Canadian Journal of Linguistics/Revue canadienne de linguistique, 66(3): 374–411, 2021
doi: 10.1017/cnj.2021.22

Anaphoric binding in Modern Standard Arabic: A phase-based analysis

BASEM IBRAHIM MALAWI AL-RABA'A
KIMEP University, Kazakhstan
balrabaa@kimep.kz

Abstract

This article explores the distribution of Arabic reflexive and reciprocal anaphors in various structures as well as the syntactic environments in which such anaphors are (in)admissible. In particular, it examines the binding domains for reflexives and reciprocals and focuses for the most part on the asymmetries between these two types of anaphors in possessive DPs and PPs. It will be shown that the binding facts are better captured by reducing binding domains to phases, that DPs and PPs constitute a phase only when containing a possessive phrase, and that a reflexive and a reciprocal behave differently in such possessive structures in that the latter, unlike the former, undergoes overt movement. Accordingly, it will be argued that reflexive possessives are ungrammatical because they are left unbound in their DP/PP phase, while reciprocal possessives are grammatical since multiple copies of the distributor are created during the derivation due to movement, allowing it to seek an antecedent in the higher vP, its phasal binding domain. For this to hold, Principle A should apply cyclically at the end of each phase; that is, before the complement of the phase head is spelled out.

Keywords: Modern Standard Arabic, binding asymmetry, possessives, phases

Résumé

Cet article étudie la distribution des anaphores réfléchies et réciproques arabes dans diverses structures ainsi que les environnements syntaxiques dans lesquels de telles anaphores sont (in)acceptables. En particulier, il examine les domaines de liage pour les pronoms réfléchis et réciproques et se penche sur les asymétries entre ces deux types d'anaphores dans les SD et les SP possessifs. On montrera que les faits de liage s'expliquent mieux si les domaines de liage correspondent aux phases, que les SD et les SP ne constituent une phase que lorsqu'ils contiennent une phrase possessive, et qu'un pronom réfléchi et un pronom réciproque se

I am very thankful to the three anonymous reviewers and to Editor Heather Newell for providing insights and comments that substantially helped in improving the paper. I also would like to express my gratitude to my consultants — Muhammad Fadil Al-Samarraie, Dua'a Abu-Elhij'a, Lamia Djeldjel, Wafi Alshammari, Musa Alahmari, Mohamed Ansary, Maher Al-Kateeb, Hawraa Sana, and Amjad Talafheh — for sharing their judgments on the data and examples from the nonstandard dialects.

comportent différemment dans de telles structures possessives. En particulier, les réciproques, contrairement aux pronoms réfléchis, se déplacent de façon manifeste. En conséquence, on soutiendra que les possessifs réfléchis sont agrammaticaux parce qu'ils ne sont pas liés dans leur phase SD / SP, tandis que les possessifs réciproques sont grammaticaux puisque plusieurs copies de l'élément distributif sont créées au cours de la dérivation en raison du mouvement. Ceci permet au réciproque de rechercher un antécédent dans le vP supérieur, la phase qui détermine son domaine de liage. Pour que cela tienne, le Principe A devrait s'appliquer de manière cyclique à la fin de chaque phase, c'est-à-dire avant que le complément de la tête de phase ne soit réalisé.

Mots-clés: Arabe standard moderne, asymétrie de liage, constructions possessives, phases

1. INTRODUCTION

Two widely accepted constraints in generative syntax restricting the distribution of anaphors and pronouns are Chomsky's (1981) Principle A and Principle B of the binding theory. These are given in (1), from Chomsky (1981: 188), Chomsky (1986: 166).

(1) Binding theory
Principle A: An anaphor is bound in a local domain (its governing category).
Principle B: A pronominal is free in a local domain (its governing category).[1]

The local domain for an anaphor is characterized as the minimal finite clause (TP) containing the anaphor, its antecedent and its governor/Case marker (Chomsky 1981). Accordingly, an anaphor must have a binder within the minimal TP, as illustrated in (2a–b) from Modern Standard Arabic (MSA).[2]

(2) a. ar-riʤaal-u ʔaχbar-uu **n-nisaaʔ-a$_1$** [$_{PP}$ ʕan
DEF-men-NOM told-3PL.M DEF-women-ACC about
ʔanfusihinna$_1$/ baʕḍihin baʕḍ-an$_1$].
themselves.3PL.F.GEN/ some.3PL.F.GEN some-ACC
'The men told the women$_1$ about themselves$_1$/each other$_1$.'

[1]Chomsky (1995: 100) introduces an interpretive procedure of the binding principles as a later development, dispensing with indexing, as in (i). (D is interpreted as the relevant local domain.)

