in (50)–(52), has a range of distinctive properties: it is left-headed, the head cannot be inflected for definiteness and may occur in a bound form, the *construct state*, depending on language and inflectional class. In MSA the dependent is genitive. A further key property is lack of interruptibility of the head-dependent construction, so that any adjectival modifiers of the head noun follow the entire construct (including any modifiers of the non-head dependent itself), as in example (53). A range of different relations may hold between the head and the non-head or dependent, including possession, partitivity, kinship, identity, mea-

surement and composition, though the range of the construction differs between languages and dialects.<sup>9</sup>

- (50) Hebrew (Falk 2007: 106)  
 mamlexet            norvegia  
 kingdom.CONSTR Norway  
 ‘the kingdom of Norway’
- (51) Lebanese Arabic (Ouwayda 2012: 77)  
 sayyaret            l-estez  
 car.F.SG.CONSTR DEF-teacher  
 ‘the teacher’s car’
- (52) Syrian Arabic (Hallman 2018: 258)  
 ʕamm l-ʕrāus  
 uncle DEF-bride  
 ‘the uncle of the bride’
- (53) Hebrew (Falk 2007: 106)  
 dodat            ha-balšan    ha-generativi    ha-zkena  
 aunt.CONSTR DEF-linguist DEF-generative.M DEF-old.F  
 ‘the generative linguist’s old aunt’
- (54) Jordanian Arabic (Alhailawani 2018: 152)  
 bait            il-mara            il-jdīd  
 mouse.M.SG DEF-woman.F.SG DEF-new.M.SG  
 ‘the woman’s new house’

As well as the CSN, Hebrew and the Arabic vernaculars have an analytic or free state genitive construction with a distribution which partially overlaps that of the CSN. The following examples illustrate (note that a variety of different “linking elements” are found in the various Arabic vernaculars).

---

<sup>9</sup>There are also modificational constructs which get a kind reading as in (i). These are not discussed in any detail in the LFG literature.

- (i) Lebanese Arabic (Ouwayda 2012: 77)  
 abbouʕet sherti  
 hat            cop  
 ‘a cop’s type of hat’

- (55) Lebanese Arabic (Ouwayda 2012: 77)

l-sayyara taba? l-estez  
 DEF-car of DEF-teacher  
 ‘the teacher’s car’

- (56) Hebrew (Falk 2007: 104)

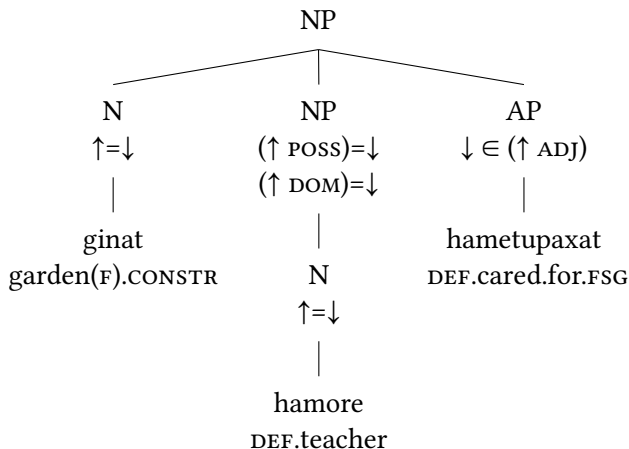
ha-doda ha-zkena šel ha-balšan  
 DEF-aunt DEF-old of DEF-linguist  
 ‘the old aunt of the linguist’

Falk (2001) provides a detailed examination of the constituent structure of NPs containing a *construct* in Hebrew, concluding that despite the closely bound nature of the CSN<sup>10</sup> the N+possessor/dependent does not form a constituent to the exclusion of the head-modifying AP; the c-structure proposed for (57) is thus (58).<sup>11</sup> The c-structure rule is shown in (59): the  $\downarrow \in (\uparrow \text{ADJ})$  annotation is for the sort of modificational example noted in footnote 9 above which also occur in Hebrew e.g. *bigdey yeladim* ‘clothing.CONSTR children’ (children’s clothing), and is not directly relevant to our discussion below.

- (57) Hebrew (Falk 2001: 85)

ginat ha-more ha-metupax-at  
 garden(F).CONSTR DEF-teacher(M) DEF-cared.for-F.SG  
 ‘the teacher’s tended garden’

- (58) (Falk 2001: 85)



<sup>10</sup>The construct state (of the head noun) is a morphophonological form limited to occurrence within this construction, and within compounds.

<sup>11</sup>Falk (2007) assumes that any PP modifiers or arguments of the head N are adjoined to the NP, citing a similar proposal developed for Welsh NP structure in Sadler (2000).

- (59)  $NP \longrightarrow$   $N$   $NP$   $AP^*$  (Falk 2001: 91)
- $\uparrow = \downarrow$      $(\uparrow \text{DOM}) = \downarrow$      $\downarrow \in (\uparrow \text{ADJ})$   
 $\{ (\uparrow \text{POSS}) = \downarrow \mid$   
 $\downarrow \in (\uparrow \text{ADJ}) \}$

The c-structure rule annotations state that the dependent NP is the value of both a POSS function and a DOM attribute. Nouns are treated as optionally sub-categorising for a POSS, which may be expressed by means of the dependent NP in a CSN, or by means of the alternative free genitive construction. The basic property of the construct form is the tight bond it forms with the dependent (reflected in the choice of a particular variant form of the head noun). Modelling his analysis in part on Wintner's (2000) use of a DEF attribute in his HPSG analysis, Falk introduces a DOM attribute associated with the immediately post-head constituent. The dependency between the head in the construct state and the dependent NP is thus captured in the f-structure – the construct form (and only this form) selects a DOM attribute, which is also the value of the POSS feature (the f-description  $(\uparrow \text{DOM})$  is an existential constraint, requiring the presence of a DOM attribute in the satisfying f-structure). Construct forms cannot occur in other syntactic environments. In a CSN the definiteness value of the construction as a whole is “inherited” from the dependent nominal. This is captured in the lexical entry shown in (60) for the construct form of the noun *gina* ‘garden’, i.e. *ginat* by the f-description  $(\uparrow \text{DEF}) = (\uparrow \text{DOM DEF})$ . The f-structure is shown in (61). In contrast to nouns in construct form, free form nouns are specified as  $\neg(\uparrow \text{DOM})$ .

- (60) *ginat*     $(\uparrow \text{PRED}) = \text{'GARDEN'} \langle (\text{POSS}) \rangle$  (Falk 2001: 92)
- $(\uparrow \text{NUM}) = \text{SG}$   
 $(\uparrow \text{GEND}) = \text{F}$   
 $(\uparrow \text{DOM})$   
 $(\uparrow \text{DEF}) = (\uparrow \text{DOM DEF})$

- (61) 

|      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |      |      |      |           |     |   |      |   |     |    |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|------|-----------|-----|---|------|---|-----|----|
| PRED | ‘GARDEN’⟨POSS⟩                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |      |      |           |     |   |      |   |     |    |
| GEND | F                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |      |      |      |           |     |   |      |   |     |    |
| NUM  | SG                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |      |      |      |           |     |   |      |   |     |    |
| DEF  | +                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |      |      |      |           |     |   |      |   |     |    |
| POSS | <table style="display: inline-table; vertical-align: middle; border-collapse: collapse;"> <tr><td style="border-right: 1px solid black; padding: 5px;">CASE</td><td style="padding: 5px;">POSS</td></tr> <tr><td style="border-right: 1px solid black; padding: 5px;">PRED</td><td style="padding: 5px;">‘TEACHER’</td></tr> <tr><td style="border-right: 1px solid black; padding: 5px;">DEF</td><td style="padding: 5px;">+</td></tr> <tr><td style="border-right: 1px solid black; padding: 5px;">GEND</td><td style="padding: 5px;">M</td></tr> <tr><td style="border-right: 1px solid black; padding: 5px;">NUM</td><td style="padding: 5px;">SG</td></tr> </table> | CASE | POSS | PRED | ‘TEACHER’ | DEF | + | GEND | M | NUM | SG |
| CASE | POSS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |      |      |      |           |     |   |      |   |     |    |
| PRED | ‘TEACHER’                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      |      |      |           |     |   |      |   |     |    |
| DEF  | +                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |      |      |      |           |     |   |      |   |     |    |
| GEND | M                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |      |      |      |           |     |   |      |   |     |    |
| NUM  | SG                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |      |      |      |           |     |   |      |   |     |    |
| DOM  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |      |      |      |           |     |   |      |   |     |    |
| ADJ  | { [PRED ‘OLD’] }                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |      |      |      |           |     |   |      |   |     |    |
- (Falk 2001: 92)

Adjectival modifiers in Hebrew and Arabic show definiteness agreement, in addition to agreement in more canonical agreement features such as NUM and GEND. In a CSN the definiteness value of the construction as a whole is determined by that of the POSS or dependent NP, as illustrated in (53), (54) and (57) above. Definiteness agreement is simply captured by associating the relevant inside-out statement (e.g. ((ADJ ↑) DEF=+)) with the attributive adjective.

