

ON THE SYNTAX OF PARTICIPIAL MODIFIERS*

ABSTRACT. Based on a comparative study of Arabic, Hebrew, and Older Egyptian, we investigate variation in the syntax of participial modifiers within and across languages. We propose a syntactic derivation of participles which involves the embedding of an (extended) verbal projection into a nominalizing participial node, and account for the differences between lexical, phrasal and clausal participial modifiers in terms of the complexity of the syntactic structure with which this participial node is merged. The internal structure of participial modifiers may be quite elaborate, yet does not contain a complementizer (or an equivalent functional node D^0). Despite the lack of a C^0 node, languages may but need not resort to syntactic operators to form a propositional property. Crosslinguistically, participial modifiers differ along two dimension, viz. (i) whether positions other than the subject can be relativized or not, and (ii) whether the participle can express temporal, aspectual or modal (TAM) distinctions. The possibility of relativizing a position other than the subject depends on whether the language in question has a way of resolving agreement mismatches. The possibility of expressing TAM oppositions depends on the detachability of TAM morphology from subject-verb agreement.

1. INTRODUCTION

Participial modifiers have received a considerable amount of attention in traditional grammar and generative syntax alike; yet, due to their mixed nominal, verbal and clausal properties, the status of these modifiers is not very well understood. Some researchers treat them as adjectival, others as clausal, but there are problems with each of these views. We develop an alternative analysis of participial modifiers that overcomes these problems. The focus of the comparative study is on three Afroasiatic languages which exhibit substantial variation: Modern Standard Arabic, Modern Hebrew, and Older Egyptian (not to be confused with Egyptian Arabic¹). We also test our predictions for languages from additional language families (Indo-European, Altaic, Dravidian).

Starting from the traditional view of participles as categories which are both nominal and verbal, we argue that participles are formed in the syntax by embedding a verbal structure under a nominalizing participial node (PTCP). The need to provide a unified syntactic analysis for participial modifiers with different syntactic complexity favors the adoption of a theoretical framework that allows syntactic derivation not only within phrases and clauses, but also within words. Accordingly, the theoretical framework which is adopted is the derivational approach to syntax in its current minimalist formulation (as in Chomsky 1993, 1995, 2000, 2001, Lasnik 1999, and others) as extended to word structure (Hale & Keyser 1993, Halle & Marantz 1993, 2001, Kratzer 1994, Marantz 1997, Embick 2004, Di Sciullo 2005, and others). This framework permits an explicit formulation of the syntactic derivation of participles, by embedding of verbal structure under a nominalizing node PTCP.²

The endowment of the PTCP node with nominal features (N-features) is what accounts for the nominal distribution of participles. In the languages we study, these are features such as number, gender, definiteness and Case, but crucially not the feature person. We interpret the N-features of the participle as the essence of its non-finite nature. Since we find temporally marked participles in the languages we study, we depart from previous analyses, where the lack of temporal morphology is considered to be the characterizing nature of a participle. Participles do have temporal morphology, which originates in the verbal head of the participle and the functional heads which form its extended projection.

The structure of the paper is as follows. Section 2 presents the core analysis of participial modifiers that we are motivating and defending in this paper. Section 3 contains an overview of previous analyses. Section 4 presents a taxonomy of participial modifiers alongside two dimensions, i.e. the availability of non-subject relativization and the presence of tense/aspect/mood marking on the participle. Section 5 offers an economy explanation for the systematic absence of relative complementizers in participial modifiers. Section 6 discusses the different strategies of resolving potential agreement mismatches in participial modifiers in which a non-subject constituent is relativized. Section 7 connects the possibility of marking tense/aspect/mood distinctions on participles to the detachability of TAM markers from subject-verb agreement inflection. Section 8 distinguishes three types of structures for participial modifiers: lexical, phrasal and clausal. Sections 9 and 10 argue that phrasal participial modifiers express complex properties without resorting to syntactic operators, independently of whether relativization of subject or non-subject position, whereas section 11 shows that clausal participial modifiers do resort to such syntactic operators. Section 12 discusses the broad theoretical implications of the present study.

2. THE CORE ANALYSIS

This section comprises the core analysis of participial modifiers that we will pursue in the present paper. The main points that we wish to establish are the following:

2.1. *The categorial status of participles*

2.2.1. N-FEATURES. We characterize a participle as a derived form of the verb inflected for a combination of nominal and verbal features. This description characterization captures the traditional view of participles as both nominal and verbal categories. We call the nominal features which mark the participle *N-features*. In the languages we study, these are features such as number, gender, definiteness and Case, but crucially not the feature *person*. The verbal features of the participle express temporality and modality, which are typically associated with verbal categories.

2.1.2. CONCORD. We use the term *concord* for the N-feature sharing relation between a participle and the noun phrase it modifies (which we call the *nominal head*). The term *concord* denotes a syntactic relation, which is not always morphologically overt. We reserve the term *agreement* for the feature sharing between subject and verb.

2.1.3. NON-FINITENESS. We interpret the N-features of the participle as the essence of its *non-finite* nature. In particular, the presence of such nominal features as Case and definiteness, together with the lack of the *person* feature, characterize the participle as non-finite. Since we find temporally marked participles in the languages we study, we depart from the traditional grammar view which considers the lack of temporal morphology to be the characterizing nature of a participle.

2.1.4. MODIFICATION. It is the N-features of participles which allow them (similarly to adjectives) to function crosslinguistically as nominal modifiers without the mediation of a functional node whose purpose is to turn verbal projections into modifiers. This provides us with an economy account for the cross-linguistic generalization according to which participial modifiers are in complementary distribution with relative complementizers. Relative complementizers are functional categories which are endowed with N-features. Due to the presence of N-features, clauses headed by a relative complementizer are marked as a

nominal constituent modifying the relative head. In participial modifiers, however, a C^0 node with N-features is redundant, since the participle itself has the relevant N-features.

2.2. *The syntactic structure of participial modifiers*

2.2.1. THE PARTICIPIAL (PTCP) NODE. We propose that the N-features of the participle are introduced in the syntax, via embedding of the verbal head under a nominalizing participial node (PTCP). The endowment of the PTCP node with N-features underlies the nominal distribution of participles. The verbal features of the participle originate in the verbal head and in the functional heads which form its extended projection.

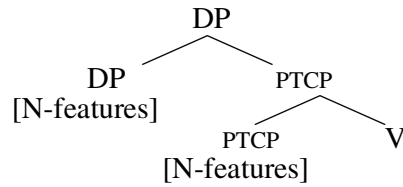
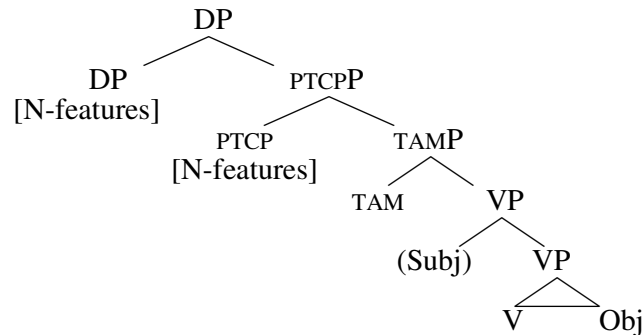
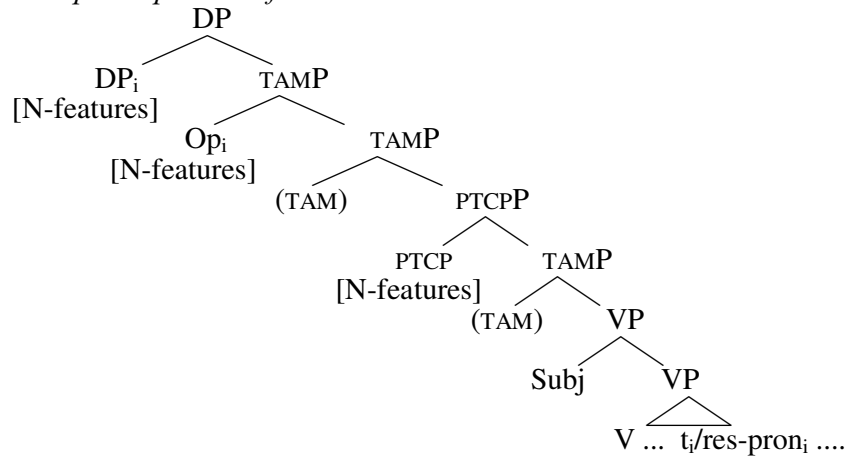
2.2.2. TYPES OF PARTICIPIAL MODIFIERS. Participial modifiers can be distinguished on the basis of their structural complexity into lexical, phrasal, and clausal. This is a fundamental distinction that should be maintained in the theoretical analysis. Lexical and phrasal participial modifiers differ from each other in the amount of verbal structure with which the PTCP node is merged. In the case of lexical modifiers, the participial phrase PTCPP directly dominates V; in the case of phrasal modifiers, it dominates VP (or VP dominated by temporal node). What distinguishes clausal modifiers from phrasal participial modifiers is the presence of further functional structure above PTCPP, which in turn licenses a relative operator.

2.2.3. PROPERTY FORMATION. An important difference between phrasal and clausal participial modifiers regards the semantic interpretation. Phrasal modifiers denote properties, typically of the subject, without the need of a syntactic operator. Clausal modifiers depend on a syntactic operator to abstract over an argument of the clause and form a derived property. This is a last-resort mechanism, since economy principles normally prevent the construction of superfluous structure which would require additional steps in the derivation. Once a participial phrasal structure is constructed which derives a property, it is not allowed to build additional clausal structure just to abstract over the very same subject. Accordingly, our analysis of phrasal modifiers does not involve an operator, and in this respect it differs substantially from previous analyses of such modifiers.

2.2.4. THE UNIVERSALITY OF PHRASAL PTCPPs. All languages which have participial modifiers have phrasal PTCPPs, while clausal participial modifiers represent the typologically marked option. We interpret this to mean that not all languages allow the more elaborate structures resulting from the further expansion of PTCPPs. We conjecture that this universal could be the explanation for Keenan & Comrie's (1984) *Noun Phrase Accessibility Hierarchy*, according to which languages with relative clauses allow relativization of the subject.

2.2.5. THE EQUIVALENCE OF PHRASAL PTCPPs AND SUBJECT RELATIVIZATION. Universally, phrasal participial modifiers suffice for subject relativization, without the need for syntactic operators. This may include not only Narrow subjects, but also Broad subjects, in languages that allow multiple subjects. Relativization of a Broad subject co-occurs with the presence of a Narrow subject in the phrasal participial modifier. Arabic provides a case in point.

The syntactic configurations underlying lexical, phrasal, and clausal participial modifiers are shown in tree diagrams (1)-(3). The DP-PTCPP word order is subject to parametric variation. The label TAM stands for the functional head which hosts tense/aspect/mood features. This functional head may appear in different positions in the syntactic structures. Its presence reflects the fact that even in languages which lack overt temporal morphology, participial modifiers nevertheless assume a temporal interpretation.³

(1) *Lexical participial modifiers*(2) *Phrasal participial modifiers*(3) *Clausal participial modifiers*2.3. *Parametric variation*

The present research uncovers two dimensions of cross-linguistic syntactic variation among participial modifiers.

2.3.1. RESOLUTION OF AGREEMENT MISMATCHES. Universal Grammar should in principle allow all languages with participial modifiers to relativize on positions other than the subject, since this option is instantiated in some languages, Arabic, Older Egyptian, Turkish, Malayalam, to mention a few. But, as noted in §2.2.4, this is a marked option. We account for its marked status by noting that participial modifiers where relativization targets a position other than the subject are faced with potential agreement mismatches. These mismatches arise as the participle has to enter into two types of feature matching relations: agreement with the subject and concord with the nominal head. Only those language which have a way of resolving agreement mismatches allow relativization of non-subject constituents in participial modifiers.

2.3.2. TAM-AGREEMENT DETACHABILITY. In principle, all languages should be allowed to have participles which express temporal and modal distinctions, since this option is manifest in some languages, Classical Greek, Older Egyptian, Tamil and others. However, the possibility to have temporally marked participles depends on the morphological profile of TAM inflection. For a language to allow temporal and modal variation of the participle, TAM inflection has to be detachable from finite subject-verb agreement morphology. Since participles are not inflected with finite subject-verb agreement, neither can they be inflected by TAM morphology, unless the two inflections are detachable from each other. Syntactically, this would depend on temporal functional nodes not having to be instantiated by agreement features.

The morphological nature of the two parameters that we uncover provides further confirmation for the principles-and-parameters view of syntactic variation between languages as being amenable to parameters of morphology.

3. PREVIOUS ANALYSES

Participial modifiers are often treated in traditional grammars as adjectival, yet in the early days of generative grammar they were analyzed as clausal structures derived from finite relative clauses, by postulating a ‘relative clause reduction transformation’ (also known as “*wh-is*-deletion”) (cf. Jacobs & Rosenbaum 1968:204, Green & Morgan 1972:18, Baker 1978:312-3). This transformation derived participial modifiers as syntactically reduced versions of relative clauses, through the deletion of the sequence *who is*:

- (4) a. the boy [~~who is~~ walking his dog]
 b. the suspect [~~who is~~ being interrogated]

According to the *wh-is*-deletion transformation, participial relative clauses lack both a *wh*-operator and a finite verb. In Burzio’s (1986:150) version, an adaptation of Stowell’s (1981) *small-clause* analysis, the deletion transformation was replaced by base-generation of the clause without a *wh*-operator or a tensed auxiliary *is* (a similar version appears in Pesetsky 1995:296):

- (5) the boy [_{SC} PRO walking his dog]

In more recent analyses, the structure of participial relatives has been re-assimilated to the structure of finite relative clauses. Participial relatives are analyzed as involving a relative operator which is licensed in the specifier position of a functional projection headed by a complementizer-like functional head F^0 (either C^0 or D^0):

- (6) the [_N boy]_j [_{FP} [_{SPEC-FP} Op (_{t_j})_i] [_{F⁰} [_{t_i} walking his dog]]]

According to these new analyses, participial relative clauses are like finite relative clauses, the only difference being that the participial clause does not contain a T(ense) node. In Kayne’s (1993, 1994) analysis, the functional category F^0 which embeds both participial and finite relative clauses is identified with C^0 . According to Siloni’s (1995, 1997) analysis, the functional category F^0 which embeds participial relatives is D^0 , unlike finite relative clauses, which are embedded under C^0 . Under both accounts, the two types of relative clauses are

parallel in hosting a relative operator which binds a trace t_i (and in Kayne's system, there is an additional trace t_j of the raised relative head N)⁴.