(i) Interpretive binding theory
Principle A: If α is an anaphor, interpret it as coreferential with a c-commanding phrase in D.
Principle B: If α is a pronoun, interpret it as disjoint from every c-commanding phrase in D.

For the sake of simplicity, I will use coindexation for representing coreferential relations between anaphors and their antecedents, in accordance with the standard binding theory.

[2]The abbreviations used in this article are as follows: 1: first person; 2: second person; 3: third person; ABS: absolutive; ACC: accusative; COMP: complementizer; DEF: definite; ERG: ergative; F: feminine; FUT: future; GEN: genitive; M: masculine; NOM: nominative; O: object; PL: plural; POSS: possessive; REL: relative; S: subject; SG: singular; TR: transitive.

https://doi.org/10.1017/cnj.2021.22 Published online by Cambridge University Press

b. **ar-riʤaal-u$_1$** ʔaχbar-uu n-nisaaʔ-a [$_{PP}$ ʕan
DEF-men-NOM told-3PL.M DEF-women-ACC about
ʔanfusihim$_1$/ **baʕḍihim** **baʕḍ-an$_1$**].
themselves.3PL.M.GEN/ some.3PL.M.GEN some-ACC
'The men$_1$ told the women about themselves$_1$/each other$_1$.'

Notice, first, that the anaphors in (2a–b) show gender, and second, that these anaphors exhibit some degree of flexibility with respect to binding. In particular, the anaphors in (2a), whether reflexive or reciprocal, are bound by the object DP, while those in (2b)are bound by the subject DP. In other words, the anaphoric binding in (2a–b) is not constrained by the Subject Condition since object binding is also possible. Crucially, both cases can be straightforwardly captured by the standard binding theory since binding takes place in the local domain – the smallest TP – containing the anaphor and its DP antecedent. Nonetheless, there are cases that pose a problem for the standard binding theory. For example, reflexive possessives are impermissible in MSA but reciprocal possessives are permissible, as illustrated in (3) and (4).[3] (The (un-)acceptability of the data in this paper has been verified by highly educated native speakers of Arabic; I will comment further on this in section 3.)

(3) ar-raʤul-u$_1$ ʕaanaq-a [$_{DP}$ʔibn-a-hu$_1$/ *ʔibn-a nafsihi$_1$].
DEF-man-NOM hugged-3SG.M son-ACC-his/ son-ACC himself.3SG.M.GEN
'The man$_1$ hugged his$_1$ son/*himself$_1$'s son.'

(4) ar-riʤaal-u$_1$ ʕaanaq-uu [$_{DP}$ ʔabnaaʔ-a-hum$_1$/ abnaaʔ-a
DEF-men-NOM hugged-3PL.M sons-ACC-their.3PL.M/ sons-ACC
baʕḍihim baʕḍ-an$_1$].
some.3PL.M.GENsome-ACC
'The men$_1$ hugged their$_1$ sons/each other$_1$'s sons.'

This reflexive-reciprocal asymmetry also holds in constructions involving possessive PPs, as seen in (5)–(6). The preposition *ʕinda*, when expressing possession, translates as *at the disposal/place of* or *in the possession of*, but it will be glossed as *at* in order to avoid confusing it with nouns. The same applies to the preposition *ladaa*, as we will see later.

(5) ar-raʤul-u$_1$ ʔiddaχar-a maal-an [$_{PP}$ ʕinda-hu$_1$/ *ʕinda
DEF-men-NOM saved-3SG.M money-ACC at-his.3SG.M.GEN/ at
nafsihi$_1$].
himself.3SG.M.GEN
'The man$_1$ saved money in his$_1$ place/*in himself$_1$'s place.'

(6) ar-riʤaal-u$_1$ ʔiddaχar-uu maal-an [$_{PP}$ ʕinda-hum$_1$/ ʕinda
DEF-men-NOM saved-3PL.M money-ACC at-their.3PL.M.GEN/ at
baʕḍihim baʕḍ-an$_1$].
some.3PL.M.GEN some-ACC
'The men$_1$ saved money in their$_1$ places/in each other$_1$'s places.'