Simply put, the essence of Falk's (2001) analysis is a lexical distinction between construct forms of nouns, which are specified as (↑ DOM) and free forms, which are ¬(↑ DOM) by default, a special PS rule which takes care of the adjacency requirement, and the association of the dependent NP with the POSS function. Notice that the occurrence of a POSS function and the use of the construct form are not co-extensive: some dependent NPs are ADJ, rather than POSS functions, as noted above, and some POSS functions are realised by means of the free genitive construction illustrated in (56) above. It is for this reason that Falk's account separates the requirement for a dependent (DOM) from the function of the dependent (normally POSS).

Falk (2007) further develops the analysis of the CSN presented in Falk (2001), providing more extensive discussion of the distribution of the 'short' (i.e. CSN-internal) and 'long' (i.e. *šel*-PP) possessor constructions (i.e. examples such as (56) above). For example, while both constructions are available for relational nouns, true possession in Hebrew is normally expressed by using the *šel* construction (use of the CSN being limited to more formal registers). By contrast, for naming places and periods of time, Hebrew uses only the short construction (see (50)). There are two main theoretical developments, concerning the identification of grammatical functions and the treatment of definiteness and definiteness inheritance.

While Falk (2001) calls the grammatical function of the dependent NP POSS, Falk (2007) offers a more articulated account, replacing this function by  $\widehat{GF}$ . The notation  $\widehat{GF}$  stands for the most prominent argument in an f-structure (typically the SUBJ in a clausal f-structure); Falk (2006) introduces this notation, arguing that the grammatical function SUBJ should be deconstructed into the most prominent function, notated  $\widehat{GF}$  and an 'overlay' function, PIVOT, a function of cross-clausal connection. The dependent in examples such as (62) involving a relational noun then is treated as the  $\widehat{GF}$  (rather than POSS), and the overlay function is argued to be DEF (replacing the DOM of the earlier account), licensed through structure-sharing (with  $\widehat{GF}$ ) as stated in (65). As noted above, the head noun in a construct nominal cannot itself be inflected for definiteness and it is the posses-

or, or  $\widehat{GF}$  dependent which determines the definiteness of the construction as a whole. (59) is replaced by (63), but expresses essentially the same analysis.<sup>12</sup>

- (62) Hebrew (Falk 2007: 104)  
 dodat            ha-balšan    ha-zkena  
 aunt.CONSTR DEF-linguist DEF-old.F  
 ‘the linguist’s old aunt’

- (63) NP  $\rightarrow$         N                                  NP                                  AP\*                                  Falk (2007: 113)  
                                   $\uparrow=\downarrow$                                    $(\uparrow \text{ DEF})=\downarrow$                                    $\downarrow \in (\uparrow \text{ ADJ})$   
                                   $(w (<*) \text{ MORPHTYPE})=\text{BND}$

- (64) 

|   |                |                                                                                                                                                                                  |  |
|---|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| [ | PRED           | ‘AUNT< $\widehat{GF}$ >’                                                                                                                                                         |  |
|   | GEND           | F                                                                                                                                                                                |  |
|   | NUM            | SG                                                                                                                                                                               |  |
|   | $\widehat{GF}$ |                                                                                                                                                                                  |  |
|   | DEF            | <div style="border-left: 1px solid black; padding-left: 10px;"> <div style="border-top: 1px solid black; padding-top: 5px;"> PRED ‘TEACHER’<br/> DEF +<br/> NUM SG </div> </div> |  |
|   | ADJ            | {[PRED ‘OLD’]}                                                                                                                                                                   |  |
- (Falk 2001: 92)

- (65)  $(\uparrow \text{ DEF})=(\uparrow \widehat{GF}) \mid (\uparrow \text{ OBL}_{\text{CON}}) \mid (\uparrow \text{ OBL}_{\text{THEME}}) \mid (\uparrow \text{ OBL}_{\text{NAME}})$                                   (Falk 2007: 120)

The re-entrancy stated in (65) takes account of the range of functions which can be expressed within the CSN (replacing the POSS of the previous analysis). An example such as (66) is associated with an  $\text{OBL}_{\text{CON}}$  function (as well as being the value of DEF): other functions which can be expressed by the dependent nominal in a CSN are  $\text{OBL}_{\text{NAME}}$  and  $\text{OBL}_{\text{THEME}}$  – the latter for concrete nouns with a Theme argument as in (67).

- (66) Hebrew (Falk 2007: 117)  
 kos kafe  
 cup coffee  
 ‘a cup of coffee’
- (67) Hebrew (Falk 2007: 122)  
 targumey                                  ha-odisea                                  šel ha-sifriya  
 translation.CONSTR DEF-Odyssey of DEF-library  
 ‘the library’s translation of the Odyssey’

<sup>12</sup>The annotation  $(w (<*) \text{ MORPHTYPE})=\text{BND}$  on the dependent NP specifies that the left sister of the NP’s word structure is a bound form.

## 6 Mixed categories

An analysis of the Hebrew action nominal (and NP structure more generally) is offered in Falk (2001) and further developed in Falk (2007). These papers treat action nominals such as (68) as displaying a ‘verbal’ mapping to arguments, signalled by the existence of the ACC-marked OBJ, while others display a purely nominal mapping. In the ‘verbal’ action nominal, the agent argument is realized within the CSN (i.e. as a ‘short’ possessor) or in a *šel*-PP (‘long’ possessor). In each case, it is argued that the c-structure of the action nominal is mixed.

(68) Hebrew (Falk 2007: 117)

- a. sgirat                      ha-mankal    [et    ha-misrad]  
     closure.CONSTR DEF-director    ACC DET-office  
     ‘the director’s closure of the office’
- b. ha-sgira      šel ha-mankal    [et    ha-misrad]  
     DEF-closure of    DEF-director    ACC DET-office  
     ‘the director’s closure of the office’

The analysis of an example such as (68a) in Falk (2001) is as follows. The nominal has a mixed c-structure captured in (69), where  $\lambda$  is the category labelling function. A c-structure with both NP and VP projections is required to satisfy this set of constraints, motivating the c-structure rule in (70). Alongside this is the assumption that Hebrew actional nominals have the specification  $(\uparrow \text{POSS}) = (\uparrow \text{SUBJ})$  and hence the f-structure in (71) arises for the accusative Hebrew actional nominal such as (68a) (given the treatment of dependent NP within the CSN developed in Falk 2001). The fundamental insight concerning the f-structure of ‘verbal’ action nominals is that they have a verbal argument structure mapping (e.g. to SUBJ and OBJ) but realise their SUBJ as a POSS.<sup>13</sup> The c-structure proposed by Falk for the ‘verbal’ action nominal is shown in (72).<sup>14</sup>

- (69)  $(\uparrow \text{PRED}) = \text{‘close’} < < x, y >_v >_n$  (Falk 2001: 96)  
 $v: \text{VP} \in \lambda (\phi^{-1} (\uparrow))$   
 $n: \text{NP} \in \lambda (\phi^{-1} (\uparrow))$

<sup>13</sup>The argument mapping for (68b) will be similar although there will be no DOM feature because the POSS is not realized within a CSN.

<sup>14</sup>As a technical aside, note that although this is a mixed category analysis, according to the standard definition of extended head (Bresnan et al. 2016: 136) the N is not the extended head of the VP, because of the intervening NP node which dominates the CSN, a matter which is not discussed in Falk (2001, 2007).