We differ from both Kayne and Siloni in that we do not postulate an overt syntactic reflex of property formation (head movement or operator movement) unless required by the complexity of the structure, which is certainly not the case for participial modifiers with subject relativization. We will argue that subject relativization cross-linguistically involves *phrasal participial modifiers*, which are interpreted as properties independently of a syntactic operator. Syntactic operators are only found in *clausal participial modifiers*, which relativize non-subjects. Yet non-subject relativization does not necessarily require an operator, and may also be found in phrasal participial modifiers.

Kayne's postulation of a null complementizer in participial relative clauses does not capture the crosslinguistic generalization whereby finite relative clauses are introduced by a lexical complementizer, whereas participial modifiers are not. Yet the complementary distribution of relative complementizers and participial modifiers has been extensively documented both within and across languages (see Downing 1978, Lehmann 1984, Keenan 1985, and de Vries 2002 for representative studies).

A second argument against the presence of a null complementizer in participial modifiers is that, at least in some languages, the positions relativizable in participial relatives is a proper subset of the positions relativizable in finite relatives. In English and in Hebrew, for example, only relativization of the subject position is possible in phrasal participial modifiers. If such participial modifiers were headed by a C^0 node, one would expect relativization of all positions to be possible, as is the case in finite relative clauses, contrary to the facts.

A third argument against the presence of a null complementizer in participial modifiers has to do with the incompatibility of a subject-trace and a null complementizer in finite relatives, which prevents relativization of the subject, as seen in (7a). This effect is missing from the corresponding participial relative in (7b), which would be unexplained if it also contained an empty complementizer.

(7) a. * [The boy [[$C \emptyset$] t_{subj} is walking his dog]] is my cousin.

b. [The boy [walking his dog]] is my cousin.

Additional arguments can be found in Siloni (1995, 1997) and in Hazout (2001), who argue against Berman's (1978) analysis of participial modifiers in Modern Hebrew as constructions headed by a complementizer, and in general against viewing the prefix *ha-* in Hebrew participial modifiers as a relative complementizer akin to the relative complementizers *ʔafer* and *ʔe-*, which is the traditional Hebrew grammar analysis (e.g. Peretz 1967).

Siloni's (1995, 1997) account of participial modifiers acknowledges that they are not CPs, but nevertheless assumes the existence of a null relative operator, licensed by a determiner head D^0 . The view that participial modifiers are DPs crucially depends on the assumption that participles are not inflected for tense, since tensed DPs are arguably not found across languages. Yet, participles with temporal morphology are crosslinguistically amply attested (Classical Greek, Older Egyptian, Tamil, among others). Even in Hebrew, where there is no temporal variation of the participle, temporal reference is nevertheless encoded in the participial modifier. Thus, consider the following Hebrew example, which contains a participle *ha.yo.fvim* 'sitting':^{5,6}

(8) **Hebrew**

ʔetmol pagʕa rakevet be-mexonit.
 yesterday hit.PAST.3FS train.FS at-car
 ʔanaʕim [**ha.yoʕvim** b-a-mexonit] nifceʕu b-a-teʔuna
 people-MP EMPH.sit.PTCP.MP in-the-car wound.MID.PAST.3MP in-the-accident
 ‘Yesterday a train hit a car. People (now) sitting in the car were wounded in the
 accident.’

In this example, the participle must be interpreted at speech-time, and not simultaneously with the event-time, which is past, as marked by the past-tense inflection of the finite verbs. Pragmatically, an anaphoric interpretation of the noun phrase *the car* would be favoured, together with a simultaneous reading for the participle. Nevertheless, the only possible reading for the participle is with speech-time interpretation, forcing a deictic interpretation for *the car*.⁷

Besides the clausal analyses of participial modifiers, some scholars have defended the adjectival approach (Borer 1990, Fassi Fehri 1976, Haspelmath 1994, Hazout 2001). The absence of a lexical complementizer in participial modifiers follows under this approach from the adjectival status of participial modifiers. Naturally, adjectival modifiers are not expected to contain a C⁰ node. An adjectival analysis is, however, problematic for languages (such as Turkish and Older Egyptian, among others) where participial modifiers may, first, carry temporal inflection, and second, involve the relativization of object positions.

4. A TAXONOMY OF PARTICIPIAL MODIFIERS

In this section we present a taxonomy of participial modifiers that exemplifies two dimensions of crosslinguistic variation. One dimension concerns the morphological make-up of participles: whether they express temporal, aspectual and modal distinctions. The other dimension concerns the possibility to relativize positions other than the subject, with the result that participial modifiers will contain an overt subject. We find that all logical combinations of the two dimensions are attested:

- A. The TEMPORALLY-INVARIABLE pattern, with relativization of the SUBJECT ONLY. This is the pattern found in Hebrew, both Biblical and Modern (Gesenius & Kautzsch 1910, Berman 1978, Siloni 1995, 1997, Hazout 2001).
- B. The TEMPORALLY-VARIABLE pattern, with relativization of the SUBJECT ONLY. This is the pattern found in Classical Greek (Goodwin 1894, 1897, Humbert 1945, Adams 1972).
- C. The TEMPORALLY-INVARIABLE pattern, with relativization of a NON-SUBJECT alongside the subject. This pattern is found in Arabic (Fassi Fehri 1976, Polotsky 1978, Doron 1995, 1996, Hazout 2001).
- D. The TEMPORALLY-VARIABLE pattern with relativization of a NON-SUBJECT alongside the subject. This pattern is found in Older Egyptian (Satzinger 1984, Loprieno 1995, Reintges 2000, 2005b), in Turkish (Underhill 1972, Lewis 1984, Kornfilt 1997, 2000, 2005), and in the Dravidian languages Malayalam (Asher & Kumari 1997), Tamil (Asher 1989, Schiffman 1999), and Telugu (Krishnamurti & Gwynn 1985).

The different patterns are summarized in table 1:

TABLE 1. *A taxonomy of participial modifiers*

| RELATIVIZATION PATTERN | TEMPORALLY-INVARIABLE | TEMPORALLY-VARIABLE |
|-------------------------|-----------------------|---|
| SUBJECT-ONLY | Hebrew | Classical Greek |
| SUBJECT AND NON-SUBJECT | Arabic | Older Egyptian, Turkish, Malayalam, Tamil, Telugu |

We now illustrate the different patterns determined by the above taxonomy. In the Modern Hebrew example (9), it is the subject which is relativized:

- (9) **Hebrew**
 laqofiot [**ha.maʕadifim** ʔet-ha-model ha-fiadaʃ]
 customers-MP EMPH.prefer.PTCP.MP ACC-the-model the-new
 ‘customers who prefer the new model’

Classical Greek, like Hebrew, only allows relativization of the subject, yet differs from it in that participles vary morphologically with respect to temporal distinctions. Thus, the participial modifier in (10a) contains a Perfect participle *kateilɛ:p^hóta* ‘having overtaken’, and the one in (10b) – a future participle *kɔ:lýsonta* ‘going to prevent’. There are also present tense and aorist participles.

- (10) **Classical Greek**
 a. tòn **kateilɛ:p^hóta** kíndynon tɛ:n pólin
 the.MS.ACC take.over.PERF.PTCP.MS.ACC danger.MS.ACC the.FS.ACC city.FS.ACC
 ‘the danger which had overtaken the city’ (Demosthenes xviii:220)
 b. allà nómon de:mosíʒa tòn taũta
 but law.MS.ACC publically the.MS.ACC this.NEUT.P.ACC
kɔ:lýsonta tét^heintai toutoní
 prevent.FUT.PTCP.MS.ACC enact.AOR.3P.MID this.MS.ACC
 ‘But they have publicly enacted the very law which would prevent these (things).’
 (Demosthenes xxi:530)

Modern Standard Arabic differs from both Hebrew and Greek in allowing participial modifier where the relativized position is not necessarily the subject. In example (11), relativization is of a possessor, marked by the possessive resumptive clitic *-haa* ‘her’ on the subject *zawj-u-haa* ‘her husband’.

- (11) **Arabic**
 ʔal-marʔat-u [**l-jaalis-u** zawj-u-haa]
 the-woman.FS-NOM the-sitting.PTCP.MS-NOM husband.MS-NOM-POSS.3FS
 ‘the woman whose husband is sitting’ (Badawi, Carter & Gully 2004:115)

We now turn to examples which have both temporally-variable participles, as in Classical Greek, and permit the relativization of a non-subject constituent, as in Arabic. This option will be illustrated with the example of direct object relativization in Older Egyptian, Turkish and Tamil. In the Older Egyptian examples (12), the participle *rd^ʃ-w-n(-j)* ‘which I have

given' in (12a) contains the Perfect marker *-n*, and the participle *hꜥb-w* 'whom will send' in (12b) the prospective marker *-w*.⁸

(12) **Older Egyptian**

- a. jr mw jpn rnp-w [**rd³j-w-n(-j)** n-k]
 as.for water.MP this.MS fresh-MP give-PTCP.MP-PERF-1S to-2MS
 'As for these fresh waters which I have given to you' (Pyramid Texts 1002c/M)
- b. wpwt(j) pw [**hꜥb-w** tjtj r xsf]
 messenger COP.MS send.PTCP.MS-PROS Teti to restrain.INF
 'It is the messenger whom (King) Teti will send to restrain' (Pyramid Texts 402c/T)

In the Turkish examples in (13), the modifiers contain participles with tense, negation and mood, such as *sev-e-me-diğ-i* 'that 3S probably cannot love' in (13c), where the negation *-mA* and mood *-e* are clausal and not adjectival (Kornfilt 2000):

(13) **Turkish**

- a. [geçen yaz ada-da **gör-düğ-üm** kişi-ler]
 last summer island-LOC see-PTCP.PRES/PAST-POSS.1S person-P
 'the people who(m) I saw on the island last summer.' (Kornfilt 2000:123 (1b))
- b. [bu yaz ada-da **gör-eceğ-im** kişi-ler]
 this summer island-LOC see-PTCP.FUT-POSS.1S person-P
 'the people who I will see on the island this summer.' (Jaklin Kornfilt p. c.)
- c. [oya-nın herhalde **sev-e-me-diğ-i** bir insan]
 Oya-GEN probably love-ABIL-NEG-PTCP.PRES/PAST-POSS.3S a person
 'a person whom Oya probably cannot love' (Kornfilt 2000:124 (6a))

In the Tamil example (14), which also involves direct object relativization, the participle has past tense morphology. Significantly, tense morphemes are clearly distinguished from aspectual morphemes, which are also found in participles (Schiffman 1999).

(14) **Tamil**

- [naan **paa-tt-a**] payyan
 I see-PAST-REL.PTCP boy
 'the boy I saw' (Schiffman 1999:155)

To conclude, the morphosyntax of participial modifiers is crosslinguistically more varied than previously assumed; yet we can identify clear patterns:

- (i) In the languages we study, there is ample evidence for the absence of relative complementizers in participial modifiers. Syntactically, participial modifiers can by themselves assume a modificational function without resorting to additional functional superstructure (i.e. the C^0 -node). We will offer an economy explanation for the complementarity between relative complementizers and participial modifiers in section 5.
- (ii) When a non-subject is relativized, the participial modifier will contain its own subject. Consequently, the participle enters into two types of agreement relationships, one with its subject and another one with the nominal head. This gives

rise to potential agreement mismatches. We will argue in section 6 that only those languages which have strategies to resolve agreement mismatches also license participial modifiers with non-subject relativization.

- (iii) The participles in some languages have overt temporal morphology, and can thus express temporal, aspectual or modal oppositions, whereas other languages do not have such temporal morphology in participles. In section 7, we correlate the presence of temporal inflection to an independent property of verbal-inflectional paradigms: the detachability of temporal inflection from subject-verb agreement.

5. ON THE ABSENCE OF RELATIVE COMPLEMENTIZERS IN PARTICIPIAL MODIFIERS

In this section we provide an economy explanation for the crosslinguistically well attested complementary distribution between participial modifiers and relative complementizers (see Downing 1978, Lehmann 1984, Keenan 1985, and de Vries 2002). Our point of departure is the view that in finite relative clauses, too, concord is the relevant licensing mechanism allowing them to function as modifiers. In the languages we study, the concord between heads and modifiers extends to finite relative clauses, as well as to participial modifiers.

Finite relative clauses in Arabic and Older Egyptian provide a case in point, since they are introduced by relative complementizers that overtly agree in N-features with the nominal head.^{9,10} In Arabic, finite relative clauses that modify a definite noun phrase are introduced by the relative complementizer *ʔallaḏii* which is inflected for number, gender, definiteness and Case (which only shows up overtly in the dual) (see, e.g., Fleisch 1990:84ff. §117, Badawi, Carter & Gully 2004:48 §1.7.3). The full paradigm is presented in table 2.

TABLE 2. *The paradigm of the Arabic relative complementizer ʔallaḏii*

| | SINGULAR | DUAL | | PLURAL |
|-----------|----------|------------|---------------------|-----------------------------|
| | | NOMINATIVE | ACCUSATIVE/GENITIVE | |
| MASCULINE | ʔallaḏii | ʔallaḏaani | ʔallaḏayni | ʔallaḏiina |
| FEMININE | ʔallatii | ʔallataani | ʔallatayni | ʔallawaatii, var. ʔallaatii |

Older Egyptian finite relative clauses contain no relative pronoun or subordinator other than the lexical complementizer *nt(j)* ‘that’ and its negative counterpart *jwt(j)* ‘that not’. The concord between the nominal head and the relative clause is expressed on the relative complementizer itself, which also types its clausal complement as affirmative or negative (see Reintges 2000, 2005b). The complete inflectional paradigm of relative complementizers is presented in table 3.