Only the pronominal is allowed in (3) and (5), not the reflexive, whereas both the pronominal and reciprocal are possible in (4) and (6). The standard theory seems

[3]In this article, I discuss binding facts specific to Modern Standard Arabic (MSA), but I use the terms Arabic and MSA interchangeably in reference to the same variety.

https://doi.org/10.1017/cnj.2021.22 Published online by Cambridge University Press

incapable of explaining why the reciprocal can surface but the reflexive cannot in such syntactic environments; this is because the two types of anaphors are predicted to appear in non-complementary positions, yet the reciprocal is licensed here but the reflexive is not. Such reflexive-reciprocal asymmetries, as I will show in sections 3 and 4, can be accounted for under three assumptions: the overt movement of the anaphoric distributor in reciprocals (see, for example, Heim, Lasnik, and May 1991, Carlson 1998, Büring 2005), which lends itself well to the copy theory of movement (Chomsky 1993); the binding-by-phase analysis (Lee-Schoenfeld 2004, 2008; Quicoli 2008; Despić 2011, 2015; Antonenko 2012, among others); and the pronominal status of the reciprocal element indicating contrast, namely, the Arabic equivalent of the English *other* (Heim, Lasnik, and May 1991). I will also show that the phase-based model not only accounts for binding within possessive DPs or PPs, which will be argued to be phases, but also for binding within other phases like TPs or vPs (the phasehood of TP, which has been adopted from Antonenko (2012), will be discussed in the next section). Furthermore, I will shed light on the reflexive-reciprocal asymmetry in English, such as **himself's son*/**the son of himself* versus *each other's sons*/*the sons of each other*, which were suggested by a reviewer. I will also compare Arabic anaphors to their English counterparts, and attempt to account for the similarities and differences in binding phenomena between the two languages. Although the proposed approach will capture a wider range of binding phenomena, specifically in Arabic, it will not resolve problematic issues, such as why English allows long-distance binding into infinitival clauses, but Arabic does not. There will also not be sufficient evidence to support the phasehood of English DPs like [$_{DP}$ *the sons of each other*].

The analysis pursued in this paper does not deal with binding that involves discourse-related factors, since anaphors referentially dependent on binders from discourse (which are claimed to be logophoric rather than anaphoric; see, for example, Reuland and Koster 1991 and the references therein) are not possible in Arabic, but are well-formed in English, as shown in (7).

(7) a. The man saw a picture of myself/*each other(1PL).

b. The man invited the girl and {myself/*each other(1PL)} to the party.

The reference of *myself* in (7a–b) can be provided from discourse, but that of *each other* cannot. Some linguists (e.g., Bouchard 1984; Safir 1992, 2004) argue that such reflexives have a pronominal character and are thus exempted from the binding theory. Reinhart and Reuland (1991, 1993), on the other hand, contend that a reflexive anaphor is not subject to Principle A, and is therefore free if it is not a direct argument of the predicate (see also Pollard and Sag 1992), as we see in (7) above. Such issues, however, will not concern us here, since Arabic prohibits logophoricity, as shown in (8).

(8) a. * ar-raʤul-u raʔ-aa ṣuurat-an { li-nafsii/
DEF-man-NOM saw-3SG.M picture-ACC for-myself.1SG.GEN/
li-baʕḍinaa baʕḍ-an }.
for-some.1PL.GEN some-ACC
Intended: 'The man saw a picture of myself/*each other(1PL).'

https://doi.org/10.1017/cnj.2021.22 Published online by Cambridge University Press

b. * ar-raʤul-u daʕaa l-bint-a { wa-nafsii/
DEF-man-NOM invited-3SG.M DEF-girl-ACC and-myself.1SG.ACC/
wa-baʕḍinaa baʕḍ-an } li-l-ħaflat-i.
and-some.1PL.GEN some-ACC to-DEF-party-GEN
Intended: 'The man invited the girl and { myself/*each other(1PL) } to the party.'

Both reflexive and reciprocal anaphors in Arabic cannot pick out an antecedent from discourse, as shown in (8a–b). Crucially, Arabic, unlike English, must adhere to Principle A of the binding theory, whether or not the anaphor is a co-argument of the verb, patterning with German in this respect (see Kiss 2001).

This article is organized as follows. Section 2 discusses binding in TPs and vPs. Section 3 presents the different binding behaviours of reflexives and reciprocals inside possessive DPs and offers a syntactic account of the observed asymmetries, while section 4 examines asymmetrical binding in constructions containing possessive PPs, with special attention to asymmetries between reflexive and reciprocal anaphors in possessive phrases.