(70) NP → NP VP (Falk 2001: 94)  
 $\uparrow=\downarrow$   $\uparrow=\downarrow$

(71) 

|      |      |                                                  |  |  |  |  |  |  |  |  |
|------|------|--------------------------------------------------|--|--|--|--|--|--|--|--|
| (71) | PRED | ‘CLOSE<<X,Y> <sub>v</sub> > <sub>n</sub> ’       |  |  |  |  |  |  |  |  |
|      | GEND | F                                                |  |  |  |  |  |  |  |  |
|      | NUM  | SG                                               |  |  |  |  |  |  |  |  |
|      | DEF  | +                                                |  |  |  |  |  |  |  |  |
|      | DOM  | [ PRED ‘DIRECTOR’<br>DEF +<br>GEND M<br>NUM SG ] |  |  |  |  |  |  |  |  |
|      | POSS |                                                  |  |  |  |  |  |  |  |  |
|      | SUBJ |                                                  |  |  |  |  |  |  |  |  |
|      | OBJ  | [ PRED ‘OFFICE’ ]                                |  |  |  |  |  |  |  |  |

(Falk 2001: 96)

(72)

```

      NP
     /  \
    NP   VP
   /  \  |
  N    NP KP
  |    /  \
sgirat hamankal K NP
              |  /  \
              et hamisrad
  
```

As well as the ‘verbal’ mapping (with an ACC-marked OBJ), Hebrew action nominals may realize their arguments as shown in (73). In (73a) the arg2 or theme is the dependent NP in the construct state nominal, and hence corresponds to a POSS (on the analysis of Falk 2001). This variant has a purely nominal mapping in which the other argument (if present) is an OBL. Hence the PRED value is as shown in (74).

(73) Hebrew (Falk 2001: 94, 118)

a. sgirat                      ha-misrad (alyedey ha-mankal)  
     closure.CONSTR DEF-office by              DET-director

- b. ha-sgira      šel ha-misrad (alyedey ha-mankal)  
 DEF-closure of DEF-office by      DET-director  
 ‘the closure of the office by the director’

(74) (↑PRED)=‘close<(OBL<sub>AG</sub>), POSS> (Falk 2001: 97)

Evidence that the purely nominal variant also has a mixed c-structure comes from the observation that it can be modified by AdvP as well as by AP, as shown in (75).<sup>15</sup>

(75) Hebrew (Falk 2001: 98)

- a. ibud      ha-kolot yadanit alyedey ha-mumxim  
 processing DEF-votes manually by      DEF-experts  
 b. ibud      ha-kolot ha-yadani alyedey ha-mumxim  
 processing DEF-votes DEF-manual by      DEF-experts  
 ‘the manual processing of the votes by the experts’

In summary, Falk argues that both “verbal” and “nominal” action nominals in Hebrew have a mixed c-structure. In Falk (2001) the NP realized as the dependent within a CSN nominal (or as a *šel* phrase in the case of ‘long’ possession) is analysed as a POSS, leading to the mappings shown in (76) for the action nominal. Falk (2007) develops a more articulated view of the range of GFs associated with the CSN, as discussed in the previous section, leading to the mappings shown in (77) for the action nominals.

| (76)            | subcategorisation<br>lexical description | additional functions (in CSN)<br>from the PS rules |
|-----------------|------------------------------------------|----------------------------------------------------|
| verbal mapping  | <SUBJ, OBJ><br>SUBJ=POSS                 | POSS=DOM                                           |
| nominal mapping | <OBL <sub>AG</sub> , POSS>               | POSS=DOM                                           |
| (77)            | subcategorisation<br>lexical description | additional functions<br>from the PS rules          |
| verbal mapping  | <GF, OBJ>                                | GF=DEF                                             |
| nominal mapping | <OBL <sub>AG</sub> , GF>                 | GF=DEF                                             |

<sup>15</sup> Although there is less discussion, Falk (2001) also provides examples showing AP modification of the verbal variant (with the POSS/SUBJ expressed as a *šel* PP), as well as modification by AdvP.

There is relatively little detailed discussion in the LFG literature of the corresponding Arabic NPs, which are headed by *maṣḍars*. The MSA examples (78) and (79) illustrate the ‘verbal’ and ‘nominal’ mappings respectively.<sup>16</sup>

(78) MSA (Börjars et al. 2015: 49)

ʔakl-u          l-walad-i      it-tufāhat-a  
eat.MSD-NOM DEF-boy-GEN DEF-apple-ACC  
‘the boy’s eating the apple’

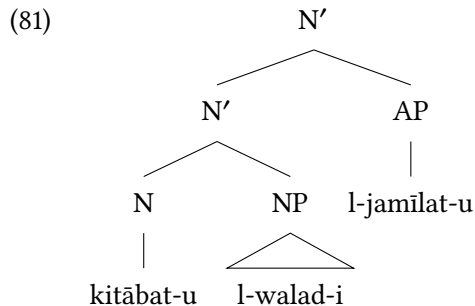
(79) MSA (Börjars et al. 2015: 55)

ʔakl-u          l-walad-i      as-sarīf-u      li-t-tufāhat-i  
eat.MSD-NOM DEF-boy-GEN DEF-fast-NOM of-DEF-apple-GEN  
‘the boy’s fast eating of the apple’

In connection with his treatment of negation in *maṣḍar*-headed structures in MSA, Alsharif (2014) adopts Falk’s (2001) analysis of the CSN dependent as a POSS (re-entrant with the DOM feature) and using the additional functional equation POSS=SUBJ for cases in which the head N is a *maṣḍar*, and a mixed category c-structure (at least for the ‘verbal’ *maṣḍar* structures). However he argues for a structure in which the CSN is recognised as a constituent to the exclusion of any adjectival modifiers, as shown in (81) (in contrast to Falk’s (59) above). Börjars et al. (2015) provide agreement data from MSA in support of the same conclusion.

(80) MSA (Alsharif 2014: 291)

kitābat-u          l-walad-i      l-jamīlat-u  
write.MSD-NOM DEF-boy-GEN DEF-beautiful-NOM  
‘the boy’s beautiful writing’



<sup>16</sup>The occurrence of ACC case in (78) is often taken to indicate a mixed categorial status for this construction, with the ‘verbally-marked’ dependent(s) appearing within a VP node.

In contrast to the mixed category analysis of Hebrew action nominals developed in Falk (2001, 2007), Börjars et al. (2015) propose a purely nominal c-structure, reflecting the fact that the *mašdar* has nominal morphosyntax and may have the external distribution of a NP. The GEN and ACC NPs in the transitive ‘verbal’ *mašdar* are both sisters of N – the idea is essentially that of extending the constituent containing the cs to include ACC objects in the case of the ‘verbal’ mapping (all RHS categories are to be interpreted as optional in this rule).<sup>17</sup> The nominal structure in (79) is more hierarchical, with the *li*-PP (corresponding to the second argument of the verb ‘eat’) adjoined at a higher level NP constituent in the structure as an OBL, and the AP also licensed as an ADJunct by a recursive NP → NP XP rule.

$$(82) \quad \text{NP} \longrightarrow \begin{array}{cccc} \text{N} & \text{NP} & \text{NP} & \text{NP} \\ \uparrow=\downarrow & (\downarrow \text{CASE})=\text{GEN} & (\downarrow \text{CASE})=\text{ACC} & (\downarrow \text{CASE})=\text{ACC} \\ & (\uparrow \text{SUBJ})=\downarrow & (\uparrow \text{OBJ})=\downarrow & (\uparrow \text{OBJ}_{\theta})=\downarrow \end{array}$$

(Börjars et al. 2015: 53)

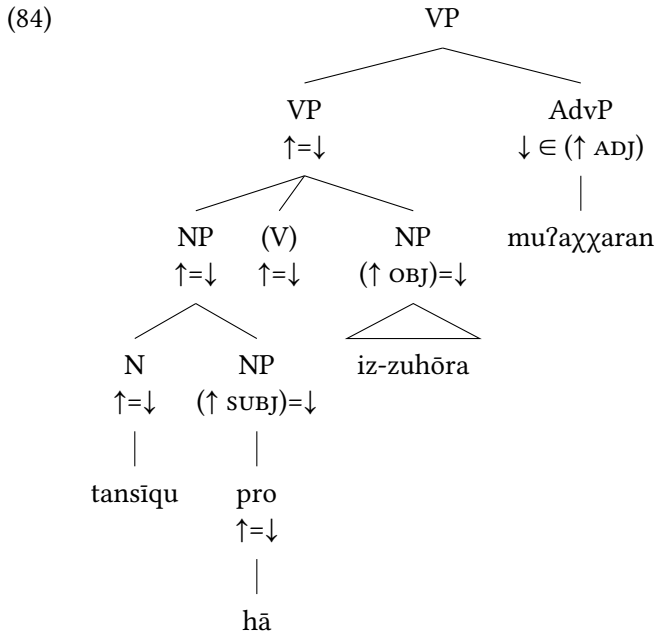
Lowe (2020) points out a number of empirical problems with this analysis, notably in relation to ensuring the correct ordering of any AP and AdvP modifiers in the nominal *mašdar* constructions and in ruling out the occurrence of adjectival modifiers in the ‘verbal’ *mašdar* structures; and also takes issue with it on theoretical grounds. He argues for an approach to mixed category constructions in which internal syntax, rather than morphosyntax or external distribution, is taken to be a sufficient criterion for syntactic categorisation. This leads to a mixed projection (VP over NP) analysis for both types of *mašdar* construction (the VP node is motivated by the presence of an OBJ under the ‘verbal’ mapping and the possibility of adverbial modifiers under both ‘nominal’ and ‘verbal’ mappings). The structures which he proposes, (84) and (86), are rooted in a VP node, despite the nominal nature of the external distribution of these structures.<sup>18</sup>

<sup>17</sup>Börjars et al. (2015) do not provide an analysis of definiteness inheritance (from the genitive dependent) for the general case of construct state nominals. For the *mašdar*-headed structures of MSA which they are concerned with in this paper they assume the equation  $(\uparrow \text{DEF})=(\uparrow \text{SUBJ DEF})$  in the lexical entry of the *mašdar*.