TABLE 3. *The paradigm of Older Egyptian relative complementizers nt(j) and jwt(j)*

| | SINGULAR | | DUAL | | PLURAL | |
|-----------|----------|----------|------------|-------------|----------|-----------|
| | nt(j) | jwt(j) | nt(j)-w(j) | jwt(j)-w(j) | nt(j)-w | jwt(j)-w |
| MASCULINE | nt(j) | jwt(j) | nt(j)-w(j) | jwt(j)-w(j) | nt(j)-w | jwt(j)-w |
| FEMININE | nt(j)-t | jwt(j)-t | nt(j)-t(j) | jwt(j)-t(j) | nt(j)-wt | jwt(j)-wt |

We provide an example of relative clauses with overtly agreeing complementizers:

- (15) **Arabic**
 li-l-muqaabalat-ayni [llat-ayni fiḍara-humaa]
 to-the-meeting.F-GEN.D COMP_{REL}.F-GEN.D attend.PERF.3MS-ACC.FD
 ‘the two meetings that he attended’
 (Adapted from Badawi, Carter & Gully 2004:498 by Shireen Siam)
- (16) **Older Egyptian**
 rfi-t(j) wrt-tj ʕt-tj [ntt-tj m gs jʔbt(j) n(j) pt]
 comrade-FD great-FD big-FD COMP_{REL}-FD at side eastern of.MS heaven
 ‘the two great female companions who are at the eastern side of heaven’
 (Pyramid Texts 2200b/N)

The following examples of participial modifiers are parallel to the ones with agreeing relative complementizers:

- (17) **Arabic**
 bi-l-muʔkilat-ayni s-saabiqat-ayni
 with-the-problem.F-GEN.D the-precede.PTCP.F-GEN.D
 ‘with the two previous problems’ (Badawi, Carter & Gully 2004:103)
- (18) **Older Egyptian**
 m jr-t(j)-k tm-jj-t(j)
 with eye-FD-POSS.2MS complete-PASS-PTCP.FD
 ‘with your two recovered eyes’ (Pyramid Texts/Pepi II 1055+37 [pl.13])

The endowment of relative complementizers with N-features makes it possible for the CP to function as a clausal modifier. The complementary distribution between participial modifiers and relative complementizers falls into place by economy considerations: a participle is endowed with the relevant N-features which enable it to enter into a concord relation with the nominal head it modifies. To serve modificational purposes, participles need not, and, by economy, cannot have a C⁰ node as a concord carrier. On this economy explanation, one would expect participles to always enter into a feature sharing relationship with the noun phrase they modify. Yet, there are participles, for instance in Turkish, which lack concord marking. We discuss such apparent counterexamples in the next section.¹¹

6. THE RESOLUTION OF AGREEMENT MISMATCHES

As we have seen in section 4, Older Egyptian, Turkish and Arabic are languages where there is relativization of non-subject constituents within participial modifiers. In such structures, potential agreement mismatches arise, since the participle enters into two kinds of feature-sharing relationships, viz. *concord* with the nominal head and *agreement* with its own subject. The three languages exemplify different outcomes of feature computation, which depend on the morphological realization of concord and subject agreement. As a result, agreement mismatches are avoided in somewhat different ways.

Consider first the case of Older Egyptian, where mismatch is evaded, since there is no morphologically realized subject-verb agreement to begin with. In this language, participles are morphologically derived from verbs of the so-called Eventive paradigm. Verbs in this conjugation pattern are inflected for tense, aspect, mood and voice, but crucially not inflected

for verbal agreement features.¹² As we can see from examples (19a-b), participles do not overtly agree with their subjects, and only enter into a concord relation with the nominal head. Concord is in number and gender, since Case and definiteness are not morphologically realized in this language. (A more detailed discussion of participle formation in Older Egyptian will be postponed to section 11).

(19) **Older Egyptian**

- a. nominal head: MS, subject: MP

fir gs pw jʔbt(j) n(j) pt [**ms-s-w** nčr-w jm]
 on side.MS this.MS eastern.MS of.MS heaven bear-IMPf-PASS(-PTCP.MS) god-PM in
 ‘on this eastern side of heaven where the gods are born’ (Pyramid Texts 928a/P)

- b. nominal head: FS, subject: MS

jrt fir [č**pn-pn-t-n** stj fir-s]
 eye.FS Horus be.excited-INTENS-PTCP.FS-PERF Seth about-3FS
 ‘the eye of Horus about which Seth became very excited’
 (Pyramid Texts/Neith 299 [pl.12])

In Turkish, mismatches are avoided in the same way, although it is concord that is covert, while subject agreement is overt. The participle in Turkish carries possessive person agreement suffixes which correspond to its (genitive Case-marked) subject (Lewis 1984:163-5, Göksel & Kerslake 2005:68-70 §8.1).

(20) **Turkish**

[ben-im **söyle-diğ-im** söz-ler]
 I-GEN say-PTCP.PRES/PAST-POSS.1S word/utterance-P
 ‘the words I said’ (Jaklin Kornfilt p.c.)

Since in Turkish there is no concord marking between modifiers and heads, the language avoids mismatches by refraining from overt agreement between the participle and the relative head. However, this does not mean that there is no N-feature sharing relation between the participial modifier and its nominal head. It can be argued on the basis of comparative evidence that such concord relation is nevertheless operative.¹³ Kornfilt (2005) discusses examples from Central Asian Turkic languages, for example Uzbek, where the possessive agreement suffix, which marks agreement with the subject, surfaces on the relative head, rather than on the participle, as it does in Turkish:

(21) **Uzbek**

[men-ij **gapir-gan** gap-im]
 I-GEN say-PTCP word-POSS.1S
 ‘the word(s) I said’ (Kornfilt 2005: 516 (5a))

We interpret this fact as an indication for N-feature sharing between the participle and the nominal head, which may show up overtly either on the participle itself, as in Turkish, or on the nominal head, as in Uzbek.

In Arabic participial modifiers, both agreement and concord are overtly realized. The language allows some of the features to agree with the subject, while others agree with the nominal head. The participle agrees with its own subject in number and gender. This is to be expected, since within the participial phrase itself, the participle checks agreement features with its subject, and these are crucially only number and gender. Therefore, Case and

definiteness features remain unchecked and stay in the derivation until the participle reaches a position local to the nominal head, where these features are checked via concord.¹⁴ Number and gender agreement between the participle and the subject is exemplified in examples (22a-b), while (22c-d) illustrate concord in Case and definiteness with the nominal head.¹⁵

(22) **Arabic**

- a. nominal head: DEF.FS/NOM, subject: DEF.FP/NOM
 waṣal-at il-marʔat-u [**l-jaalisaat-u** banaat-u-haa]
 arrive.PERF-3FS the-woman.FS-NOM the-sitting.PTCP.FP-NOM daughter.FP-NOM-POSS.3FS
 ‘The woman whose husband is sitting arrived.’
- b. nominal head: DEF.FS/NOM, subject: DEF.MP/NOM
 waṣal-at il-marʔat-u [**l-jaalisu-un** ʔawlaad-u-haa]
 arrive.PERF-3FS the-woman.FS-NOM the-sitting.PTCP.MP-NOM children.MP-NOM-POSS.3FS
 ‘The woman whose children are sitting arrived.’
- c. nominal head: DEF.FS/ACC, subject: DEF.MS/NOM
 qaabal-tu l-marʔat-a [**l-jaalis-a** zawj-u-haa]
 meet.PERF-1S the-woman.FS-ACC the-sitting.PTCP.MS-ACC husband.MS-NOM-POSS.3FS
 ‘I met the woman whose husband is sitting.’
 (Adapted from Badawi, Carter & Gully 2004:115 by Shireen Siam)
- d. nominal head: INDEF.FS/ACC, subject: DEF.MS/NOM
 fii nabʕ-in [**jaaff-in** maaʔ-u-hu]
 in spring.MS-GEN dry.PTCP.MS-GEN water.MS-NOM-POSS.3MS
 ‘in a spring whose water is dry’ (Badawi, Carter & Gully 2004:116)

We assume a procedural view on feature computation in Arabic, according to which subject agreement is prior to concord in the syntactic derivation of participial modifiers. When the participle enters into an agreement relation with the subject, its N-features (number and gender) are checked with the corresponding features of the subject. Once the N-features of the participle are checked, they do not clash with non-matching N-features of a higher node in the derivation, when the participle enters into a concord relation with the nominal head.

Table 4 summarizes the strategies discussed above for resolving agreement mismatches in participial modifiers in which a non-subject constituent is relativized.

TABLE 4. *Strategies for resolving agreement mismatches*

| | SUBJECT-VERB AGREEMENT | MODIFIER-HEAD CONCORD |
|----------------|------------------------|------------------------------|
| Older Egyptian | covert | overt |
| Turkish | overt | covert |
| Arabic | partial [NUM, GND] | partial [CASE, DEFINITENESS] |

For a language to allow the relativization of a non-subject in participial modifiers, it should resolve agreement mismatches in one of the different ways above.¹⁶ A language like Hebrew, which has overt subject-verb agreement, and overt concord within the noun phrase, can resort neither to the Egyptian-type strategy nor to the Turkish type strategy. The only option left would be the Arabic-type strategy of the erasure of checked features. We conclude in section 10 that this option is not available in Hebrew, where checking of the N-features at one point in the derivation does not result in erasure. Consequently, checked N-features will clash with the N-features of a higher derivational node. The same difference surfaces in yet another

construction, which Hebrew and Arabic have in common, viz. the Broad Subject construction. Though Hebrew has the Broad Subject construction similarly to Arabic, it does not allow a Broad Subject in sentences which already have a Narrow Subject. Arabic allows clauses with two subjects, since it resolves agreement mismatches. Hebrew, on the other hand, cannot resolve mismatches and does therefore not permit a derivation where a verb would have to agree both with the Narrow Subject and with the Broad Subject.

7. TAM-AGREEMENT DETACHABILITY

In this section, we derive the possibility of expressing temporal, aspectual and modal distinctions on the participle from a morphological parameter, namely the (non)detachability of this temporal morphology from verbal agreement inflection, i.e. subject-verb agreement which crucially includes the feature *person*. For languages to have temporally-variant participles, it must be possible to express tense/aspect/mood (TAM) distinctions without including in it verbal agreement inflection, since participles do not carry such inflection.¹⁷ At the root of this distinction lies our characterization of participles as derived verbal forms without verbal agreement. For language to have tense-inflected participles, it must be possible to detach temporal morphology from verbal agreement, since participles must include the former but not the latter. This is not a viable option in languages in which tense and agreement morphology are fused in a single formative. Such languages have only temporally-invariant participles, since TAM marking cannot be realized independently of subject-verb agreement.

The fusion of tense and agreement is a hallmark of Semitic verbal morphology. We illustrate in Arabic the difference between the agreement affixes of the perfective and imperfective paradigm, which are referred to in standard grammars as the *prefix* vs. *suffix* conjugation (Fischer 2002:115ff. §§207-218).¹⁸

TABLE 5. *Basic stem of 3-radical verbs (active) in Standard Arabic* (√فعل 'do')

| | SUFFIX CONJUGATION (PERFECTIVE) | PREFIX CONJUGATION (IMPERFECTIVE) |
|-----|---------------------------------|-----------------------------------|
| 1S | faʕal- <i>tu</i> | ʔa-ʕal- <i>u</i> |
| 2MS | faʕal- <i>ta</i> | ta-ʕal- <i>u</i> |
| 2FS | faʕal- <i>ti</i> | ta-ʕal- <i>iina</i> |
| 3MS | faʕal- <i>a</i> | ya-ʕal- <i>u</i> |
| 3FS | faʕal- <i>at</i> | ta-ʕal- <i>u</i> |
| 2DM | faʕal- <i>tumaa</i> | ta-ʕal- <i>aani</i> |
| 2DF | faʕal- <i>tumaa</i> | ta-ʕal- <i>aani</i> |
| 3MD | faʕal- <i>aa</i> | ya-ʕal- <i>aani</i> |
| 3FD | faʕal- <i>ataa</i> | ta-ʕal- <i>aani</i> |
| 1P | faʕal- <i>naa</i> | na-ʕal- <i>u</i> |
| 2MP | faʕal- <i>tum</i> | ta-ʕal- <i>uuna</i> |
| 2FP | faʕal- <i>tumna</i> | ta-ʕal- <i>na</i> |
| 3MP | faʕal- <i>uu</i> | ya-ʕal- <i>uuna</i> |
| 3FP | faʕal- <i>na</i> | ya-ʕal- <i>na</i> |

Fassi Fehri (2000) presents a feature-geometric analysis of the perfective and imperfective conjugation in which the exponents of the features person, number and gender are merged into distinct TAM nodes (see also Benmamoun 2000 and Ouhalla 2005). What is important to us is that there are *no* TAM nodes without agreement marking. Due to the non-detachability of TAM morphology from agreement, it is impossible to express tense features without adding

agreement marking along. It is therefore impossible to inflect a participle with tense, since tense is not detachable from verbal agreement, yet participles cannot be inflected by verbal agreement.

In languages in which TAM marking is detachable from agreement, we find that tense, aspect and mood are either represented by a morpheme that is independent of the verbal base, as in Turkish, or is merged with the verbal base into a ‘tense stem’, as in Classical Greek. We start with the first subtype, where both TAM morphology and agreement are separate from the stem, as in Turkish. In this language, agreement markers are attached to both verbal and nominal stems and follow all other suffixes. Depending on the character of the preceding suffixes, the appropriate agreement marker has to be selected from four different groups of person markers. This is illustrated for the Possible Future and the Negative Aorist paradigm, which combine with markers from two different groups (see Göksel & Kerkade 2005:80ff. §8.2.3.3).

TABLE 6. The Future and Negative Aorist Paradigms in Turkish (**in** ‘go’, **bak** ‘look’)

| | POSSIBILITY + FUTURE TENSE <i>-(y)Abil + -(y)AcAk</i> | NEGATIVE + AORIST + PAST COPULA <i>-mA + -(A/I)r/-z + -(y)DI</i> |
|----|---|--|
| 1S | in-ebil-eceğ- <i>im</i> | bak-má-z-dı- <i>m</i> |
| 2S | in-ebil-ecek- <i>sin</i> | bak-má-z-dı- <i>n</i> |
| 3S | in-ebil-ecek | bak-má-z-dı |
| 1P | in-ebil-eceğ- <i>iz</i> | bak-má-z-dı- <i>k</i> |
| 2P | in-ebil-ecek- <i>siniz</i> | bak-má-z-dı- <i>niz</i> |
| 3P | in-ebil-ecek- <i>ler</i> | bak-ma-z- <i>lár</i> -dı |

The second subtype involves the merger of TAM marking with the verbal base, with agreement inflection being added to the resulting tense stem. The elaborate verbal-inflectional system of Classical Greek manifests this fusional type. Greek verbs fall into eight classes that undergo internal modification when combined with a particular tense pattern. The formation of tense stems, in its turn, also changes the shape of the relevant tense marking. Active and middle/passive voices are distinguished by different set of person markers, which undergo phonological changes depending on the tense stem they are attached to. Nevertheless, verbal agreement is separable from the tense stem (see Goodwin 1894:100ff. §480).