2. Anaphoric binding: TP and vP phases

A number of linguists argue for the reducibility of local binding domains to phases (Lee-Schoenfeld 2004, Canac-Marquis 2005, Quicoli 2008, Hicks 2009, Safir 2011, Despić 2011, Antonenko 2012, Charnavel and Sportiche 2016). Some assume that the binding domains for anaphors are CPs/TPs and vPs, drawing on Chomsky's (2001, 2008) proposal that CPs and vPs constitute phases, while some others further argue that PPs and/or DPs can also be phases (Lee-Schoenfeld 2008; Hiraiwa 2005; Bošković 2012, 2014; Despić 2015). The basic idea behind phase theory is that a sentence is decomposed into syntactic domains called phases, each of which is spelled out and independently sent off to the interface levels, Logical Form (LF) and Phonetic Form (PF), which assign semantic and phonetic/phonological interpretations to the utterance. However, the phase head and its edge on the one hand, and the complement of the head on the other hand undergo Spell-Out separately. This means that the edge of a phase is accessible to operations in the next higher phase, following Chomsky's (2001: 14) Phase Impenetrability Condition, given in (9).

(9) a. $[_{ZP}$ Z … $[_{HP}$ α [H YP]]]

b. **Phase Impenetrability Condition (PIC):** The domain of H is not accessible to operations at ZP; only H and its edge (α) are accessible to such operations.

Under PIC, YP in (9) – which is the domain/complement of H – is spelled out within HP, but H and its edge α are spelled out at the ZP level (Chomsky 2001: 13). In other words, the head of a phase and its edge are spelled out along with the complement of the higher phase head. Chomsky (2001: 13–14) provides two versions of PIC: the strong PIC and the weak PIC. In (9) I quote the weak PIC, which is the version adopted here. This is so because it captures facts that cannot be accounted for by the strong version. Consider the sentence in (10).

https://doi.org/10.1017/cnj.2021.22 Published online by Cambridge University Press

(10) a. ar-riʤaal-u$_1$ waḍaʕ-uu kutub-an **baʕḍuhum** ʕinda baʕḍ-in$_1$.
DEF-men-NOM put-3PL.M books-ACC some.3PL.M.**NOM** at some-GEN
'The men each put books in the other's place.'

b. [$_{CP}$ C [$_{TP}$ ar-riʤaal-u$_1$ T [$_{vP}$ v waḍaʕ -uu [$_{VP}$ V [$_{DP}$ kutub-an [$_{PP}$ **baʕḍuhum$_2$**

Agr

P ʕinda [$_{DP}$ **t$_2$** baʕḍ-in$_1$]]]]]]].

Focusing on the distributor *baʕḍuhum* 'each' in (10), it moves from a lower position within a PP to Spec-PP, where it is pronounced (I will discuss this kind of movement within both possessive DPs and PPs in detail in the next two sections). T in (10) agrees with *baʕḍuhum*, which is itself at the edge of PP whose Spell-Out domain is the VP (the complement of the phase head v). Agreement with T derives the nominative Case marking. That is, *baʕḍuhum* is still accessible to T under the weak PIC because it is not spelled out until the next phase head is merged (here, C, based on the definition of PIC in (9); see Chomsky 2001, Citko 2014). For a somewhat similar phenomenon in Icelandic and Polish, see Citko (2014: 35). Assuming, following Citko, that only phases can have an element pronounced at their edges, the fact that *baʕḍuhum* is pronounced in Spec-PP provides evidence that such possessive PPs in Arabic count as phases (see sections 3 and 4). In a phase-based binding theory, the binding principles have been restated as follows:

(11) a. An anaphor must be bound in its phase.[4]

b. A pronominal must be free in its phase.

(Lee-Schoenfeld 2008: 291; see also Lee-Schoenfeld 2004: 147)

Binding in Arabic adheres to the principles in (11a–b), as has been claimed for some other languages like English (Quicoli 2008; Despić 2011, 2015) and German (Lee-Schoenfeld 2004, 2008). Consider the Arabic examples in (12) and (13).

(12) a. ar-raʤul-u$_1$ rasam-a nafsahu$_1$/ *rasam-a-hu$_1$.
DEF-man-NOM drew-3SG.M himself.3SG.M.ACC/ drew-3SG.M-him.ACC
'The man$_1$ drew himself$_1$/*him$_1$.'

b. [$_{vP}$ ar-raʤul-u rasam-a nafsahu$_1$ /*rasam-a-hu$_1$]

(13) a. ar-riʤaal-u$_1$ rasam-uu baʕḍahum baʕḍ-an$_1$/
DEF-men-NOM drew-3PL.M some.3PL.M.ACC some-ACC/
*rasam-uu-hum$_1$.
drew-3PL.M-them.3PL.M.ACC
'The men$_1$ drew each other$_1$/*them$_1$.'

b. [$_{vP}$ ar-riʤaal-u$_1$ rasam-uu baʕḍahum baʕḍ-an$_1$/*rasam-uu-hum$_1$]

[4]Principle A in Lee-Schoenfeld (2008: 291) is originally stated as (i).