<sup>18</sup>To address this issue, Lowe (2020: 333) proposes the use of a complex category  $V_{[msd]}$  and a metacategory in the phrase structure rules to capture the distributional similarity between NPs and *mašdar*-headed VPs. Recall that the meta-category label does not itself give rise to a node in the tree representation, being merely an abbreviatory device.

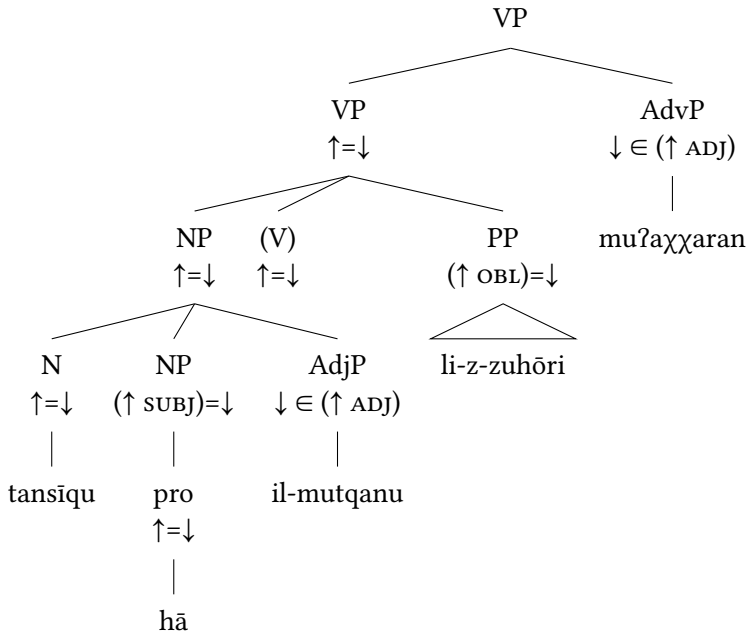
(i)  $\text{NomP} \equiv \{\text{NP} \mid \text{VP}_{[msd]}\}$  (Lowe 2020: 333)

- (83) MSA (Börjars et al. 2015: 49)  
 tansīq-u =hā iz-zuhōr-a muʔaxχaran  
 arrange.MSD-NOM her DEF-flowers-ACC recently  
 ‘her arranging the flowers recently’



- (85) MSA (Börjars et al. 2015: 55)  
 tansīq-u =hā il-mutqan-u li-z-zuhōr-i muʔaxχaran  
 arrange.MSD-NOM her DEF-perfect-NOM of-DEF-flowers-GEN recently  
 ‘her perfect arranging of the flowers recently’

(86)



## 7 Negation

Sentential negation in MSA is expressed by means of the particles *mā*, *lā*, *lan* and *lam* and the inflecting form *laysa* which occurs with both verbal and non-verbal predicates (see (87) and (88)). *laysa* (and its inflectional variants) gives rise to present tense interpretations and shows partial agreement when it precedes the subject and full agreement with a preceding subject, typical verbal behaviour. Accordingly, Alsharif & Sadler (2009) treat *laysa* as a negative (present) tensed verbal element in I.

(87) MSA (Alsharif & Sadler 2009: 10)

- a. al-awlad-u    lays-ū    ya-ktub-ūn  
the-boys-NOM NEG-3M.PL 3M-write.IPFV-3M.PL-IND  
'The boys do not write.'
- b. lays-a    al-awlad-u    ya-ktub-ūn  
NEG-3M.SG the-boys-NOM 3M-write.IPFV-3M.PL-IND  
'The boys do not write.'

- (88) MSA (Benmamoun 2000: 53)  
 laysa      ʔaḥii      muʕallim-an.  
 NEG.3M.SG brother.my teacher-ACC  
 ‘My brother is not a teacher.’

The particles *lā*, *lam* and *lan* are strictly verb-adjacent, and do not exhibit agreement with the subject. While *lā* occurs with a verb in the indicative imperfective, *lam* occurs with the jussive imperfective expressing negation in the past, and *lan* with the subjunctive imperfective, expressing negation in the future: thus *lam* and *lan* are negative particles which carry temporal information.

- (89) MSA (Benmamoun 2000: 95)
- a. ʔ-ṭullāb-u      laa      ya-drus-uu-n  
 the-students NEG 3M-study.IPFV-3M.PL-IND  
 ‘The students do not study/are not studying.’
  - b. lan      ya-dḥab-a      ʔ-ṭullāb-u  
 NEG.FUT 3M-go.IPFV-M.SG.SBJV the-students-NOM  
 ‘The students will not go.’
  - c. ʔ-ṭullāb-u      lam      ya-dḥab-uu  
 the-students-NOM NEG.PST 3M-go.IPFV-M.PL.JUSS  
 ‘The students did not go.’

Alsharif & Sadler (2009) analyse these negative particles as non-projecting words of category I (notated  $\hat{I}$ ) in the sense of Toivonen (2003), forming a small construction with the immediately following verbal element. The notion of non-projecting word captures the un interruptibility of the Neg+V sequence, but still treats the negative marker and the verb as separate morphological words. The particles *lam* and *lan* contribute PAST and FUT tense values respectively (and select (tenseless) forms of the verb in a dependent mood), while *lā* cannot co-occur with PAST tense. The negative particle *lan* can also occur as a non-projecting word under V where it contributes not FUT but PROSP aspect. They consider the

interaction of these negative particles with both simple and compound tenses in MSA.<sup>19</sup>

(90) I →  $\hat{I}$  I (Alsharif & Sadler 2009: 14)  
 $\uparrow=\downarrow$   $\uparrow=\downarrow$

(91) *lam*  $\hat{I}$  ( $\uparrow$  TENSE PAST)=+ (Alsharif & Sadler 2009: 16)  
 $\uparrow$  POL)=NEG  
 $\uparrow$  MOOD) =<sub>c</sub> JUSS

As for MSA *mā*, this marker of sentential negation occurs in sentences with both verbal and non-verbal predicates. It always precedes the predicate but is not required to be immediately adjacent to it. Alsharif (2014) argues that it is a negative complementiser (Arabic has a reasonably extensive range of complementising particles), so that (92) is associated with the c-structure shown in (94).

(92) MSA (Alsharif 2014: 169)  
*mā qal-a maher-un l-ḥaqq-a*  
 NEG say.PFV-3M Maher-NOM DEF-truth-ACC  
 ‘Maher did not say the truth.’

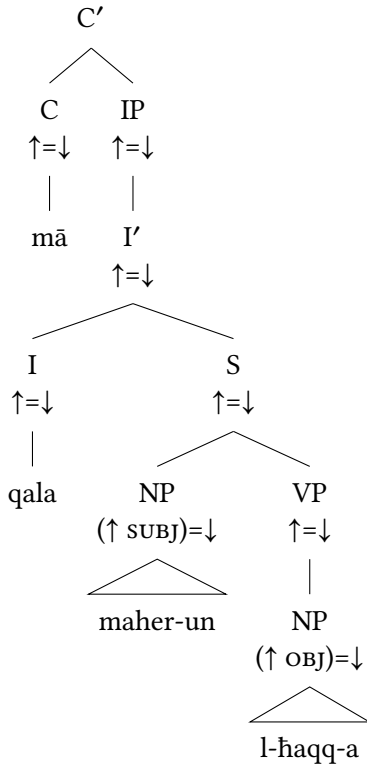
(93) MSA (Alsharif 2014: 132)  
*mā mohammad-un kātib-un*  
 NEG Mohammad-NOM writer-NOM  
 ‘Mohammad is not a writer.’