TABLE 7. *The indicative active paradigm in Classical Greek (ly-* ‘loose’)

| | PRESENT | IMPERFECT | FUTURE | AORIST | PERFECT | PLUPERFECT |
|----|----------------|------------------|---------------|---------------|----------------|-------------------|
| 1S | lý:ɔ: | é-ly:-on | lý:s-ɔ: | é-ly:sa | lélyka | e-lelýke: |
| 2S | lý:-eis | é-ly:-es | lý:s-eis | é-ly:sa-s | lélyka-s | e-lelýke:-s |
| 3S | lý:-ei | é-ly:-e | lý:s-ei | é-ly:s-e | lélyk-e | e-lelýk-ei(n) |
| 2D | lý:e-ton | e-lý:e-ton | lý:s-e-ton | é-ly:sa-ton | lelýka-ton | e-lelýke-ton |
| 3D | lý:e-ton | e-ly:é-tɛ:n | lý:s-e-ton | e-ly:sá-tɛ:n | lelýka-ton | e-lelýké-tɛ:n |
| 1P | lý:o-men | e-lý:-o-men | lý:so-men | e-lý:sa-men | lelýka-men | e-lelýke-men |
| 2P | lý:-ete | e-lý:-ete | lý:s-ete | e-lý:sa-te | lelýka-te | e-lelýke-te |
| 3P | lý:-ou:si | é-ly:-on | lý:s-ou:si | é-ly:sa-n | lelýka:-si | e-lelýke-san |

The relevant factor for the formation of temporally variant participles is the morphological independence of TAM marking from agreement. It leaves open the option of TAM morphology that can be detached from the verbal base as well, as in Turkish, or tense stems, as in Classical Greek, where this morphology is merged with the verbal base. Notice that it follows from this subdivision that Greek must have a participle for each tense stem, whereas Turkish

uses the non-tensed stem to form the participle and adds the (future) tense morpheme in the marked case. The TAM-agreement detachability parameter applies trivially to languages which have no overtly realized subject-verb agreement. A case in point is Malayalam, which lacks subject-verb agreement and has temporally variable participles (Asher & Kumari 1997).

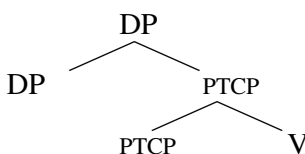
8. THE SYNTACTIC STRUCTURE OF PARTICIPIAL MODIFIERS

The two dimensions of typological variation in participial modifiers have been shown above to derive from independently motivated morphological parameters. Thus, the possibility of relativizing other positions than the subject is dependent on the language's potential for resolving agreement mismatches, while the possibility of expressing temporal, aspectual and modal distinctions on the participle is contingent on the detachability of TAM marking from verbal agreement inflection. As we show next, participial modifiers differ both within and across languages with respect to their syntactic complexity. We present a minimalist analysis of participial modifiers in which lexical, phrasal, and clausal modifiers are constructed with as much structure as needed. In the case of lexical modifiers, the PTCP node directly merges with V; in the case of phrasal modifiers, it merges with VP (or VP dominated by TAMP). Clausal participial modifiers represent the structurally most complex option, involving the construction of functional superstructure above the PTCP node, which licenses a syntactic operator.

8.1 *Non-clausal participial modifiers: lexical vs. phrasal*

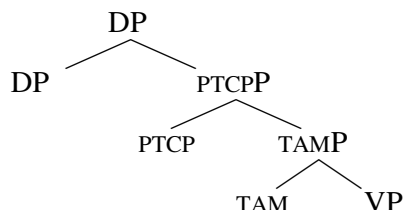
Lexical modifiers are syntactically minimal, with the participial morphology attaching to a bare verbal stem outside the context of VP. The merger of the verbal head with the PTCP node creates a complex head, as schematically represented in diagram (23):

(23) *The syntax of lexical participial modifiers*



In the case of phrasal modifiers, the participial phrase PTCP_P dominates a VP or a VP dominated by a TAM phrase:

(24) *The syntax of phrasal participial modifiers*



We now turn to diagnostic which distinguish lexical from phrasal participial modifiers. As we can see from examples (25)-(27) lexical participial modifiers are like adjectives in that they can function without their argument structure. The ability of lexical participles to modify a

noun directly makes sense if we assume with Baker (2003:195ff.) that modification by an adjective head is the unmarked structure for attributives in general.

(25) **Hebrew**

mabatim **fi**odrim
stare.MP penetrate.PTCP.MP
'penetrating stares'

(26) **Arabic**

bawaadir-u **mufajjisat-un**
sign.MP-NOM encourage.PTCP.FS-NOM
'encouraging signs' (Badawi, Carter & Gully 2004:103)¹⁹

(27) **Older Egyptian**

jrt fir **wg-j(j)-t** **bf-f-t**
eye.FS Horus chew-PASS-PTCP.FS spit.out-PASS-PTCP.FS
'the chewed and spat out eye of (the god) Horus' (Pyramid Texts 1460b/M)

When the direct object of the verb appears in phrasal participial modifiers, it is assigned accusative Case within the verbal structure. This is not so in lexical participial modifiers, where there is no verbal structure containing the verb. Rather, genitive Case marking is available from the nominal inflection, as suggested in Engelhardt (1998:96ff.).²⁰ We use the difference between genitive and accusative Case of the object as a diagnostic for the difference between lexical and phrasal modifiers. If the participle is derived from a transitive verb, then in the lexical modifier, the direct object is realized with the genitive Case (which often correlates with a construct-state form of the lexical modifier itself). In the phrasal modifier, by contrast, it is realized as an accusative marked object. Thus, consider the following minimal pair from Arabic:²¹

(28) **Arabic**

- a. **ḡaarib-u** ḡax-ii-hi
strike.PTCP.MS.CONSTR-NOM brother-GEN-POSS.3MS
- b. **ḡaarib-un** ḡax-aa-hu
strike.PTCP.MS-NOM brother-ACC-POSS.3MS
Both: 'one who strikes his brother' (Fischer 2002:90)

In Hebrew, too, it is possible to distinguish lexical and phrasal participial modifiers in terms of argument realization and Case licensing. In the lexical modifier, the verb's complement is realized as the possessor directly following the participle head in the construct state, as seen in (29a) and (30a). In the phrasal modifier, it is marked by the accusative Case, as in (29b), or an oblique Case, as in (30b).²²

(29) **Hebrew**

- a. kadurim **fi**odrey jiryon ha-rexev
bullet.MP penetrate.PTCP.CONSTR.MP armor the-car
'bullets which penetrate the car's armoring'

- b. kadurim **ha.fodrim** ?et-?iryon ha- rexev
bullet.MP EMPH.penetrate.PTCP.MP ACC-armor the-car
‘bullets which penetrate/are penetrating the car’s armoring’

The difference between lexical and phrasal participial modifiers correlates with an interpretive difference: the participle in the lexical modifier has a non-temporal stative meaning, whereas the participle in the phrasal modifier has an imperfective present-tense interpretation. Because of the imperfective interpretation of the phrasal participial modifier, example (30b) below sounds potentially contradictory, since it asserts both that the athletes have left the games and that they are competing during speech time.²³

(30) **Hebrew**

- a. me?ot sporta?im **miftatfey** ha-?olimpyada
hundred.MP athletes.MP participate.PTCP.CONSTR.MP the-Olympics
?azvu ?et-?atuna
leave.PAST ACC-Athens
‘Hundreds of athletes participants in the Olympics left Athens.’
- b. me?ot sporta?im **ha.miftatfim** b-a-?olimpyada
hundred.MP athletes.MP EMPH.participate.PTCP.MP in-the-Olympics
?azvu ?et-?atuna
leave.PAST ACC-Athens
‘Hundreds of athletes who are participating in the Olympics left Athens.’

The temporal interpretation of phrasal modifiers correlates with their co-occurrence with adverbs, as in (31a). Adverbs cannot appear with lexical modifiers, as shown by the ungrammaticality of (31b):²⁴

(31) **Hebrew**

- a. sporta?im **ha.miftatfim** b-a-?olimpyada le?itim krovot
athletes.MP EMPH.participate.PTCP.MP in-the-Olympics often
‘athletes who often participate in the Olympics.’
- b. *sporta?im **miftatfey** ha-?olimpyada le?itim krovot
athletes.MP participate.PTCP.CONSTR.MP the-Olympics.GEN often

Passive participles in Older Egyptian provide further evidence for a morphological distinction between lexical and phrasal modifiers. When used as lexical modifiers, passive participles appear either in the construct state, in which case it attaches directly to the possessor, as in (32a), or in the absolute state, in which case the possessor is marked by functional element *n(j)*, as in (32b). Semantically, such participles are interpreted as stative passives.

(32) **Older Egyptian**

- a. ?x **ms-w** nwt **s-nq-w** nbt-fit
spirit bear-PASS(-PTCP.CONSTR.MS) Nût CAUS-suck-PASS(-PTCP.MS.CONSTR.) Nephthys
‘the spirit born by (the goddess) Nût (and) suckled by (the goddess) Nephthys’
(Pyramid Texts 623a/P)
- b. **dbfi-w** n(j) ?r(-y)-fi(?bt)
require-PASS(-PTCP.MS) of.MS lector priest
‘what is required by the lector priest’ (Kagemni II 26)

By contrast, when passive participles are used as phrasal modifiers, they are construed with a demoted agent phrase and the interpretation is that of a verbal passive:

(33) **Older Egyptian**

jr ms-w pn rd³-w n(-j) jn jt(-j) pn
 as.for child-MP this.MS give-PASS(-PTCP.MS) to-1S FOC father-1S this.MS
 m jm(-y)-t-pr
 as testament

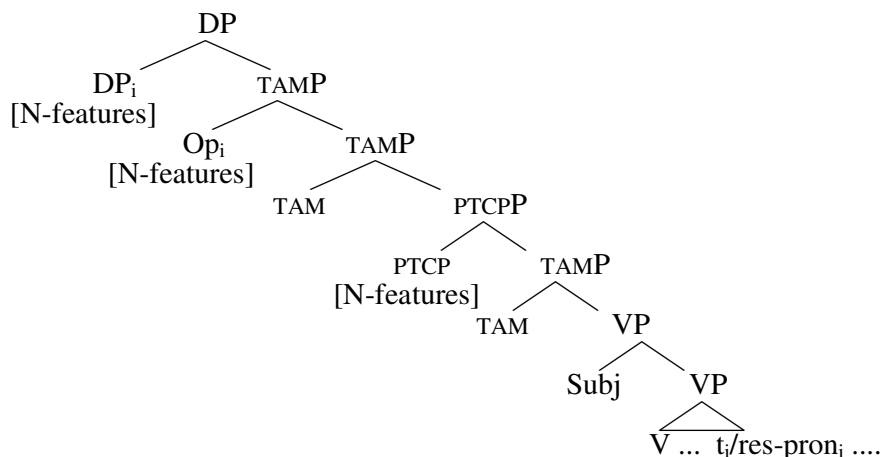
‘these children who were given to me by this my father as a testament’
 (*Urkunden* I 35:11-12)

In phrasal passive participles, the demoted agent surfacing as an adjunct phrase, headed by the focus marker *jn*. The encoding of demoted agent as a focus phrase in participial modifiers is identical to the one found in finite passive clauses (see Reintges 1997, 2005b). The phrasal participial modifiers discussed in this section all involve subject relativization. We postpone the discussion of phrasal participial modifiers with non-subject relativization, found in Arabic, to section 10.

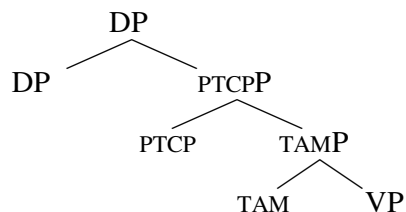
8.2 Clausal participial modifiers

What distinguishes clausal from non-clausal participial modifiers is the presence of further functional structure above PTCP, which in turn licenses an operator. In Older Egyptian, the functional projection above PTCP is instantiated by a higher TAM node, as will be shown in section 11.

(34) *The syntax of clausal participial modifiers*



Non-clausal modifiers denote properties without the construction of an operator-variable syntactic dependency. As such they lack the higher TAM node above PTCP, which hosts the operator. We repeat here the structure of phrasal participial modifiers, where PTCP merges directly with the nominal head.

(35) *The syntax of phrasal participial modifiers*

Clausal modifiers depend on a syntactic operator to form a derived property. This is a last-resort mechanism, since economy principles normally prevent the construction of superfluous structure which would require additional steps in the derivation. Once a phrasal participial structure is constructed which derives a property, it is not allowed to further expand this phrase with an operator-variable structure just to abstract over the very same argument. Rather, the presence of the operator is licensed by additional functional structure above PTCPP. Accordingly, only participial modifiers with a higher TAM node are clausal, i.e. involve an operator. Our analysis of phrasal modifiers does not involve an operator, and in this respect it differs substantially from previous analyses of participial modifiers.

All languages which have participial modifiers have phrasal PTCPPs, while clausal participial modifiers represent the typologically marked option. We interpret this to mean that not all languages allow the more elaborate structures resulting from the further expansion of PTCPPs. We conjecture that this universal lies at the roots of Keenan & Comrie's (1984) *Noun Phrase Accessibility Hierarchy*, according to which *all* languages with relative clauses allow relativization of the subject. Universally, phrasal participial modifiers suffice for subject relativization, without the need for syntactic operators. This is the case both for Hebrew, with temporally invariant participles, and for Classical Greek, where the temporal variation of the participles is internal to the participial morphology, and thus does not involve the further expansion of PTCPP characteristic of clausal participial modifiers. As a marked option, phrasal participial modifiers also relativize non-subjects, but, as we show in section 10 for Arabic, this option depends on the language allowing multiple subjects, which means that it allows the formation of propositional properties without the mediation of a syntactic operator-variable construction.

The rest of the paper is dedicated to further motivate the structure of phrasal and clausal modifiers represented by the tree diagrams in (34) and (35) above. Phrasal participial modifiers provide the relevant structure for subject relativization, without involving a syntactic (relative) operator (section 9). This is true irrespective of temporal variability of the participle, i.e. both for languages with temporally invariant participles such as Arabic and Hebrew, and also for languages with temporally variant participles such as Older Egyptian, Classical Greek, Turkish etc. The relativization of a non-subject is possible within a phrasal participial modifier in Arabic, which allows multiple subjects (section 10). In other languages, such as Older Egyptian (and Turkish) the relativization of a non-subject requires a clausal participial modifier with operator-variable dependencies. These structures allow for the same range of relativization possibilities as finite relative clauses. However, such participial modifiers are more restrictive than finite relatives, due to the lack of a complementizer, and *ipso facto* to the locality of the null relative operator and the relativized position (section 11).