(i) A reflexive must be bound in its phase.

I have replaced *a reflexive* in (i) with *an anaphor* in (11) in order to capture both reflexive and reciprocal binding.

https://doi.org/10.1017/cnj.2021.22 Published online by Cambridge University Press

The anaphors in (12)–(13), whether reflexive or reciprocal, are locally bound within their vP phase, as illustrated by the LF representations in (12b) and (13b). Essentially, the matrix subject binds the anaphor within the vP before it moves to the specifier of TP in both examples (see Quicoli 2008); Principle A is thereby satisfied, as predicted. A binding relation between a pronominal and a DP within its vP phase, by comparison, violates Principle B and thus results in ill-formedness, as also indicated in (12) and (13). The sentence is grammatical as long as the principles in (11a–b) are met, whether the antecedent is the subject, as in (12)–(14), or the object, as in (15).

(14) a. ar-riʤaal-u$_1$ ʔaχbar-uu n-nisaaʔ-a ʕan ʔanfusihim$_1$ /
DEF-men-NOM told-3PL.M DEF-women-ACC about themselves.3PL.M.GEN /
ʕan baʕḍihim baʕḍ-an$_1$/ *ʕan-hum$_1$.
about some.3PL.M.GEN some-ACC/ about-them.3PL.M
'The men$_1$ told the women about themselves$_1$/each other$_1$/*them$_1$.'

b. [$_{vP}$ ar-riʤaal-u$_1$ ʔaχbar-uu n-nisaaʔ-a [$_{PP}$ ʕan ʔanfusihim$_1$ / ʕan baʕḍihim baʕḍ-an$_1$ /*ʕan-hum$_1$]]

(15) a. ar-riʤaal-u ʔaχbar-uu n-nisaaʔ-a$_1$ ʕan ʔanfusihinna$_1$/
DEF-men-NOM told-3PL.M DEF-women-ACC about themselves.3PL.F.GEN/
ʕan baʕḍihin baʕḍ-an$_1$/ *ʕan-hunna$_1$.
about some.3PL.F.GEN some-ACC/ about-them.3PL.F
'The men told the women$_1$ about themselves$_1$/each other$_1$/*them$_1$.'

b. [$_{vP}$ ar-riʤaal-u ʔaχbar-uu n-nisaaʔ-a$_1$ [$_{PP}$ ʕan ʔanfusihinna$_1$ /
ʕan baʕḍihin baʕḍ-an$_1$ /*ʕan-hunna$_1$]

Again, the anaphors in (14)–(15) are bound in their vP either by the subject (14) or by the object (15), in accordance with Principle A. In contrast, the pronominals are ungrammatical because they are locally bound inside the vP, violating Principle B.[5]

One question arising here is how binding is achieved in constructions like (14)–(15). To begin, I argue that binding in the above sentences is not a result of an Agree relation between the anaphor and its antecedent (Antonenko 2012, Charnavel and Sportiche 2016). This is substantiated by the fact that binding under agreement (probe-goal relation) cannot capture cases involving partial binding (Charnavel and Sportiche 2016: 65), as illustrated in (16).

(16) al-ʔawlaad-u$_1$ raʔ-uu ʔanfusahum$_1$ fi-l-mirʔaat-i.
DEF-boys-NOM saw-3PL.M themselves. 3PL.M.ACC in- DEF-mirror-GEN
'The boys$_1$ saw themselves$_1$ in the mirror.'

Supposing that there is a group of boys (A, B, C, D, etc.) then (16) could mean that A, B, and C saw A, B, C, and D, but D and E saw D, E, and F. However, Agree relations require exhaustive binding; accordingly, if binding is the result of an Agree operation,

[5]One idea pursued here is that the binding of an anaphor can occur first in a lower phase where the anaphor is base-generated, and later in a higher phase if the anaphor moves up, as long as Principle A is satisfied in the lower phase (see Bailyn 2007), as will become clear in sections 3 and 4. However, if any violation is incurred in some phase, then the derivation cannot proceed further, consequently crashing. For instance, subject movement from Spec-vP to Spec-TP in (13) cannot cancel the violation of Principle B.

https://doi.org/10.1017/cnj.2021.22 Published online by Cambridge University Press

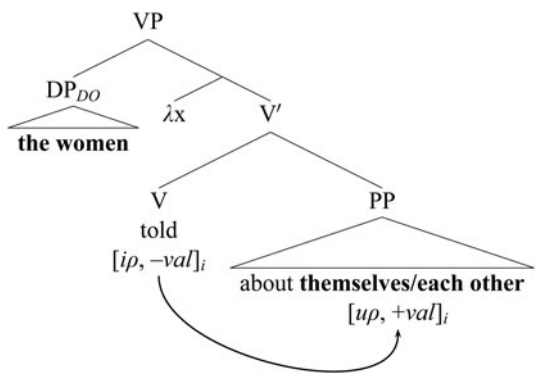
then (16) is wrongly predicted to be ungrammatical with the interpretation described. It is also not clear how binding by Agree is achieved in sentences like (17).