<sup>19</sup>A complex TENSE feature with boolean-valued attributes PAST and FUT is adopted in this approach because of the compositional nature of certain periphrastic verb forms. For example, a future tense may be formed periphrastically by combining the imperfective indicative form (which otherwise received a present tense interpretation), with the preverbal particle *sawfa* as in (i), and hence the imperfective indicative is associated with the (underspecified) TENSE PAST=–.

(i) MSA (Fassi Fehri 1993: 82)  
*sawfa lā y-aḥdur-u*  
 FUT NEG 3M-present.IPFV-3M.SG.IND  
 ‘He will not come.’



(94) MSA (Alsharif 2014: 170)



Adopting the idea that it may mark some sort of contrastive focus as well as negation, (see Ouhalla 1993 and Benmamoun 2000, *inter alia*), Alsharif (2014) also argues that in examples such as (95), the focussed element immediately following the negative complementiser, is in [Spec,IP] (in (95) this is the PP *bi-s-sikkīn-i*) (hence this position must host various discourse functions, including that of SUBJ).

(95) MSA (Alsharif 2014: 173)

mā bi-s-sikkīn-i jaraḥ-a ḫālid-un bakr-an  
 NEG P-DEF-knife-GEN wound.PFV-3M.SG Khalid-NOM Bakr-ACC  
 ‘It is not with a knife that Khalid wounded Bakr.’

The Arabic vernaculars typically use *mā* for negation in verbally-headed sentences, and a set of forms which combine *m-* with pronominal affixes for sentential negation in non-verbal sentences.<sup>20</sup>

A major split is found across the dialects (roughly between Eastern and Western) according to whether they use a single negative element or bipartite negation, combining an *m-* form with a second marker *-š/-x* which results from grammaticalisation of an earlier form corresponding to *šayʔ* ‘thing’ in Classical Arabic.

The vernacular verbal negative marker *mā* illustrated in (96) is treated as a non-projecting word in Alsharif (2014) (for Hijazi) and Alruwaili (2019) (for Turaif Arabic), that is, as a syntactic element appearing strictly adjacent to a verbal element.<sup>21</sup>

- (96) Turaif Arabic (Alruwaili 2019: 162)  
 ʔali mā kitəb l-wāğib  
 Ali NEG write.PFV.3M.SG DEF-homework  
 ‘Ali did not write the homework.’

- (97) Turaif Arabic (Alruwaili 2019: 162)
- ```

      graph TD
      I1[I] -- "↑=↓" --> Neg[Neg]
      I1 -- "↑=↓" --> I2[I]
      Neg -- "↑=↓" --> ma[mā]
      I2 -- "↑=↓" --> kit[kitəb]
  
```

Alruwaili (2019) shows that *mā* can occur before either the auxiliary (*kān* ‘be.PFV’) or the lexical verb in compound tenses (and hence can form a small

<sup>20</sup>The occurrence of verbal negation with many pseudo-verb forms, as in (i), where the literal, prepositional meaning of *l-* is ‘to’, shows that their reanalysis from their original category into a verbal category is well advanced.

- (i) Turaif Arabic (Alruwaili 2019: 121)  
 ʔ-tullāb mā l-hum ɣaşam  
 DEF-student.PL NEG have-3M.PL.GEN discount  
 ‘The students do not have a discount.’

<sup>21</sup>Clearly, an affixal analysis of the negative markers might be argued to be appropriate for some other dialects.

construction with either I or V), and argues in favour of the ternary branching rule (99) as the negator must precede the tense/aspect particle *rāh* when they co-occur. As a marker of sentential negation, *mā* specifies ENeg=+ (eventuality negation, see Przepiórkowski & Patejuk 2015).

- (98) Turaif Arabic (Alruwaili 2019: 166)  
huda mā rāh t-sāfar bukra  
Huda NEG FUT 3F.SG-travel.IPFV tomorrow  
‘Huda will not travel tomorrow.’

- $$(99) \quad I' \longrightarrow \widehat{\text{Neg}} \quad \widehat{I} \quad I$$
- $$\quad \quad \quad \uparrow=\downarrow \quad \uparrow=\downarrow \quad \uparrow=\downarrow$$

The example in (100) illustrates the marker of sentential negation for non-verbal predicates (and in equational sentences). Both Alsharif (2014) and Alruwaili (2019) treat this marker (and its inflectional variants) as a negative copula (the lexical entry in (101) is from Alruwaili (2019: 170)).

- (100) Turaif Arabic (Alruwaili 2019: 169)  
 huda mū/mahi                                fi l-bēt  
 Huda NEG.COP/NEG.COP.3F.SG in DEF-house  
 ‘Huda is not in the house.’

- (101) *mū* I (↑ ENeg)=+ Turaif Arabic (Alruwaili 2019: 170)  
 VP ∉ CAT(↑)  
 (↑ TENSE)=PRES

Camilleri & Sadler (2017a) look at sentential negation in Maltese and the syntactic behaviour of a group of negative sensitive indefinite items (n-words, *nsi*) in Maltese. In common with many Western dialects of Arabic, Maltese is a language with bipartite negation, as can be seen in the double marking *ma ...-x* in (102). Synchronically, they argue for Maltese that it is *m-/ma* which realizes negation in Maltese, while the *-x* is essentially some sort of *nsi*. The strategies for sentential negation of clauses with verbal and non-verbal predicates (including the active participle) respectively are shown in (102) and (103) respectively.

- (102) Maltese (Camilleri & Sadler 2017a: 147)  
Ma qraj-t-x                      il-ktieb.  
NEG read.PFV-1SG-NEG DEF-book  
'I didn't read the book.'

- (103) Maltese (Camilleri & Sadler 2017a: 147)

Mhux ~ mhumix sejr-in.  
 NEG.3M.SG.NEG ~ NEG.3PL.NEG go.ACT.PTCP-PL  
 ‘They are not going.’

The paper proposes an analysis of the *xejn* ‘nothing’ series of negative indefinites (including *hadd* ‘no one’, *ebda* ‘no(ne)’ and *imkien* ‘nowhere’) which occur in negative sentences. As the examples in (104) show, the negative marker *ma* is required to express sentential negation, irrespective of the linear order of the n-word vis-à-vis the predicate. This behaviour, and the fact that these n-words may provide negative fragment answers, supports the view that Maltese is a strict negative concord language and the classification of these indefinites as simple NCIS. However, although Maltese uses the bi-partite (*ma ...-x*) strategy for negation, as shown in (102) above, *-x* is in fact incompatible with these n-words in the same clause, as shown in (105).

- (104) Maltese (Camilleri & Sadler 2017a: 150)

- a. Ilbieraħ hadd \*(ma) ġie.  
 yesterday no.one NEG come.PFV.3M.SG  
 ‘No one came yesterday.’  
 b. Ilbieraħ \*(ma) ġie hadd.  
 yesterday NEG come.PFV.3M.SG no.one  
 ‘No one came yesterday.’

- (105) Maltese (Camilleri & Sadler 2017a: 151)

It-tifla ma ra-t(\*-x) xejn.  
 DEF-girl NEG see.PFV-3F.SG-X nothing  
 ‘The girl saw nothing.’

Long-distance licensing of n-words is felicitous in Maltese (depending on the nature of the subordinate clauses), as in (106), and the same incompatibility with the suffix *-x* is observed.<sup>22</sup>

<sup>22</sup> As an alternative to (106), bi-partite negation and a positive proform (replacing *xejn* ‘nothing’ by *xi haġa* ‘something’ in (106)), is also grammatical, retaining the same interpretation.

- (106) Maltese (Camilleri & Sadler 2017a: 153)  
 Ma smaj-t [li qal-u [li  
 NEG hear.PFV-1SG COMP say.PFV.3-PL COMP  
 qal-t-i-l-hom [li għand-hom  
 say.PFV-3F.SG-EPENT.VWL-DAT-3PL COMP have-3PL.GEN  
 j-i-xtr-u xejn. ]]]  
 3-FRM.VWL-buy.IPFV-PL nothing  
 ‘I didn’t hear that they said she told them they have to buy anything.’

Camilleri & Sadler (2017a) argue that the *n*-word proforms like *xejn* are not in fact simply NCIS but have the broader distribution of weak NPIS, a view supported by the fact that they occur in a range of non-veridical contexts, as shown in (107), and unlike NCIS are not limited to negative or anti-veridical contexts. Equally, the *-x* of bipartite negation shares the wider distribution of an NPI, occurring in a range of contexts including conditionals, interrogatives, rhetorical interrogatives, embedded interrogatives and counterfactuals.