9. ON THE ABSENCE OF OPERATORS IN PHRASAL PARTICIPIAL MODIFIERS

A crucial ingredient of our analysis of participial modifiers with subject relativization is the formation of a phrasal constituent that does not contain a subject position in which a variable could be licensed. Such phrasal participial modifiers are interpreted as properties without the use of syntactic operators. In this respect, we diverge from Kayne's (1993, 1994) and Siloni's (1995, 1997) analysis of such modifiers as involving the binding of a subject variable by a relative operator. In this section we present three arguments against the operator-variable analysis of phrasal participial modifiers. First, overt *wh*-operators are attested in finite relative clauses, but not in phrasal participial modifiers. Second, there are interpretive differences between modifiers formed with and without operators. Third, the distribution of resumptive pronouns distinguishes modifiers formed with operators from those formed without operators.

9.1. *Differences in distribution of overt wh-operators.*

In Modern Hebrew, a headless finite relative clause contains an overt *wh*-operator, as in (36a).²⁵ A headless participial modifier does not allow such an operator, see (36b):

(36) **Hebrew**

- a. hi mitʕalemet mi- [mi je-matridim ʔot-a]
 she ignore.PTCP.FS from who COMP_{REL}-bother.PTCP.MP ACC-3FS
 'She ignores whoever bothers her.'
- b. hi mitʕalemet mi- [(*mi) **ha.matridim** ʔot-a]
 she ignore.PTCP.FS from who EMPH.bother.PTCP.MP ACC-3FS

Siloni (1995, 1997) attributes the grammaticality contrast between examples (36a) and (36b) above to the impossibility of assigning both the [+wh] feature and the [+modifier] feature to the prefix *ha.*, which she considers to be a D⁰ head. However, no principled explanation is given for why the functional D⁰ head couldn't be marked by both these features. The present approach, on the other hand, predicts this contrast: Hebrew does not have clausal participial modifiers (as its participles are temporally invariant and it only allows subject relativization). Accordingly, the participle *ha.matridim ʔota* 'bothering her' in (36b) above is phrasal, and as such it is an incomplete structure without a subject position. Therefore, there is no syntactic position available in which the variable bound by the *wh*-operator *ma* 'what' could be licensed.

9.2. *Interpretive differences*

There are also interpretive differences in Hebrew between participial modifiers and finite relative clauses. The first difference relates to the availability of a disjunctive reading in conjoined clauses. As we can see from example (37a), conjoined finite relative clauses allow a reading where the two properties within the relative clause are disjunctive (though this is not the preferred reading). No such disjunctive reading is available in the corresponding phrasal participial modifier in example (37b). This reading becomes available only when two participles are conjoined as separate modifiers, as in example (37c).

- (37) **Hebrew**
- a. mi fe-nixnasim l-a-?arec ve-yoc?im me-ha-arec
 who COMP_{REL}-enter.PTCP.MP to-the-land and-leave.PTCP.MP from-the-land
 me?almim ?et-ha-mas
 pay.PTCP.MP ACC-the-tax
 ‘Whoever enters the land and leaves the land pays the tax.’
 or: ‘Whoever enters the land and whoever leaves the land pays the tax.’
- b. **ha.nixnasim** l-a-?arec ve-**yoc?im** me-ha-?arec
 EMPH.enter.PTCP.MP to-the-land and-leave.PTCP.MP from-the-land
 me?almim ?et-ha-mas
 pay.PTCP.MP ACC-the-tax
 ‘Whoever enters the land and leaves the land pays the tax.’
- c. **ha.nixnasim** l-a-?arec ve-**ha.yoc?im** me-ha-?arec
 EMPH.enter.PTCP.MP to-the-land and-EMPH.leave.PTCP.MP from-the-land
 me?almim ?et-ha-mas
 pay.PTCP.MP ACC-the-tax
 ‘Whoever enters the land and whoever leaves the land pays the tax.’

We contend that the disjunctive reading of example (37a) above is derived from two separate operator-variable dependencies, followed by ellipsis of the second *wh*-phrase and the second complementizer, as seen in (38a) below. The interpretation of this example is one in which there are as two separate plural individuals, the incomers and the outcomers. By contrast, in example (37b) above, there is a conjunction of two complex properties, which is interpreted as a plurality of individuals each of which is both an incomer and an outcomer, as indicated in (38b) below. The interpretive differences between conjoined relative clauses and participial modifiers would be mysterious, if participial modifiers were formed by a covert counterpart of the *wh*-phrase.

- (38) **Hebrew**
- a. [_{CP} mi_i fe- [_{TAMP} t_i [_{TP} nixnasim l-a-?arec]]] ve-
 who COMP_{REL}- enter.PTCP.MP to-the-land and
 [_{CP} mi_j fe- [_{TP} t_j [_{TAMP} yoc?im me-ha-?arec]]] me?almim ?et-ha-mas
 who COMP_{REL}- leave.PTCP.MP from-the-land pay.PTCP.MP ACC-the-tax
 ‘Whoever enters the land and whoever leaves the land pays the tax.’
- b. [_{PTC_{PP}} ha.nixnasim [[_{TAMP} t_{T+V} l-a-?arec] ve-[_{TAMP} yoc?im me-ha-?arec]]]
 EMPH.enter.PTCP.MP to-the-land and- leave.PTCP.MP from-the-land
 me?almim ?et-ha-mas
 pay.PTCP.MP ACC-the-tax
 ‘Whoever enters the land and leaves the land pays the tax.’

There is yet another interpretive difference between headless finite relatives and headless participial modifiers, which is related to the presence of an operator in the former but in not the latter. As we can see from the contrast between examples (39a) and (39b) below, in an eventive main clause, a singular finite relative is interpreted as universal, whereas the corresponding participial is interpreted as definite:

(39) **Hebrew**

- a. zihiti ʔet-mi **ʃe-yofev** b-a-ʃura ha-rifona
 recognize.PERF.1S ACC-who that-sit.PTCP.MS in-the-row the-first
 ‘I recognized whoever is sitting in the first row.’
- b. zihiti **ʔet-ha.yofev** b-a-ʃura ha-rifona
 recognize.PERF.1S ACC-EMPH.sit.PTCP.MS in-the-row the-first
 ‘I recognized the (person) sitting in the first row.’

As shown in Jacobson (1995), the property derived by a *wh*-operator, as in (39a), is shifted in the headless relative to the maximal individual having that property, which gives rise to the universal interpretation. In (39b), on the other hand, the complex property is not derived through a syntactic operator, but is directly constructed from VP headed by the participle. Since the participle is singular, this property is singular, and the maximal individual having the property is singular as well, which accounts for the definite interpretation.

The definite interpretation of a headless participial modifier does therefore not depend on D, as it does according to Siloni (1995, 1997) and Hazout (2001). Rather, it is the semantics of the headless construction, i.e. the shift to the maximal individual which has the singular property, which makes it definite. This point finds further support in the syntax of Turkish, where, even though there is no D⁰, the free relative is interpreted as definite, or at least, specific, as can be seen from its overt accusative Case marking in example (40).

(40) **Turkish**

- [adam-in **ye-diğ-in-**] *(-i) al-dı-m
 man-GEN eat-PTCP.PRES/PAST-POSS.3S-ACC take-PAST-1S
 ‘I took what the man eats/ate.’ (Kornfilt 1997:63 (255))

To sum up, we have presented evidence from the interpretation of phrasal participial modifiers for our view that such modifiers do not involve the binding of a subject variable by a null relative operator.

9.3. *Different distribution of resumptive pronouns*

In Arabic participial modifiers with non-subject relativization, the relativized position is expressed as a resumptive pronoun. The grammatical function of the resumptive pronoun may vary: it may be oblique (41a), possessive (41b), and direct object (41c). (Resumptive pronouns are underlined).

(41) **Arabic**

- a. ʔal-jihat-u [**l-manuuṭ-u** bi-haa]
 the-agency.FS-NOM the-trust.PASS.PTCP.MS-NOM in.3FS
 xtiyaar-u l-musaafir-iina]
 CONSTR.MS.choice-NOM the-traveller-PM.GEN
 ‘the agency with which the choice of the travelers has been entrusted’
 (Badawi, Carter & Gully 2004:114)
- b. muḥaaḍ-aat-u-hu [**l-saabiq-u** ḍikr-u-haa]
 lecture-FP-NOM-POSS.3MS the-preceding.PTCP.MS-NOM recollection.MS-NOM-POSS.3FS
 ‘his aforementioned lectures’ (Badawi, Carter & Gully 2004:115)²⁶

- c. is-sayara [**is-saari?**-**haa** ʔafmad]
 the-car.FS the-steal.PTCP.MS-ACC.3FS Ahmad
 ‘the car that Ahmad stole’ (Shireen Siam, p.c.)

To emphasize the productivity of this construction beyond clause boundaries, we present examples in which the relativized position is within a participial relative that is further embedded within another nominal (42a) or clausal (42b) constituent:

(42) **Arabic**

- a. haḍihi hiya l-muṣaadalat-u d-daqqiqat-u [**l-waajib-u**
 this 3FS the-formula.FS-NOM the-accurate.FS -NOM the-be.cast.PTCP.MS-NOM
 ʔala l-qiyaadat-i l-filistīniyya-I ʔijaad-u l-xuṭuwaat-i
 upon the-leadership.FS-GEN the-Palestinian.FS-GEN finding.MS-NOM the-stages.FP-GEN
 l-ʔamaliyat-i l-kafiilat-i bi-tafiiq-i-**haa**]
 the-practical.FS-GEN the-guaranteeing.FS-GEN in-implementation.MS-GEN-POSS.3FS
 ‘This is the accurate formula such that finding the practical stages guaranteeing its
 implementation is cast upon the Palestinian leadership.’ (Palestinian press)
- b. haḍihi hiya l-muṣaadalat-u d-daqqiqat-u
 this 3FS the-formula.FS-NOM the-accurate.FS -NOM
 [**l-waajib-u** ʔala l-qiyaadat-i l-filistīniyya-i
 the-be.cast.PTCP.MS-NOM upon the-leadership.FS-GEN the-Palestinian.FS-GEN
 ʔijaad-u l-xuṭuwaat-i l-ʔamaliyat-i
 finding.MS-NOM the-stages.FP-GEN the-practical.FS-GEN
 [llatii bi-ʔimkaani-haa [ʔan tuḥaqqiq-a-**haa**]]]
 COMP_{REL}.FS-GEN in-chance.MS-POSS.3FS COMP implement.3FS-SUBJUNCT-ACC.3FS
 ‘This is the accurate formula such that finding the practical stages that have a
 chance of implementing it is cast upon the Palestinian leadership.’
 (Adapted from the Palestinian Press by Shireen Siam)

Although Arabic participial modifiers license an overt subject, there is reason to believe that they are phrasal rather than clausal in that they lack a syntactic relative operator. The absence vs. presence of relative operators is reflected in the distribution of resumptive pronouns and gaps. Finite relative clauses introduced by the complementizer *ʔallaḍii* show an alternation of gaps with resumptive pronouns, as the following example of direct object relativization illustrates.

(43) **Arabic**

- ʔiḍhab maʔa l-kitaabayni l-jadiidayni
 go.IMP.MS with the-book.MD.GEN the-new.MD.GEN
 [llaḍayni ʔariitu(-**humaa**) la-ka ʔams]
 COMP_{REL}.MD.GEN buy.PERF.1S(-ACC.MD) for-2MS yesterday
 ‘Go with the two new books which I bought (them) for you yesterday.’
 (Peled 1998: 47-48 (1c))

The possibility of a gap indicates the presence of a moved operator in the specifier of the *ʔallaḍii*-complementizer. This contrasts with participial modifiers, in which the presence of a gap instead of a resumptive pronoun in the direct object position yields an ungrammatical result, as already noted by Hazout (2001).

(44) **Arabic**

*ʔas-sayyaarat-u [l-muʔtabah-u ʔanna-hu saraqa]
 the-car.FS-NOM the-suspect.PASS.PTCP.MS-NOM that-3MS steal.PERF-3MS
 ‘The car that it is suspected that he stole’ (Hazout 2001, 105 (26))

How is it possible to relativize a non-subject without the mediation of a syntactic operator? As shown in the next section, this possibility depends on a mechanism of propositional property formation which is parallel to property formation in the case of subject relativization. In both cases, property formation is the interpretation of an incomplete structure with a missing subject. In phrasal participial modifiers with subject relativization, the incomplete structure is a structure lacking a Narrow Subject. In phrasal participial modifiers with non-subject relativization, the incomplete structure is a structure lacking a Broad Subject.

10. NON-SUBJECT RELATIVIZATION IN PHRASAL PARTICIPIAL MODIFIERS

The key for understanding non-subject relativization in phrasal participial modifiers is the Broad-Subject construction. This construction has been documented for such diverse languages as Arabic, Hebrew and Japanese by Doron & Heycock (1999), Heycock & Doron (2003), and Alexopoulou, Doron & Heycock (2004). These languages allow arguments other than the thematic subject to occupy the specifier position of the highest inflectional node of the clause. Such arguments have subject characteristics and are therefore called *Broad Subjects*, in contrast with the thematic subject, which is called the *Narrow Subject*. The Broad-Subject construction involves the formation of propositional properties by abstracting over a resumptive pronoun, which can then be predicated of the Broad Subject. The workings of the Broad Subject constructions are illustrated by the following examples from Arabic and Hebrew:

(45) **Arabic**

[_{TP} kull-u ʔinsaan-in [_{TP} tufibbu-hu ʔumm-u-hu]]
 every-NOM man-GEN love.IMPERF.3FS-3MS mother-NOM-POSS.3MS
 ‘Everyone’s mother loves him.’ Literally: ‘Everyone, his mother loves him.’
 (Doron and Heycock 1999:74 (14))

(46) **Hebrew**

[_{TP} ʔaf ʔefiad [_{TP} ʔeyn be-yad-o laʔazor le-rina]]
 no one NEG in-power-POSS.3MS to.help.INF to-Rina
 ‘It is in no one’s power to help Rina.’ Literally: ‘No one, it is in his power to help Rina.’ (Doron and Heycock 1999:74 (15))

Broad Subjects are not necessarily topics (as shown by the fact that they can be quantifiers) unlike the restricted topic role of dislocated elements. Unlike dislocated elements, the position of Broad Subjects is an A-position, i.e. a specifier of T(AM)P. The fact that Broad Subjects occupy an A-position is further demonstrated by their being embeddable under ECM verbs, just like ordinary subjects, as seen in (47a). A Broad Subject can also occupy a post-auxiliary position, as in (47b) below:

(47) **Arabic**

- a. ðanan-tu [l-bayt-a [?alwaan-u-hu zaahiyat-un]]
 think.PERF.1S the-house-ACC colors-NOM-POSS.3MS bright-NOM
 ‘I believed the house to be of bright colors.’ Literally: ‘I believed the house, its colors (to be) bright.’ (Doron & Heycock 1999:72 (6a))
- b. kaana [l-bayt-u [?alwaan-u-hu zaahiyat-un]]
 be.PERF.3MS the-house-NOM colors-NOM-POSS.3MS bright-NOM
 ‘The house was of bright colors.’ Literally: ‘The house was (such that) its colors (were) bright.’ (Doron & Heycock 1999:73 (9))

See Alexopoulou, Doron & Heycock (2004) for detailed argumentation distinguishing Broad Subjects from both left-dislocated and clitic-left-dislocated elements. As discussed in section 6, Arabic differs from Hebrew in being able to resolve agreement mismatches. Accordingly, the Broad Subject in Arabic can clash with the features of its predicate, which agrees with the Narrow Subject. Thus, the Broad Subject *Hind* in (48) below is feminine singular, whereas the finite verb is masculine plural.