(17) Zajd-un taħaddaθ-a maʕa Nuhaa$_1$ ʕan nafsihaa$_1$.
Zayd-NOM talked-3SG.M with Nuha.GEN about herself.GEN
'Zayd talked to Nuha$_1$ about herself$_1$.'

Assuming that *taħaddaθ-a* 'talked' takes two PP complements *maʕa Nuhaa* 'with Nuha' and *ʕan nafsihaa* 'about herself', with the former being the higher complement c-commanding the latter, it remains puzzling how *Nuhaa* binds the anaphor under the Agree-based approach. First, DPs are not heads and thus cannot probe features for valuation. Second, v in (17) does not assign accusative Case to either of the two DPs, which suggests that there is no agreement between v and the PP-embedded DP arguments. For more arguments against binding under Agree, see Drummond, Kush, and Hornstein (2011) and Charnavel and Sportiche (2016). It would therefore seem that binding in (14)–(15) does not result from an Agree relation. Rather, both cases in (14)–(15), whether the anaphor is bound by the subject or object, can be accounted for by the phase-based approach, with binding established at the end the phase. Specifically, binding is taken to be a filter, evaluated when the Spell-Out domain of a certain phase is transferred to the interfaces (Antonenko 2012).

Following Antonenko (2012), I also argue that the mechanisms by which subject and object binding are derived, respectively, are different in the syntax. In the spirit of Pesetsky and Torrego's (2007) feature-sharing model and building on Reinhart and Reuland's (1993) view that a predicate is specified as reflexive if one of its arguments is a SELF anaphor, Antonenko contends that an anaphor enters the derivation with an uninterpretable, valued (reflexive) ρ-feature ([*u*ρ, +*val*]). Since the verb is endowed with an interpretable, unvalued ρ-feature ([*i*ρ, –*val*]), the ρ-feature on v/V probes the one on the anaphor for valuation purposes. In case of object binding, as in (15), ρ is assumed to be on V, and a λ-operator introduced above the V position binds the variable associated with the *u*ρ in the anaphor. This is shown in (18), based on Antonenko (2012: 110).[6]

(18)



[6]The English translation of the VP in (15) is used here for simplicity.

https://doi.org/10.1017/cnj.2021.22 Published online by Cambridge University Press

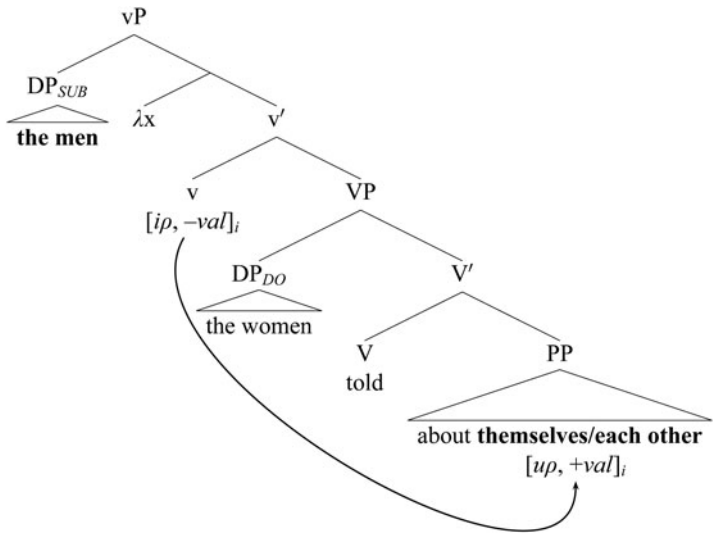
Once V merges with the PP in (18), the unvalued ρ on V probes the valued ρ on the anaphor, resulting in the valuation of ρ on V. This is followed by the merger of the direct object (DO) in Spec-VP, at which point the λ-conversion produces a reading where the anaphor inside the PP is bound by the DO, as in (19), adapted from Antonenko (2012: 111).