- (107) Maltese (Camilleri & Sadler 2017a: 154)  
 Kil-t xejn ċikkulata?  
 eat.PFV-2SG nothing chocolate  
 ‘Did you eat any chocolate?’

As part of the analysis they provide an approach to bi-partite negation in Arabic dialects (primarily found in the dialects westward from the Levant to Morocco). There is both a dependency and an essential asymmetry in the distribution of *ma* and *-x*: *ma* realizes sentential negation but requires the presence of either *-x* or one or more NCI items within an appropriate domain, while *-x* itself is incompatible with the presence of (other) NCI items within that domain. Following Przepiórkowski & Patejuk (2015), Camilleri & Sadler (2017a) propose that *ma* introduces an ENEG feature. Because *ma* cannot stand alone it also introduces a constraining equation requiring a positive value of a NVM (for non-veridical marker) feature within an appropriate domain, which can be satisfied by a strictly local *-x* or by NC items in the N-series, within a certain domain.<sup>23</sup> The lexical entry for the sentential negation marker *ma* is in (108). The first line provides a value for the sentential negation feature ENEG, treating it as a feature with

<sup>23</sup>Because both *-x* and the N-series proforms occur in the wider set of non-veridical contexts they cannot simply be associated with an inside-out statement limiting them to contexts containing ENEG=+.

instantiated values, with the consequence that it is required to be uniquely contributed, so expressed only once. The somewhat complicated uncertainty statement requires that there either be a feature  $NVM=+$  in the local f-structure (which will be introduced by  $-x$ , see example (102) and the entry for  $-x$  in (109)) or that some dependent within the domain specified by the functional uncertainty path be specified as  $NVM=+$  (e.g. examples (104a), (106), where  $NVM=+$  is associated with an n-word dependent, see the entry for  $xejn$  in (110)). This path rules out *ma* satisfying its requirement for a  $NVM=+$  dependent in a subordinate negative domain, ruling out (111). The non-veridicality affix  $-x$  defines  $NVM=+$  and is incompatible with  $NVM=+$  on any local dependent or any more deeply embedded dependent which is not itself inside an f-structure marked as  $ENEG=+$ , thus ruling out (112). The entry for an N-series word simply defines the  $NVM$  feature in the local f-structure, as in (110).

- (108) *ma*  $ENEG$   $(\uparrow ENEG)=+$   
 $\{ (\uparrow \{XCOMP|COMP|ADJ\}^* GF^+ NVM) | (\uparrow NVM) \}=_c +$   
 $\neg(\rightarrow ENEG)$   
 (Camilleri & Sadler 2017a: 159)

- (109)  $-x$   $(\uparrow NVM)=+$   
 $\neg(\uparrow \{XCOMP|COMP|ADJ\}^* GF^+ NVM)=+$   
 $\neg(\rightarrow ENEG)$   
 (Camilleri & Sadler 2017a: 159)

- (110) *xejn*  $N$   $(\uparrow NVM)=+$  (Camilleri & Sadler 2017a: 159)

- (111) Maltese (Camilleri & Sadler 2017a: 159)  
 \*Ma semma [li **ma** ra-x [li darb-u  
 NEG say.PFV.3M.SG COMP NEG see.PFV.3M.SG-X COMP injure.PFV.3-PL  
 lil ebda raġel.]]  
 ACC some man  
 ‘He didn’t say that he didn’t see that they injured any man.’

- (112) Maltese (Camilleri & Sadler 2017a: 159)  
 \*It-tifla *ma* ra-t-x *xejn*.  
 DEF-girl NEG see.PFV.3F.SG-X nothing  
 Intended: ‘The girl saw nothing.’

An example such as (106) will have the f-structure shown schematically in (113) (Camilleri & Sadler 2017a: 161).

$$(113) \left[ \begin{array}{l} \text{ENEG} + \\ \text{PRED} \text{ 'HEAR<SUBJ,COMP>' } \\ \text{COMP} \left[ \begin{array}{l} \dots \\ \text{COMP} \left[ \begin{array}{l} \text{PRED} \text{ 'BUY<SUBJ,OBJ>' } \\ \text{OBJ} \left[ \begin{array}{l} \text{PRED} \text{ 'NOTHING' } \\ \text{NVM} + \end{array} \right] \end{array} \right] \end{array} \right] \end{array} \right] \end{array} \right]$$

Alruwaili & Sadler (2018) look at negation, n-words and the combination of negation and coordination in a construction similar to the English *neither ... nor* construction in the vernacular Arabic of Turaif in the Northern region of Saudi Arabia. Turaif Arabic does not use the bipartite negation illustrated above for Maltese. Also unlike Maltese, the n-words which can occur as fragment answers, including the negative proform *māhad* ‘no one’ and the scalar focus particle *wala* ‘not even one’ can occur (*preverbally*) without the negation marker, giving rise to a negative interpretation, as shown in (114a). Hence a preverbal n-word in combination with the sentential negation marker *mā* results in a double negation reading, as in (115). Alruwaili & Sadler (2018) treat these negative arguments as contributing CNEG adopting the distinction between ENEG and CNEG introduced by Przepiórkowski & Patejuk (2015), and proposing the f-structure in (116) for (115).<sup>24</sup>

(114) Turaif Arabic (Alruwaili & Sadler 2018: 30)

- a. *māhad* ḡa l-yōm  
no.one come.PFV.3M.SG DEF-today.M.SG  
‘No one came today.’
- b. *mā* ḡa ?ahad l-yōm  
NEG come.PFV.3M.SG one DEF-today  
‘No one came today.’

(115) Turaif Arabic (Alruwaili & Sadler 2018: 30)

- wala* ṭālib mā ḡ-a l-yōm  
NEG.SFP student.M.SG NEG come.PFV-3M.SG DEF-today  
‘Every student came today.’  
(= Not even a single student didn’t come today.)

<sup>24</sup>The feature SFOC is associated with the scalar focus determiner *wala*.

- (116) 
$$\left[ \begin{array}{l} \text{PRED 'COME<SUBJ>'} \\ \text{ENEG +} \\ \text{SUBJ } \left[ \begin{array}{l} \text{PRED 'STUDENT'} \\ \text{CNEG +} \\ \text{NUM SG} \\ \text{SFOC +} \end{array} \right] \\ \text{ADJ } \{ [\text{PRED 'TODAY'}] \} \end{array} \right]$$
 (Alruwaili & Sadler 2018: 31)

The main focus of this paper is on the bipartite negative coordination marker *lā ... wala* illustrated in (117b) (and found across many dialects of Arabic).

- (117) Turaif Arabic (Alruwaili & Sadler 2018: 32–33)

- a. mansōr mā gaʕad min n-nōm, w ʕali mā  
 Mansour NEG wake.PFV.3M.SG from DEF-sleep, CONJ Ali NEG  
 ʕa min d-dawām  
 come.PFV.3M.SG from DEF-work  
 ‘Mansour did not wake up and Ali didn’t come (back) from work.’
- b. lā mansōr gaʕad min n-nōm, wala ʕali  
 NEG Mansour wake.PFV.3M.SG from DEF-sleep, NEG.CONJ Ali  
 ʕa min d-dawām  
 come.PFV.3M.SG from DEF-work  
 ‘Mansour did not wake up and nor did Ali come (back) from work.’

Alruwaili & Sadler (2018) analyse both the negative conjunction *wala* (which rather transparently combines the conjunction *wa* and a negative formative) and the negative marker *lā* as elements which adjoin to (and mark) a conjunct, postulating special coordination schema for *neither ... nor* coordination – the rules in (118) and (119) (Alruwaili & Sadler 2018: 38) illustrate for sentential coordination.