(48) **Arabic**

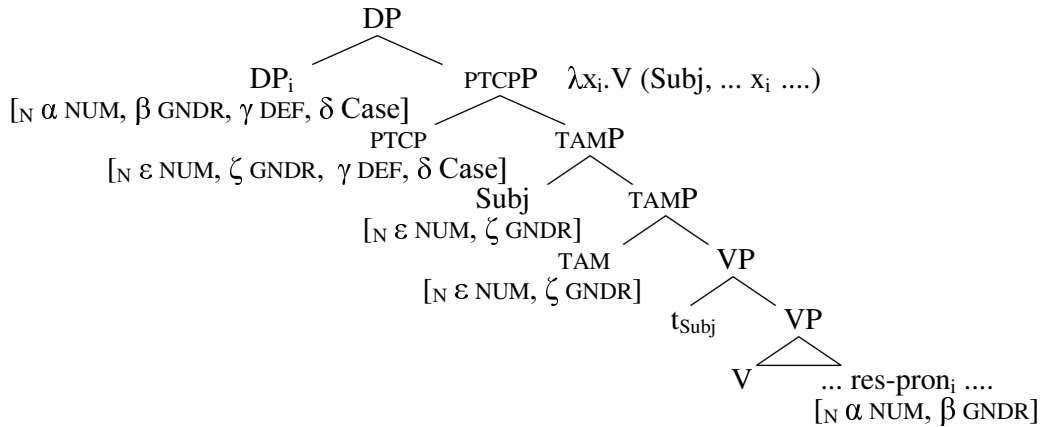
[_{TP} hind-un [_{TP} yajlis-u [_{VP} talaamiið-u-haa t_v fi ş-şaff-i]]]
 Hind-NOM sit.IMPERF.3MS student.MP-NOM-3FS in the-class-GEN
 ‘Hind’s students are sitting in the class.’ (Shireen Siam, p.c.)
 Literally: ‘Hind, her students are sitting in the class.’

In the corresponding Hebrew example (49), such agreement mismatches give rise to ungrammaticality. This follows from our claim that Hebrew, unlike Arabic, cannot resolve agreement mismatches and does therefore not permit a derivation where a verb would have to agree both with the Narrow Subject and with the Broad Subject.

(49) **Hebrew**

* [_{TP} ruti [_{TP} ye[vu [_{VP} talmidey-ha t_v b-a-kita]]]
 Ruti sit.FUT.3MP her student.MP-3FS in-the-class
 ‘Ruti’s students will sit in the class.’
 Literally: ‘Ruti, her students will sit in the class.’

The same mechanism of property formation that underlies the Broad Subject construction in Arabic is at work in phrasal participial modifiers in which non-subjects are relativized. The propositional property is derived by abstracting over the variable contributed by the resumptive pronoun (which agrees in number and gender with the nominal head), as demonstrated in the following structure.²⁷

(50) *Phrasal participial modifiers with non-subject relativization*

The resolution of agreement mismatches in non-subject participial modifiers provides *prima facie* evidence for the involvement of two functional nodes in feature checking relationships, viz. the head of the participle phrase (PTCPP) and the TAM node. Although all nominal agreement surfaces on the participle, only Case and definiteness are checked in the PTCP head, where it is in a sufficiently local relation with the DP it modifies. As the participle moves up in the functional projections within the participial phrase, it checks agreement features with its (Narrow) subject, but these are crucially only number and gender. Thus, number and gender features must be checked lower than PTCP, whereas Case and definiteness features remain unchecked and stay in the derivation until the participial reaches the PTCP position local to the nominal head where these features are checked via concord.²⁸

11. OPERATOR-VARIABLE DEPENDENCIES IN CLAUSAL PARTICIPIAL MODIFIERS

This section explores the operator-variable structure of clausal participial modifiers. The focus of this section is on Older Egyptian, where clausal and phrasal participial modifiers are distinguished on morphological and syntactic grounds.

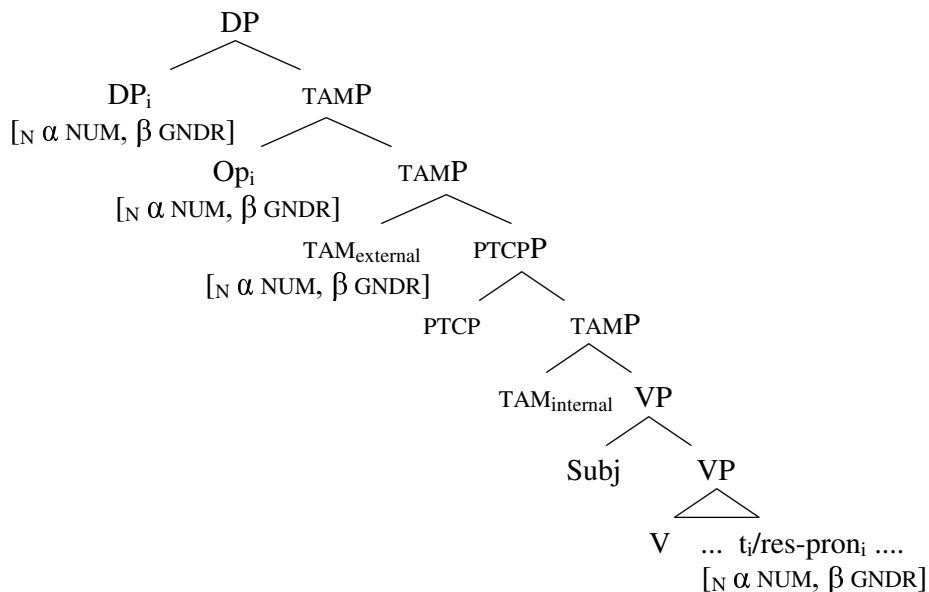
11.1. *Two types of temporally variable participles*

Older Egyptian has an elaborate system of participle formation. The most common patterns are shown in table 8. All participles are inflected for number and gender, but are also inflected for aspect (perfective vs. imperfective), voice (active vs. passive), and tense (Perfect vs. prospective-future). Some of the tense-aspect and voice morphology is internal to the PTCP concord marking, such as the gemination of the imperfective stem and the passive morpheme $-w$, while other inflectional categories are external to it, such as the Perfect marker $-n$ and a different passive morpheme $-t(j)$ (see Reintges 2005b). On morphological grounds, Older Egyptian participles therefore fall into two classes, those in which tense/aspect/mood and voice morphology is internal to the concord marking of the participle and those in which this morphology is external to it. We refer to both types and *internally* and *externally tensed* participles.^{29, 30}

TABLE 8. *The Older Egyptian participial paradigm* (\sqrt{mr} 'love')

(34) in section 8.2. The internal/external split of temporal morphology is represented by two separate TAM nodes, one below and one above the PTCPP. We adopt the simplest assumption that the externally-tensed participle raises to the external TAM node, whose specifier position hosts the null operator (Op). The local specifier-head relation provides the appropriate checking configuration for the participle's concord features.

(53) *The syntax of clausal participial modifiers*



We assume that all Older Egyptian participial modifiers with non-subject relativization have a clausal structure, including such examples as (51b) above, where the participles are internally tensed. We assume that in such examples, the external TAM node above the PTCPP lacks morphological content. The motivation for this analysis is twofold. First, unlike Arabic, there is no evidence in Older Egyptian for the Broad Subject construction. Second, there is semantic distinction between imperfective participles in phrasal and clausal modifiers. In phrasal participial modifiers, imperfective participles like *mr-r-w* ‘loving’ and *msd^β-d^β-w* ‘hating’ assume a pluractional reading, denoting the plurality of events and participants (cf. Schenkel 1965). In clausal participial modifiers, on the other hand, imperfective participles are associated with a habitual/gnomic present tense interpretation. We derive the temporal interpretation of the imperfective participle in (51b) from the clausal structure. The clausal structure of internally tensed participles with object relativization thus provides an account for their slightly different temporal interpretation.³¹

11.2. *Evidence for operator-variable dependencies in clausal participial modifiers*

There is evidence for gaps, long distance dependencies and island sensitivity within Older Egyptian non-subject participial modifiers. We take these phenomena to indicate that such modifiers are indeed formed by the movement of an operator. The first type of evidence concerns relative gaps, which are found not only in object position, as in (51b), (52a-b) above, but also with preposition stranding, as exemplified in (54a-b).³²

(54) **Older Egyptian**

- a. fir gs pw jʔbt(j) n(j) pt [ms-s-w nčr-w jm t_{Prep.obj}]
 on side.MS this.MS eastern.MS of.MS heaven bear-IMPF-PASS(-PTCP.MS) god-PM in
 ‘on this eastern side of heaven where the gods are born’ (Pyramid Texts 928a/P)
- b. jw rx-k(j) xt nb ʔx-t [ʔx njj t_{Prep.obj}]
 AUX learn-1S_{STAT} thing.FS every.MS splendid.FS be.powerful(-PTCP.MS) because.of
 [nt(j) xp(-w) jr ɕrt-nčr]
 COMP_{REL}(-MS) depart-3M_{STAT} to necropolis
 ‘I know every splendid thing on account of which he who departs to the
 necropolis becomes powerful’ (*Urkunden* I 173:18)

Second, we illustrate long distance dependency, with a gap in an embedded direct object position:

(55) **Older Egyptian**

- xt nb [wd³-t-n fim-f [jr-t t_{Obj}]]
 thing.FS every.MS order-PTCP.FS-PERF majesty-POSS.3MS do-INF
 ‘everything that His Majesty ordered to do’ (*Urkunden* I 195:5)

Third, there are no extractions from islands, rather resumptive pronouns must appear. An adjunct clause island is shown in (56a) and a relative clause island in (56b) below.

(56) **Older Egyptian**

- a. jr rmč nb [gm-n(-j) t_{Obj} m spʔt tn [ɕʔbt n(j)-t kjj rmč r-f]]
 as.for man.MS every.MS find.PTCP.MS-PERF-1S in district this.FS loan of-FS other man at-3MS
 ‘Concerning every man whom I found in this district with a loan of another man with
 him’ (*Urkunden* I 254:17)
- b. qd nb d³w [msd³-d³-w rmč-w [jr-t-f t_{Obj}]]
 character.MS every.MS evil.MS hate-IMPERF-PTCP.MP man-MP do-PTCP.FS-3MS
 ‘every evil character that people hate what he does’ (Mo^calla Inscr. no.2, I β:2)

Older Egyptian non-subject participial modifiers thus display the hallmarks of operator-variable constructions, such as gaps in the relativized position, long-distance dependencies, island sensitivity and optional preposition stranding. This provides motivation for the structure provided above in diagram (53).

11.3. *A surprising asymmetry between finite relative clauses and clausal participial modifiers*

Both finite relative clauses and clausal participial modifiers depend on a relative operator to abstract over an argument and form a derived property. Yet, both types of clausal modifier differ syntactically from each other with respect to the presence of a C⁰ node. In finite relative clauses, a C⁰ node is projected which hosts in its specifier the relative operator, whereas no such functional node is projected in clausal participial modifiers, due to the presence of N-features on the participle itself (see above, section 5). As a result, the relative operator of clausal participial modifiers is located in a lower specifier position, which we have identified with the specifier of the external TAMP. The different location of the relative operator creates a surprising asymmetry between finite relative clauses and clausal participial modifiers. This asymmetry is two-fold, see (57):

(57) *The asymmetry between Older Egyptian finite relative clauses and clausal participial modifiers*

- A. In finite relative clauses, there is an alternation between subject and non-subject gaps, whereas in clausal participial relatives, subject relativization is not attested.
- B. In finite relative clauses, there is an alternation between object gaps and object resumptive pronouns, whereas in clausal participial relatives, object resumptive pronouns are never found.

We present a binding-theoretic explanation for both these properties of clausal participial modifiers. In Older Egyptian, as shown in (58), subject relatives with Eventive-inflected finite verbs have resumptive pronouns suffixed to the verb (see Reintges 2000):

(58) **Older Egyptian**

xm-w [jwṯ-w rx-sn swʔ ḥr-s]
 demolisher-PM NEG.COMPREL-PM learn_{EVENT}-3P pass.by.INF at-3SF
 ‘the demolishers who do not understand (how) to pass it (the first gate)’
 (Coffin Texts VII 436i-437a/ B3C)

Subject resumptive pronouns of Eventive verbs do not contradict the *Highest Subject Restriction* (HSR), according to which there cannot be a pronoun in the same projection as a relative operator (see, among various others, Borer 1984b, McCloskey 1990, Demirdache 1997). This is so since, as shown in Reintges (2005a), Eventive verbs remain in a functional node below C^0 . The structure does not violate the HSR, since the null operator and the resumptive pronoun are located in two distinct syntactic projection of the clausal left-periphery.³³ But now consider the case of clausal participial modifiers, which would resort to resumptive pronouns as well, when the subject position is relativized. Indeed, subject pronouns are found in participial relatives, the subject clitics 3MS *-f* ‘he’ in (59a) and 1S *-j* ‘I’ in (59b), but these pronouns are crucially not resumptive, since relativization in these example is on the direct object position:

(59) **Older Egyptian**

- a. m n(j) mč-w [rx-n-f t_{Obj}]
 name.MS of.MS man-MP learn(-PTCP.MS)-PERF-3MS
 ‘the name of people which he knows’ (Pyramid Texts PT 1223b/P)
- b. jw [ʔ-n-j bʔkw [jr-jj-j t_{Obj}]
 AUX determine-PERF-1S service.MS make(-PTCP.MS)-PROS-1S
 ‘I determined (by myself) the service which I would do.’
 (Sinai Inscription no. 141 (W. face), 6-7 [pl. 52])

Since participial modifiers have no C^0 node, the operator is lower than in the case of finite relative clauses, namely in the specifier position of the external TAM-node. But then, it is in the same clausal projection as the resumptive subject pronoun, which is a clitic and therefore moves along with the participle to TAM_{external}. As a result, the resumptive pronoun would be in the same projection as the null operator. Thus, the non-attestation of subject relativization in clausal participial modifiers in part (57A) above receives a principled explanation in terms of compliance with the HSR.³⁴

The same binding theoretic explanation also accounts for part (57B) of the asymmetry between finite relative clauses and clausal participial modifiers. As we can see from the contrast between (60a) and (60b), object gaps may vary with resumptive object clitics in finite relative clauses.