(19) a. ∃e : Theme(e, DO) & DO λx V(e) & PP(e, x)

b. ∃e : Theme(e, DO) & V(e) & PP(e, DO)

This process is accompanied by the valuation of the Case feature on the DO, followed by the valuation of the T-feature on v upon the merger of v and its specifier. At this point, VP is closed as it acquires its phasal status.[7] By comparison, in the cases of subject binding shown in (12)–(14), ρ is argued to be placed on v rather than on V. Example (14) has the structure in (20), adapted from Antonenko (2012: 108, 112).

(20)



Here, the construction of the VP proceeds in the same manner, except that the unvalued ρ does not probe until v is merged, and λ-conversion applies above v. When the phasal status of VP is acquired upon the merger of v and VP is closed, binding has still not taken place. Afterwards, v values its ρ by probing the anaphor. λ-conversion will then apply, yielding subject (Sub) binding, as shown by the derivation in (21) (adapted from Antonenko 2012: 112).

(21) a. ∃e : Agent(e, Sub) & Sub λx Theme(e, DO) & V(e) & PP(e, x)

b. ∃e : Agent(e, Sub) & λx Theme(e, DO) & V(e) & PP(e, Sub)

The main idea of Antonenko's approach is that phasal status is acquired/closed (e.g., by VP/vP) only when all features are valued, including Case, phi- and ρ-features.

[7]For details, see Antonenko (2012).

https://doi.org/10.1017/cnj.2021.22 Published online by Cambridge University Press

Importantly, if a phase is sent off to the interpretive components while ρ is still unvalued, then binding can and will apply in the higher phase.

The binding-by-phase analysis is also predicted to hold in the smallest finite TP. While a finite TP is considered to be the Spell-Out domain of a CP phase by Quicoli (2008), Despić (2015), and Charnavel and Sportiche (2016), for Antonenko (2012) the finite TP itself is a phase. Binding in both approaches is predicted to hold within TP if it passes beyond vP. The major difference between the two is that, while CP counts as a boundary with respect to binding for Quicoli, Despić, and Charnavel and Sportiche, it may not be a boundary for Antonenko. This difference arises specifically when it comes to long-distance binding, as we will see below. In Arabic, embedded CPs block binding from a higher clause, as illustrated in (23). There is no long-distance binding in (22), since the anaphors there are referentially dependent on the embedded subject *-hum* 'they'.

(22) ar-riʤaal-u$_1$ jaʕtaqid-uuna [$_{CP}$ ʔanna- [$_{TP}$ hum$_{1/2}$
DEF-men-NOM think-3PL.M COMP- they.3PL.M.NOM
ðaalim-uuna ʔanfusahum$_{1/2}$/ baʕḍahum baʕḍ-an$_{1/2}$]].
oppressors-3PL.M.NOM themselves.3PL.M.ACC/ some.3PL.M.ACC some-ACC
'The men$_1$ think that they$_{1/2}$ are oppressing themselves$_{1/2}$/each other$_{1/2}$.'

Note that *-hum* 'they' in (22) is free in its TP, unlike the reflexive and reciprocal which are locally bound by *-hum*. The subordinate CP in (22), which acts as a boundary, does not have a vP projection since it is a verbless clause. Such clauses, however, do have a TP projection,[8] in which case the binding domain for the anaphors is the finite TP. See Charnavel and Sportiche (2016: 72), who argue that "a finite TP complement of the phase head C" is the Spell-Out/binding domain in English. By contrast, if such TPs contain unbound anaphors, as in (23), they are ungrammatical.

(23) * ar-riʤaal-u$_1$ jaʕtaqid-uuna [$_{CP}$ ʔanna [$_{TP}$ ʔanfusahum$_1$/
DEF-men-NOM think-3PL.M COMP themselves.3PL.M.ACC/
baʕḍahum baʕḍ-an$_1$ ðaalim-uuna n-naas-a]].
some.3PL.M.ACC some-ACC oppressors-3PL.M.NOM DEF-people-ACC
* 'The men$_1$ think that themselves$_1$/each other$_1$ are oppressing people.'

The matrix subject *ar-riʤaal-u* 'the men' in (23) cannot antecede *ʔanfusahum* 'themselves' nor *baʕḍahum baʕḍ-an* 'each other' since they are separated by the subordinate CP boundary; hence the ungrammaticality. This raises the question of how this theory can account for long-distance binding in English, as in (24).[9]

(24) a. **John** wants [$_{CP}$ [$_{TP}$ **himself** to be elected]].

b. **John** and **Bill** think [$_{CP}$ that [$_{TP}$ **each other**'s children are idiots]].