- (118) *Negative Coordination Schema*

$$\begin{array}{ccc} \text{XP} & \longrightarrow & \text{XP} \qquad \text{XP}^+ \\ & & \downarrow \in \uparrow \qquad \downarrow \in \uparrow \\ & & (\downarrow \text{ENEG}) =_c +_- \qquad (\downarrow \text{CONJFORM}) =_c \text{WALA} \\ & & (\downarrow \text{CONJFORM}) \neq \text{WALA} \end{array}$$

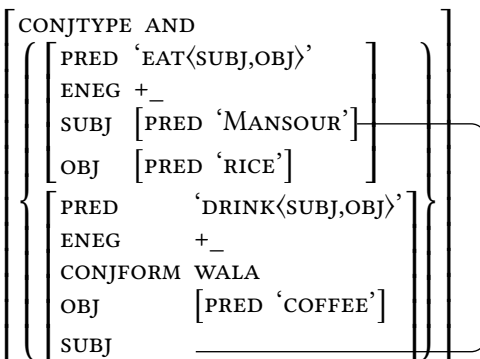
- (119) 
$$\begin{array}{ccc} \text{XP} & \longrightarrow & \text{Neg} \qquad \text{XP} \\ & & \uparrow = \downarrow \qquad \uparrow = \downarrow \\ & & (\in \uparrow) \end{array}$$



- (120) *wala* Neg ( $\uparrow$ CONJFORM)=WALA (Alruwaili & Sadler 2018: 38)  
 ( $\uparrow$ ENEG)=+\_  
 (( $\in \uparrow$ ) CONJTYPE)=AND
- (121) *lā* Neg ( $\uparrow$ CONJFORM)=LĀ (Alruwaili & Sadler 2018: 39)  
 ( $\uparrow$ ENEG)=+\_  
 (( $\in \uparrow$ ) CONJTYPE)=AND

The f-structure for (122) on this analysis is shown in (123), from Alruwaili & Sadler (2018: 38).

- (122) Turaif Arabic (Alruwaili & Sadler 2018: 32)  
 mansōr **mā** akal l-ruz **wala** šarab  
 Mansour.M NEG eat.PFV.3M.SG DEF-rice NEG.CONJ drink.PFV.3M.SG  
 l-gahwa  
 DEF-coffee  
 ‘Mansour neither ate the rice nor drank the coffee.’

- (123) 

The *neither ... nor* construction may also be used to coordinate arguments, where it shows the weak NCI behaviour noted above for negative elements such as *maḥad* ‘no one’ and determiner *wala*. That is, occurring preverbally, it expresses negation (and hence can give rise to double negation readings) while postverbally, it behaves like a NCI.

- (124) Turaif Arabic (Alruwaili & Sadler 2018: 34,40)
- a. *lā* ʔaḥmad *wala* mḥammad ḡ-aw  
 NEG Ahmad NEG.CONJ Mohamad come.PFV-3M.PL  
 ‘Neither Ahmad nor Mohammad came.’
- b. *lā* ʔaḥmad *wala* mḥammad **mā** ḡ-aw  
 NEG Ahmad NEG.CONJ Mohammad NEG come.PFV-3M.PL  
 ‘Both Ahmad and Mohammad came.’

- c. mā ḡ-aw                      lā ʔaḥmad wala ʔali  
 NEG come.PFV-3M.PL NEG Ahmad.M NEG.CONJ Ali.M  
 ‘Neither Ahmad nor Ali came.’

In previous work, Przepiórkowski & Patejuk (2015) associate the Polish strict NCI *nikt* ‘nobody’ with an inside-out constraint requiring  $ENE_{G=+}$  to be defined in the appropriate containing f-structure. Building on this approach, Alruwaili & Sadler (2018) formulate a complex lexical constraint to capture the dependency between the  $CNEG/NCI$  alternation and the existence and linear position of a  $ENE_{G=+}$  marker.

## 8 Unbounded dependency constructions

Hebrew and Arabic both make extensive use of resumptive strategies as well as gap strategies in unbounded dependency constructions, and formalisation of the resumptive strategy for Hebrew is a major concern of Asudeh (2012), the most important reference for this section (see also Asudeh 2011). Falk (2002) also discusses the resumptive strategy for Hebrew UDCs. Camilleri & Sadler (2011) looks at restrictive relative clauses and resumption in Maltese (see also Camilleri & Sadler 2012a), building on Asudeh’s approach to resumption. Further work on Maltese is descriptively oriented (Camilleri & Sadler 2016, Sadler & Camilleri 2017).

Hebrew resumptives occur in all NP positions except that of the highest subject. (125) illustrates an optional OBJ resumptive and (126) illustrates a resumptive within a complex NP island (note that there is no *wh*-item in these Hebrew relative clauses).

- (125) Hebrew (Borer 1984: 220)  
 raʔiti ʔet ha-yeled she-/ʔasher rina ʔohevet ʔoto  
 saw.1SG ACC DEF-boy COMP Rina love.3F.SG him  
 ‘I saw the boy that Rina loves.’
- (126) Hebrew (Borer 1984: 221)  
 raʔiti ʔet ha-yeled she-/ʔasher dalya makira ʔet ha-ʔisha  
 saw-I ACC DEF-boy COMP Dalya knows ACC DEF-woman  
 she-ʔohevet ʔoto  
 COMP-loves him  
 ‘I saw the boy that Dalya knows the woman who loves him.’

It is well established in the literature beyond LFG that the resumptives of Hebrew have the interpretational properties of pronouns rather than those of gap. The diagnostics distinguishing those which are interpretationally identical to gaps from those which behave semantically as pronouns include differences in behaviour with respect to island phenomena, weak crossover, across-the-board extraction, parasitic gaps and reconstruction (McCloskey 2017: 106). In line with this work, Asudeh (2011, 2012) distinguishes two types of true resumptives, which he refers to as *syntactically active resumptives* (SARS) and *syntactically inactive resumptive* (SIRS). Both types of resumptive receive the same treatment in the syntax-semantics interface, that is, they are removed by a manager resource. SARS do not display gap-like properties in the syntax and are simply anaphorically bound pronouns in the syntax: the RPs of Hebrew are of this type, as shown in (128). On the other hand, SIRS are syntactically gap-like (i.e. they are functionally controlled): the RP is treated as the bottom of a filler-gap dependency by restricting out the pronominal PRED, so that syntactically, the RP is equivalent to a gap (this analysis is given for Swedish in Asudeh 2012).

On the view that Asudeh develops, Hebrew resumptives are pronouns at f-structure, and are licensed in the complementiser system of Hebrew.<sup>25</sup>

That is, members of the class of C elements are lexically associated with the (optional) information shown in (127).

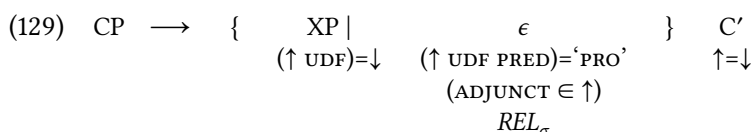
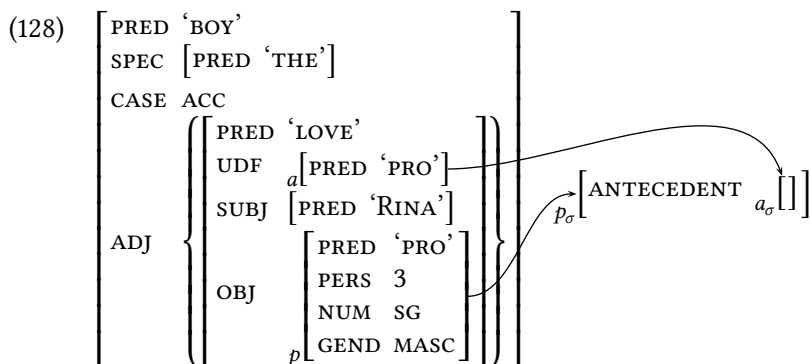
$$\begin{aligned}
 (127) \quad C \quad & \%RP = (\uparrow_{GF}^+) & (\text{Asudeh 2012: 221}) \\
 & (\uparrow_{UDF})_\sigma = (\%RP)_\sigma \text{ ANTECEDENT} \\
 & @MR(\%RP) \\
 & @RELABEL(\%RP)
 \end{aligned}$$

Abstracting away from many technical details, (127) states an equality between the semantics of a discourse function ( $\uparrow_{UDF}$ ) in the f-structure which contains the complementiser and the value of the ANTECEDENT attribute of some grammatical function within the structure (identified by means of the local name  $\%RP$ ). The template call in the third line introduces the semantic resource which removes the surplus pronominal resource in the course of semantic composition, using the Resource Management Theory of Resumption developed in Asudeh (2012).

<sup>25</sup> An alternative view of the resumptive pronouns is taken in Falk (2002), namely that pronouns may lack a PRED value just in case they are functionally identified with a discourse function: functional identification is introduced lexically (by the pronoun itself) and mediated by reference to a  $p$  projection containing the referential elements in the discourse as shown in (i).

(i)  $f \in p^{-1}(\uparrow_p) \wedge (DF \ f) \Rightarrow \uparrow = f$  (Falk 2002: 163)

The example in (125) with the resumptive has the f-structure in (128) (Asudeh 2012: 227).<sup>26</sup> The (standard) CP rule is shown in (129) (Asudeh 2012: 224) where  $\epsilon$  is not an empty node in the c-structure but the absence of a node associated with the collection of constraints specified.