(60) **Older Egyptian**

- a. nčr pw [nt(j) n rx-k t_{Obj}]
 god this.MS COMP_{REL}(-MS) NEG learn-2MSEVENT
 ‘this god whom you do not recognize’ (Coffin Texts V 111d/T1C)
- b. jr-w-čn [jw(j) rx st xpr-w jm(y)-čn]]
 contour-MP-POSS.2P NEG.COMP_{REL}(-MS) learn_{EVENT} them being-MP in-2P
 ‘your contours that the beings inside you do not know’
 (Coffin Texts IV 61:b-c/L2Li)

No such alternation between gaps and resumptive pronouns applies to clausal participial modifiers. Rather, direct object gaps are obligatory. The following example of a stacked relative clause further illustrates the different distribution of object resumptive pronouns in finite relative clauses and clausal participial modifiers.

(61) **Older Egyptian**

- pʔ t finqt [jr-r-w n-j t_{Obj} tʔ qnbt n(j)-t hwt-nčr
 the.MS bread.MS beer.FS make-IMPERF-PTCP.MP for-1S the.FS court.FS of-FS temple.FS
 [nty rd³-n-j n-čn sw]]
 COMP_{REL}(-MS) give-PERF-1S to-2P it
 ‘the bread and beer that the court of the temple allotted (lit. made) for me, which I
 have given to you’ (Siut I, 295)

In clausal participial modifiers, object pronouns would be realized as enclitics and move along with the participle to the external TAM node. The next example exemplifies the synchronized movement of the externally tensed participle a (non-resumptive) object clitic:

(52) **Older Egyptian**

- kʔt nb [hʔb-t-n w(j) fim-f fir-s]
 work.FS every.MS send-PTCP.FS-PERF me majesty-3MS for-3FS
 ‘every work which His Majesty has sent me for’ (*Urkunden* I 221:5)

When a resumptive object clitic undergoes movement with its verbal host (the participle) to TAM_{external}, it would be in the same syntactic projection as the relative operator in its specifier, inducing a HSR violation. It generally appears, then, that operators in the specifier of CP can bind pronouns in subject and direct object positions, but operators in the specifier of the external TAMP cannot, since they would occur in the same projection as the result of verb movement and cliticization.

12. CONCLUSION

The comparative syntactic study presented in this article explored the universal core underlying participial modifiers, together with the parameters of variation. We derived the mixed nominal and verbal behavior of such modifiers from their syntactic derivation, which involves the merger of a nominalizing participial (PTCP) node with a verbal structure. The systematical morphological and semantic differences between lexical, phrasal, and clausal participial modifiers are accounted for in terms of increasing structural complexity. Lexical participial modifiers were shown to be syntactically minimal, with the PTCP node forming a complex head with a bare verbal stem, while phrasal participial modifiers project a fully-fledged verbal phrase and an internal tense/aspect/ mood (TAM) node that is dominated by the PTCP node. Clausal participial modifiers instantiate the structurally most complex option, which involves the construction of functional superstructure above the PTCP node. This additional structure hosts a (null) relative operator, yet lacks a complementizer layer. We argued that economy principles prevent the projection of a C^0 node in participial modifiers, since the PTCP node contains the relevant nominal concord features

We have found two orthogonal dimensions of crosslinguistic variation in participial modifiers. The first dimension is the existence of overt contrasts in the TAM markings of the participle. This option depends on the detachability within a language of TAM morphology from subject-verb agreement. The second dimension is the licensing of non-subject relativization in participial modifiers, which we have found to be contingent upon the resolution of agreement mismatches. Our study has led us to conclude that phrasal participial modifiers minimally contain an (internal) TAMP below the PTCP, and that they are interpreted as complex properties without resorting to syntactic operators. Clausal participial modifiers, by contrast, involve an (external) TAMP above the PTCP, which licenses a relative operator in the specifier position of this TAM head. We have thus found a morphosyntactic correlate for the split between two universally available types of participial modifiers. On the one hand, there are phrasal modifiers in which a propositional property is semantically derived without recourse to a syntactic operator-variable construction. On the other hand, there are clausal participial modifiers, which depend on relative operators for the derivation of such properties. Interestingly, then, all the variation we have uncovered in the structure of participial modifiers can be traced back to morphological parameters. This provides further confirmation for the ‘Principles-and-Parameters’ view of syntactic variation between languages as being amenable to parameters of morphology.

The agreement mismatches we have discussed have implications for theories of agreement. We have found that, at least for some languages, agreement features that have been checked at one point in the derivation do not clash with non-matching features of a higher node in the derivation. This lends strong support for the possibility of the erasure of features after they are checked (irrespective of whether agreement is checked between two different heads previous to movement, or as a result of movement which brings the two heads together). More generally, these mismatches have implications for the overall architecture of linguistic structures. They imply that a linguistic structure may be constructed procedurally rather than checked declaratively, in other words as a derivation rather than a representation. Languages which have no way of resolving mismatches raise further questions for theories of agreement. These languages indicate that some of the operations involved in feature checking must be parameterized. Naturally, we would expect that it is the erasure of checked features which is parameterized, rather than the procedural architecture of grammar, but we leave these questions to further research.

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¹ Older Egyptian represents the earliest stage of the Ancient Egyptian-Coptic language, which is the oldest

written language of the Afro-Asiatic phylum; it covers a period of more than six hundred years (ca. 2650-1990 BCE). See Loprieno (1995) for an up-to-date overview of Ancient Egyptian language history.

² A nominal functional head akin to our participial head PTCP has been conjectured by Iatridou, Anagnostopoulou & Izvorski (2001) to be the source of the cross-linguistic generalization, valid according to them in English, Bulgarian, Italian and other Indo-European languages, that participial relatives are possible if and only if the missing auxiliary is *be*. The contrast is illustrated for English (see Iatridou, Anagnostopoulou & Izvorski 2001:219, (55c), (56a), [our emphasis]):

- (i) a. The boy (who *is*) singing the ‘Marseillaise’ is my brother.
 b. The boy *(who *has*) walked through the park is my brother.

The complementarity of a perfect participle and a missing auxiliary *have* is explained by assuming that either the participle raises to PTCP, or PTCP is used to derive *have* from *be* (following ideas of Kayne 1993), but not both.

³ Temporal interpretation may be relative to event-time, and in some languages even to speech-time. We are not yet committed to clarifying the problems surrounding the distinctions between tense and aspect in the languages under discussion, though this is the topic of the next phase of our research. We therefore do not always distinguish the various TAM (tense/aspect/mood) components.

⁴ See Ouhalla (2004) for a head-raising analysis of Semitic finite relative clauses.

⁵ The following abbreviations are used in the glosses. (Glosses are given in parentheses for morphemes that have no surface-segmental shape): 1 ‘first person’; 2 ‘second person’; 3 ‘third person’; ABIL ‘abilitative’; ABS ‘absolute state’; ACC ‘accusative Case’; AOR ‘Aorist’; AUG ‘augment’; AUX ‘auxiliary verb’; COMP ‘subordinating complementizer’; COMP_{REL} ‘relative complementizer’; CONSTR ‘construct state’; COP ‘copula’; D ‘dual’; DAT ‘dative Case’; EMPH ‘emphatic state’; EVENT ‘eventive paradigm’; F ‘feminine gender’; FOC ‘focus marker’; FUT ‘future tense’; GEN ‘genitive Case’; GER ‘gerund’; HAB ‘habitual aspect’; IMP ‘imperative’; IMPERF ‘imperfective aspect’; IND ‘indicative mood’; INF ‘infinitive’; INTENS/REPET ‘intensive/repetitive stem pattern’; INTERJ ‘interjection’; M ‘masculine gender’; MID ‘middle voice’; NEG ‘negation’; NEUT ‘neuter’; NOM ‘nominative Case’; P ‘plural’; PASS ‘passive’; PAST ‘past tense’; PCL ‘particle’; PERF ‘Perfect’; POSS ‘possessive’; PREP ‘preposition’; PRES ‘present tense’; PROS ‘prospective tense/aspect’; PTCP ‘participial inflection’; REL ‘relative marker’; S ‘singular’; STAT ‘stative paradigm’ (in subscript); SUBJUNCT ‘subjunctive mood’, VOC ‘vocative Case’

⁶ We give a brief account of emphatic prefix *ha-*, glossed as EMPH in the Hebrew participles. In Afroasiatic languages, nominal categories (nouns, adjectives, participles) are inflected for *state*. Nominal categories are inflected for up to three different states, the absolute state (ABS), the emphatic state (EMPH) and the construct state (CONSTR), as shown in (i) for the Biblical Hebrew noun ‘house’. See Borer (1984a), Danon (2001), Shlonsky (2004) for discussion of the construct state.

- (i) **Biblical Hebrew**
 a. bayit ‘house.ABS.MS’
 b. hab.bayit ‘EMPH.house.MS’
 c. beyt ‘house.CONSTR.MS’

Since Proto-Semitic had no definite article, the original system contrasted, in all likelihood, only the absolute and the construct state (Barth 1913:131-2). Some Semitic languages like Akkadian, Classic Ethiopian still only have an opposition between the absolute and the construct state. See Lipiński (2001:272ff.) for a morphological analysis of nominal states in ancient and modern Semitic languages. Comparative evidence from Phoenician (town dialect of Byblos) suggests that the emphatic state is a linguistic innovation. The original function of the *ha-* prefix was to mark syntactic dependence and subordination. See Gzella (2006) for a more detailed discussion.

Doron & Reintges (in preparation) argue in detail that the emphatic marker *ha-* in Modern Hebrew participial modifiers cannot be identified with the definite article *ha-* found with nouns and adjectives in Modern Hebrew, as in Siloni’s account. First, with participles, the prefix *ha-* has a different distribution than the definite article *ha-*: it obligatorily marks the participle which heads a participial modifier, irrespective of the definiteness of the nominal head. In (ia), the nominal head is indefinite, *laqofiot* ‘customers’, but the modifying participle *ha.maʕadifim* ‘preferring’ is marked by *ha-* as emphatic exactly like the participle which modifies the definite head *ha-laqofiot* ‘the-customers’ in (ib).

- (i) **Hebrew**
 a. ʔibad-nu laqofiot [ha.maʕadifim ʔet-ha-model ha-fiadaʃ]
 loose.PAST.1PL customer.MP EMPH.prefer.PTCP.MP ACC-the-model the-new
 ‘We lost customers who prefer the new model.’
 b. ʔibadnu ʔet-ha-laqofiot [ha.maʕadifim ʔet-ha-model ha-fiadaʃ]
 loose.PAST.1PL ACC-the-customer.MP EMPH.prefer.PTCP.MP ACC-the-model the-new

‘We lost the customers who prefer the new model.’

The fact that there is no definiteness agreement between the participial modifier and the nominal head is not surprising, since in Modern Hebrew, there is no definiteness agreement between finite relative clauses and the head either. Secondly, the definite determiner *ha-* is reanalysed in Modern Hebrew as a *phrasal* clitic, which is attached to nominal heads together with their modifiers, i.e. to compounds, or to nouns and adjectives modified by adverbs or numerals. As a phrasal clitic, *ha-* can be separated from the head noun by an intervening adverb, such as *meʔod* ‘very’ and *kimʕat* ‘almost’:

- (ii) **Hebrew**
- a. ha-[beged yam] ha-[meʔod ʔofnati]
the-suit.CONSTR.MS sea the-very fashionable.MS
‘the very fashionable bathing suit’
- b. ha-teʔomot ha-[kimʕat zehot]
the-twin.FP the-almost identical.FP
‘the almost identical twins’

In contrast to the phrasal clitic *ha-* on NPs and APs, the emphatic marker *ha.* in participial modifiers remains inflectional. It is therefore not possible to place an adverb between the inflectional element *ha.* and the participle, as illustrated by the following contrast in grammaticality:

- (iii) **Hebrew**
- a. ʔatlet [**ha.menaceafi** be-tafiaruyot] mafsiq le-hitʔamen
athlete.MS EMPH.win.PTCP.MS in-competitions stop to-train.INF
‘an athlete who wins competitions stops training.’
- b. *ʔatlet ha [kimʕat **menaceafi** be-tafiaruyot] mafsiq le-hitʔamen
athlete.MS ha almost win.PTCP.MS in-competitions stops to-train.INF
‘an athlete who almost wins competitions stops training.’

Doron & Reintges (in preparation) argue that the emphatic state inflection in participial modifiers retains its original function as a marker of subordination, while it is reanalyzed as a proclitic definite article in NPs and APs.

⁷ We do not include the temporal information as part of the participle’s gloss in Hebrew, since it is invariant.

⁸ In traditional Egyptology, participles that appear in non-subject participial modifiers are referred to as ‘relative forms’, while the term ‘participles’ is reserved for subject participial modifiers (e.g. Polotsky 1976, Satzinger 1984). In the present paper we treat all these forms as participles, since there is not reason to make a categorial distinction when there is absolutely no morphological distinction, and when the different distribution can independently be explained. See Reintges (2005b) for further discussion.