Asudeh (2012) provides detailed coverage of many aspects of the syntax of Hebrew UDCs. For example (130) contains a fronted resumptive and no complementiser. The former is treated as an adjunction to C and the latter by means of a lexical entry for a null complementiser. *ʔašer* is a complementiser which can only appear in relative clauses, a restriction which is captured by an inside-out constraint in the lexical entry (132)

(130) Hebrew (Borer 1984: 220)  
 raʔiti ʔet ha-yeled ʔoto rina ʔohevet  
 saw.1SG ACC DEF-boy him Rina love.3F.SG  
 ‘I saw the boy that Rina loves.’

$$(131) \quad C \longrightarrow \begin{matrix} C & \hat{D} \\ \uparrow=\downarrow & (\uparrow \text{ GF})=\downarrow \end{matrix} \quad (\text{Asudeh 2012: 223})$$

(132) *ʔasher* C (ADJUNCT ∈ ↑) (Asudeh 2012: 223)

<sup>26</sup>Asudeh does not represent the subcategorised arguments within the PRED value, which is a simple, argument-less semantic form.

Camilleri & Sadler (2011) provide an analysis of Maltese restrictive relative clauses. In Maltese a resumptive is not permitted in the highest subject function or, in relative clauses with definite or quantified heads, the highest object position. They suggest the underlying distribution of resumptive and gap is essentially free but subject to some additional restrictions (for example, only a resumptive is possible as the argument of a preposition).

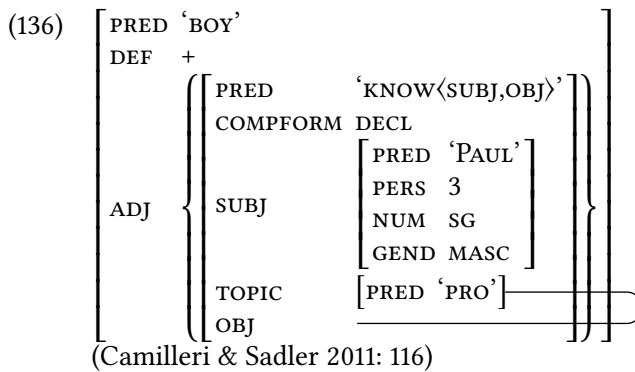
- (133) Maltese (Camilleri & Sadler 2011: 113)  
 Ir-raġel li bghatt-(lu) l-ittra  
 DEF-man COMP send.PFV.1SG.(-DAT.3M.SG) DEF-letter  
 wegħib-ni  
 respond.PFV.3M.SG-1SG.ACC  
 ‘The man that I sent (him) the letter responded.’

As well as complementiser-introduced relatives such as (133), Maltese also has *wh*-relatives, which involve a gap rather than a resumptive pronoun, although these are subject to quite severe restrictions. (134) is an example.

- (134) Maltese (Camilleri & Sadler 2011: 114)  
 It-tifel ’l min n(a)-hseb j-għallem-\*u  
 DEF-boy ACC.who 1SG-think.IPFV 3-teach.IPFV.3M.SG-3SG.ACC  
 ‘the boy who I think he teaches’

Building on standard assumptions, Camilleri & Sadler (2011) provide a syntactic analysis of both complementiser and *wh*-relatives. The example in (135) with either a complementiser or a *wh*-item is associated with the *f*-structure in (136) (assuming the PRED value of *’l min* is ‘PRO’).

- (135) Maltese (Camilleri & Sadler 2011: 116)  
 Rajt lit-tifel li /’l min j-af Pawlu  
 see.PFV.1SG ACC.DEF-boy COMP /who 3M.SG-know.IPFV Paul  
 ‘I saw the boy that Paul knows.’



Camilleri & Sadler (2011) show that Maltese also has true resumptives (as opposed to intrusive pronouns), and that the available tests indicate that (in the terminology of Asudeh 2012) they are *SARS* and hence anaphorically bound pronouns in the syntax. For example, they can be used felicitously in circumstances which would induce weak crossover violations. In (137) the dependency between the antecedent (*ir-raġel*) (or the *TOPIC*) and the RP 'crosses over' the possessive in *martu* ('his wife'), but the sentence is completely grammatical, while the corresponding sentence with a gap would be ungrammatical, despite the fact that RPs are normally excluded in *wh*-relatives in Maltese. Note that the *POSS* function is not accessible to relativisation by the *wh*-strategy and so it is clear that (137) involves relativisation on the *OBJ*, and therefore constitutes a case of crossover. (138) provides a similar example using the less restricted complementiser strategy for relativisation.

- (137) Maltese (Camilleri & Sadler 2011: 19)
- |   |         |               |      |                           |
|---|---------|---------------|------|---------------------------|
| Ir-raġel                                    | 'l min  | n-af          | li   | t-elq-it-u                |
| DEF-man                                     | ACC.who | 1SG-know.IPFV | COMP | 3F.SG-leave.PFV-3M.SG.ACC |
| l-mara/mart-*(u)                            |         |               |      |                           |
| DEF-woman/woman-3M.SG.ACC                   |         |               |      |                           |
| 'the man who I know that his wife left him' |         |               |      |                           |

- (138) Maltese (Camilleri & Sadler 2011: 19)
- |  |                |               |                  |                           |
|--|----------------|---------------|------------------|---------------------------|
| Ir-raġel   | li             | n-af          | li               | ħallie-t-u                |
| DEF-man  | COMP           | 1SG-know.IPFV | COMP             | leave.PFV-3F.SG-3M.SG.ACC |
| mart-*(u) baqa' ma hariġ-x mid-dar   |                |               |                  |                           |
| wife-3M.SG.ACC   | stay.PFV.3M.SG | NEG           | go out.3M.SG-NEG | from.DEF-house            |
| 'The man who I know that his wife left him, has not left the house since.' |                |               |                  |                           |

(139) illustrates the Complex Noun Phrase Constraint, with a (second) relative dependency into a CNP created by relativisation: although the relativised position is one which is normally accessible to the gap strategy, the resumptive is obligatory here as a gap would cause a syntactic constraint violation.<sup>27</sup>

(139) Maltese (Camilleri & Sadler 2011: 120)

Raj-t            ir-raġel   li            n-af                    mara    li  
 see.PFV-1SG DEF-man COMP 1SG-know.IPFV woman COMP  
 t-af-u    u    għid-t-l-u  
 3F.SG-know.IPFV-3M.SG.ACC and tell.PFV-1SG-DAT-3M.SG  
 j-selli-l-i    għali-ha  
 3M.SG-send regards.IPFV-DAT-1SG for-3F.SG.ACC

‘I saw the man who I know a woman that knows him, and told him to send her my regards.’

## 9 Other work

Alotaibi (2014) looks at conditional sentences in Hijazi Arabic and provides an LFG analysis of the syntax of these constructions. Camilleri et al. (2014a) discusses the dative alternation in Hijazi Arabic, ECA and Maltese and develops an account of the mapping to GFS using the mapping approach of Kibort (2008). Camilleri & Sadler (2012b) looks at non-selected datives in Maltese. Alzaidi (2010) on gapping constructions in Hijazi (Taif) Arabic. Sadler (2019) provides an analysis of mixed agreement in adjectival relatives in MSA. Clausal possession in Hebrew is discussed in Falk (2004). For an early discussion of agreement in MSA see Fassi Fehri (1988). Camilleri & Sadler (2017b) discusses the grammaticalisation of a progressive construction in the Arabic vernaculars from a posture verb ACT.PTCP and also provides a synchronic account of the progressive construction. Camilleri & Sadler (2018) concerns the grammaticalisation of both the universal perfect (see also Camilleri 2016) and the progressive in Arabic.

<sup>27</sup>The distribution of resumptives in Maltese does raise some potentially puzzling issues. Camilleri & Sadler (2011) show that there may be evidence from the distribution of gaps and RPs in across-the-board constructions that Maltese also has *syntactically inactive resumptives* (SIRs) (functionally controlled RPs or ‘audible’ gaps) since gaps and resumptives occur together in ATB constructions, but that simply assuming that ATB constructions in Maltese (and in Arabic more widely) involve SIRs rather than SARs is also problematic.

## Acknowledgements

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## Abbreviations

Besides the abbreviations from the Leipzig Glossing Conventions, this chapter uses the following abbreviations.

CONJ	conjunction	JUSS	jussive
CONSTR	construct form	MSD	maṣḍar
EPENT.VWL	epenthetic vowel	PRN	pronoun
FRM.VWL	formative vowel	SFP	scalar focus particle

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