⁹ The agreement displayed by complementizers in Arabic and Older Egyptian finite relative clauses should be distinguished from the complementizer agreement found in Dutch, Flemish and German language varieties, which is agreement with the subject of the embedded relative clause. As we can see from the Bavarian German example in (ia), the concord-marking suffix 2MS *-ts* cliticizes to the invariant relative complementizer *wo* ‘that’. In this context, the presence of a full subject pronoun is optional. For speakers who do can drop the complementizer *wo*, the *-ts* clitic attaches directly to the relative pronoun *des* ‘who.ACC’, as in (ib). See Bayer (1984) for a more detailed discussion.

- (i) **Bavarian German**
- a. des Auto [des wo-ts (ihr/es) kaffd hab-ts]
the.NOM car.NOM who.ACC-2P COMP_{REL}-2P you.P bought have-2P
‘the car which you have bought’ (Bayer 1984:216 (59a))
- b. des Auto [des-ts (ihr/es) kaffd hab-ts]
the.NOM car.NOM who.ACC-2P you.P bought have-2P
‘the car which you have bought’ (Bayer 1984:216 (59c))

¹⁰ In Classical Greek, there is agreement in Case between the head noun and the relative pronoun (see Bianchi 2000:73, (40a)):

- (i) **Classical Greek**
- toútous kaì árkhontas epoíei
these.MP.ACC also leaders.MP.ACC make.IMPERF.3MS
hē:s katestrépheto khó:as
which.FS.GEN conquer.IMPERF.3MS.MID country.FS.GEN
‘He also made these governors of *the country* [FS.GEN] *which* [FS.GEN] he conquered’
(Xenophon, *Anabasis* I, 9:14)

¹¹ Another apparent counterexample is the lack of concord in French between present participial modifiers and the head they modify, though such concord is found for past participial modifiers (cf. Siloni 1995, 1997). We relate this to the fact that in French, overt concord between the participle and the nominal head is only found for object agreement (Kayne 2000).

¹² Older Egyptian employs two morphologically distinct finite verb conjugations, the Eventive and the Stative, to formally distinguish event- and state-denoting verbs that are derived from the same root. The Eventive-Stative alternation that yields minimal pairs like *j-rx* 'to learn about' in (ia) and *rx(-w)* 'know (through learning)' in (ib) is fully productive in various lexical classes of transitive, unergative and unaccusative verbs.

(i) **Older Egyptian**

- a. **j-rx** pjpj pn mwt-f (EVENTIVE)
 AUG-learn_{EVENT} Pepi this.MS mother-3MS
 'This King Pepi will recognize his mother' (Pyramid Texts 910a/P)
- b. d³fiwt(j)-nxt pn **rx(-w)** rn n(j) wff-w (STATIVE)
 Thoth-nakht this.MS learn-3M_{STAT} name of fowler-MP
 'Thoth-nakht knows (through learning) the names of the fowlers'
 (Coffin Texts VI 22o/B1Bo)

Eventive-inflected verb forms appear either as synthetic forms with pronominal suffixes or as analytic forms without such markings. The distribution of both forms is strictly regulated: finite clauses with nominal subjects require the analytic form, as in (ia) above, while the corresponding synthetic form *j-rx-f* 'he will recognize' is selected in the context of pronominal subjects. Stative forms like *rx(-w)* are always inflected for person, number and gender. This distributional pattern indicates that verbal agreement proper is only represented by the inflectional endings on Stative verb forms, while Eventive verb forms appear in their 'bare' uninflected state. The pronominal suffixes in the synthetic form constitutes clitic pronouns (see Reintges 2005a for a more detailed discussion).

When participles are used as main clause predicates, the concord marking of the participle assumes a default masculine singular value, with feminine singular agreement being available as a marked alternative.

(ii) **Older Egyptian**

- a. **?x-w(j)** w(j) **nxt-w(j)** s²-j (PARTICIPIAL CLAUSE)
 be.glorified.PTCP.MS-PCL I be.strong.PTCP.MS-PCLson-1S
 'How glorified am I (and) how strong is my son' (Coffin Texts II 242c/S1P)
- b. **mr(-w)** **mn-t** jmnt nfr-t wr-t
 love(-PASS₁-PTCP.MS) endure-PTCP.MS West.FS beautiful-FS great-FS
 'Beloved and enduring is the beautiful great West' (Lepsius, *Denkmäler* II, pl.45)

Crucially, such sentential participles lack nominal agreement of any form with the subject. This is, however, the normal pattern for the Eventive paradigm, in which the finite verb lacks subject-verb agreement altogether.

¹³ George & Kornfilt (1981) convincingly argue that the presence of possessor agreement in Turkish participial modifiers is related to their nominal (gerundival) properties. The independence of this nominal agreement from concord can be demonstrated by the Case-marking of such participial structures, when they are used as embedded clauses. Thus, consider the following example in which the embedded participial clauses is marked accusative by the matrix verb, while the embedded subject has genitive Case:

(i) **Turkish**

- (ben) [Ahmet-in öl-düğ-ün]-ü duy-du-m
 I Ahmet-GEN die-PTCP.PRES/PAST-POSS.3S-ACC hear-PAST-1S
 'I heard that Ahmet died' (Kornfilt 1997:50)

¹⁴ The same agreement pattern applies to participial main clauses. When used as main clause predicates, participles agree in number and gender with the subject and inflect for nominative Case when no auxiliary is present, but for accusative Case when if an auxiliary verb is present. Thus, compare (ia) with (ib).

(i) **Arabic**

- a. ζ amr-un **qaarib-un** Zayd-an l- ζ aan-a
 Amr-NOM beat.PTCP.MS-NOM Zayd-ACC now-ACC
 'Amr is beating Zayd now.' (Fassi Fehri 1993:181 (110))
- b. kaana ζ amr-un **qaarib-an** Zayd-an kull-a laylat-in
 AUX.PERF.3MS Amr-NOM beat.PTCP.MS-ACC Zayd-ACC every-ACC night-GEN
 'Amr used to beat Zayd every night.' (Adapted from Fassi Fehri 1993:184 (119) by Assad Jaber)

In contradistinction to finite verbs, the nominal agreement of participles, and of nominal predicates in general, is fully specified, irrespective of word order. Either when the subject precedes the nominal predicate, or follows it,

the predicate shows full number and gender agreement. Normally, the predicate follows the subject, as in (iia). The reverse order is attested in pragmatically marked contexts, such as questions, exemplified in the respective (iib) example.

- (ii) **Arabic**
- a. ?al-banaat-u **waahibaat-un** il-maal-a
 the-girls-NOM give.PTCP.FP-NOM the-money-ACC
 ‘The girls are giving the money.’ (Adapted from Fassi Fehri 1993:194 (145) by Assad Jaber)
- b. ?a-**waahibaat-un** il-banaat-u l-maal-a
 Q-give.PTCP.FP-NOM the-girls-NOM the-money-ACC
 ‘Are the girls giving the money?’ (Adapted from Fassi Fehri 1993:198 (158) by Assad Jaber)

We analyze the front position of the predicate in (ib) as a result of verb second (triggered by the presence of the question operator *?a-*). Before the predicate moves, it is in an agreement relation with the subject, which accounts for the full agreement.

¹⁵ We thank an anonymous reviewer for providing us with examples (22a-b).

¹⁶ In Malayalam (Asher & Kumari 1997), where is neither subject-verb agreement, nor modifier-head concord, agreement mismatches clearly do not arise, and subjects are indeed found in participial relative clauses.

¹⁷ The so-called *agglutinative* languages are found among this type, yet this is a proper subclass, and there are also languages, viz. Classical Greek, which are of this type but are not agglutinative. This is an additional reason to suspect that the term *agglutinative* is does not capture a meaningful parameter of typological variation, as also demonstrated in Haspelmath (2000).

¹⁸ The opposition between a suffix and a prefix conjugation is also found in other Semitic languages, for example, Akkadian, Aramaic, Hebrew, and Classical Ethiopian (see Moscati, Spitaler, Ullendorf & von Soden 1969:137ff., Lipiński 2001:367ff.)

¹⁹ In Arabic, adjectives which modify collective nouns are marked as feminine singular.

²⁰ Kratzer (1994) attributes the lack of accusative Case in phrasal passive participles to the lack of a *v* head in a passive verb. This cannot be correct for phrasal active participles such as (29b), (30a), (31a) in the text, where *V* is an active verb, and therefore, in Kratzer’s terminology, includes *v*. Our discussion applies to active and passive participles alike.

²¹ In Classical Arabic clausal participial modifiers, it is also possible to replace the accusative-marked object by a prepositional object with *li-* ‘to, for’ (Brockelmann 1953:173§140)

- (i) **Classical Arabic**
- ?a?-?aalib-u li-l-?ilm-i
 the-strive.PTCP.MS-NOM.ABS for-the-knowlegde-GEN
 ‘the one who strives for knowlegde’ (Brockelmann 1985: 173)

²² In Modern Hebrew, the construct state is only possible in phrasal participles when the complement is a direct or indirect object, not a prepositional complement. But this option is well attested in Syriac (cf. Nöldeke 1904: 156-7, § 206). In the most archaic strata of the Bible, the construct state is also found with such prepositional complements, as in the following verse from Deborah’s Song:

- (i) **Archaic Biblical Hebrew**
- rok^obey ?otonoot ?fioroot yof^obey ?al middiin
 ride.PTCP.MP.CONSTR donkey.FP white.FP sit.PTCP.MP.CONSTR on judgment
 w^o-hol^okey ?al derek^o ?iifu
 and-walk.PTCP.MP.CONSTR on way speak.IMP
 ‘Speak ye that ride on white asses, ye that sit in judgment, and walk by the way.’ (Judges 5:10)

²³ See Cohen (1984:275ff.) for a similar contrast between lexical and phrasal participial modifiers in Classical Arabic.

²⁴ Adverbs can occur in phrasal participial modifiers of Biblical Hebrew as well, as noted in Gordon (1982:129):

- (i) **Biblical Hebrew**
- ?^abaadey-ka ?elle [haa.?^odiim l^opane^o-ka taamiid]
 slave.MP-POSS.2MS these EMPH.stand.PTCP.MP before-2MS always
 ‘these thy servants, which stand continually before thee’ (1 Kings 10:8)

²⁵ It is a peculiarity of Hebrew that participles (probably reinterpreted as present-tense verbs) are allowed to head finite relative clauses (introduced by the relative complementizer *?e*). We do not address this issue, but see Shlonsky (1997) for relevant discussion. Arabic and Older Egyptian exhibit the expected pattern where participles do not head finite relative clauses introduced by complementizers.

²⁶ In Arabic, pronouns anaphoric to collective nouns are feminine singular. See above, note 14.

²⁷ The agreement between the Narrow subject and the participle shows some variation with respect to the morphological realization of gender and number. Thus, consider the following minimal sentence pair. In (ia), there is full agreement of the modifier to its subject, while there is no number agreement in (ib):

(i) **Arabic**

- a. raʔaytu rajul-an [**kiraam-an** ʔabaaʔ-u-hu]
 see.PERF.IS man-ACC noble.MP-ACC father.MP-NOM-POSS.3MS
- b. raʔaytu rajul-an [**kariim-an** ʔabaaʔ-u-hu]
 see.PERF.IS man-ACC noble.MS-ACC father.MP-NOM-POSS.3MS
- Both: ‘I saw a man whose forefathers are noble.’ (Wright 1874:284)

We rely on the studies of Mohammad (1990), Fassi Fehri (1993), Doron & Heycock (1999), and Benmamoun (2000), which all agree on a particular correlation between the ‘richness’ of agreement inflection and the position of the subject. According to these studies, partial agreement signals a Spec, VP position of the subject, whereas full agreement signals a Spec, TAMP position. The different studies offer different explanations for this correlation, but we shall not broach this question here.

²⁸ That the movement of the participle to the highest functional node of the phrasal modifiers is, indeed, responsible for the checking of Case and definiteness with the nominal head is compatible with the traditional grammarian view of Classical Arabic, where this phenomenon is known as ‘attraction’ (see, most notably, Reckendorf 1895:596-8 §192, 1921:421).

²⁹ The various participles in table 8 are shown with their full form. Due to phonological processes, the full form does not always appear in the actual surface form. Passive participles with the passive morpheme *-t(j)* are relatively rare in our documentation of Older Egyptian. For this reason, they have not been included into table 8 of the main text.

³⁰ Older Egyptian is a language in which the same tense morphology appears on both finite active and passive verb forms and the corresponding active and passive participles. See Haspelmath (1994) for a more detailed discussion on languages with such a symmetrical system.

³¹ There is no clash in temporal features between the internal and external TAM node in Older Egyptian, since, when they cooccur, the former is related to aspect and the latter to temporal reference. Yet, in general, the internal TAM node may also be related to temporal reference. In Modern Hebrew, where only the internal TAM node is available, it determines temporal overlap of the participial modifier with speech time (see example (8) above, in section 3).

³² Preposition stranding alternates with resumptive pronouns as complements of prepositions, as shown in (i):

(i) **Older Egyptian**

- fir gs pw jʔbt(j) n(j) pt [**ms-s-w** nčr-w jm-f]
 on side.MS this.MS eastern(-MS) of.MS heaven bear-IMPF-PASS(-PTCP.MS) god.MP in-3MS
 ‘on this eastern side of heaven where the gods are born’ (Pyramid Texts 934a/P)

³³ Subject resumptive pronouns are not found with Stative-inflected verbs, which are associated with subject-initial (SVO) order (see Reintges 2000). Rather, the preverbal subject position of subject finite relative clauses with Stative verbs hosts a trace (with do not assume such a trace in (48), since Eventive verbs are associated with a VSO structure):

(i) **Older Egyptian**

- xm-w [CP Op jwt-w t_{Subj} **rx(-w)** swʔ fir-s]
 demolisher-MP NEG.COMP_{REL}-MPlearn-3M_{STAT} pass.by.INF at-3FS
 ‘the demolishers who do not know (how) to pass it (the first gate)’ (Coffin Texts VII 436i-437a/B9C)

³⁴ We contend that the subordinating suffixes *-(y)An* and *-DIK* for Turkish participial modifiers mark the distinction between phrasal and clausal modifiers. Indeed, the participial suffix *-DIK*, which conveys present or past tense reference, alternates with the suffix *-(y)AcAK*, which indicates (relative) future tense (see, among various others, Underhill 1972, George & Kornfilt 1981, Kornfilt 1997:57ff. §1.1.2.3, Göksel & Kerslake 2005:91-2 §8.5.1.1). Kornfilt (2000) analyses these participial modifiers as operator-variable constructions. To account for the ungrammaticality of participial modifiers with *-DIK* for subject relativization, Kornfilt (1991) also proposes a binding-theoretical analysis based on the HSR.