First, Quicoli (2008) accounts for sentences like (24a) by suggesting that the embedded reflexive is bound in the matrix clause (its phasal domain) which contains a governor as well as a subject (*wants*, *John*, respectively). Quicoli, following Chomsky

[8]For details, see Benmamoun (2000) and Aoun, Benmamoun, and Choueiri (2010).

[9]Thanks to the anonymous reviewer who pointed this out and provided example (24).

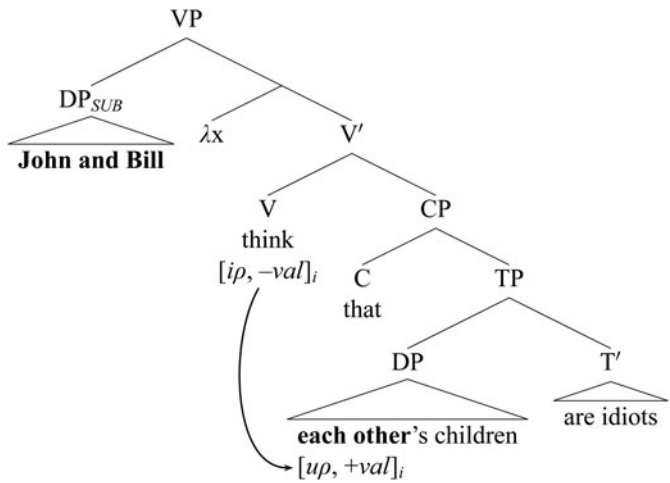
https://doi.org/10.1017/cnj.2021.22 Published online by Cambridge University Press

(2001), assumes that the infinitive complement in such cases is not a CP but rather a nonfinite TP. The structure of the sentence in (24a) should therefore be as in (25).

(25) **John$_1$** wants [$_{TP}$ **himself$_1$** to be elected].

This way, *himself* is at the edge of TP, and is accessible to *John* since there is no CP blocking binding. This account, however, does not work for (24b) since the subordinate clause has a finite TP, and therefore also a CP, which is a phase boundary. Pollard and Sag (1992) argue that possessive reciprocals like the one in (24b) are exempt from the binding theory. Similarly, such examples have not been explained by Quicoli (2008), Despić (2015), or Charnavel and Sportiche (2016). However, Antonenko (2012) offers an account of the subject-internal reflexives of embedded finite clauses in English, which could also explain the facts in (24b). In such long-distance binding constructions, Antonenko assumes that the ρ-feature is on the matrix V, namely, outside the embedded vP and TP phases. On this view, a feature-sharing operation between the anaphor and the matrix V is possible even after the subordinate TP is completed, since the anaphor is in Spec-TP. Accordingly, λ-conversion happens above the matrix V, ensuring that binding holds between the subject-internal anaphor inside the embedded TP and the matrix subject, as shown in (26), adapted from Antonenko (2012: 189).[10]

(26)



Again, the edge of TP in (26) is a phase edge, so the anaphor is accessible by the matrix subject.[11] It must be noted, however, that if the English reflexive or reciprocal is the entire subject of the subordinate TP, as in the translation of (23) above, then such binding is impossible, leading to ungrammaticality.[12] This long-distance

[10]For simplicity, the matrix vP layer in (26) is omitted.

[11]The structure in (26) also accounts for the binding relation in sentences like (i).

(i) John$_1$ thinks [$_{CP}$ that [$_{TP}$ pictures of himself$_1$ are on the wall]].

[12]See Antonenko (2012) for details.

https://doi.org/10.1017/cnj.2021.22 Published online by Cambridge University Press

binding does not work for Arabic constructions like (23) and (27a), nor for reflexive/reciprocal possessives, as in (27b).

(27) a. * ar-riʤaal-u$_1$ qaal-uu [$_{CP}$ ʔinna [$_{TP}$ ṣuwar-an
DEF-men-NOM said-3PL.M COMP pictures-ACC
li-ʔanfusihim$_1$/ baʕḍihim baʕḍ-an$_1$ ʕalaa l-ħaaʔiṭ-i]].
for-themselves.3PL.M.GEN/ some.3PL.M.GEN some-ACC on DEF-wall-GEN
Intended: 'The men$_1$ said that pictures of themselves$_1$/each other$_1$ are on the wall.'

b. * ar-riʤaal-u$_1$ jaʕtaqid-uuna [$_{CP}$ ʔanna [$_{TP}$ ʔabnaaʔ-a
DEF-men-NOM think-3PL.M COMP sons-ACC
ʔanfusihim$_1$ / baʕḍihim baʕḍ-an$_1$ ʔaʃqijaaʔ-un]].
themselves.3PL.M.GEN/ some.3PL.M.GEN some-ACC naughty-3PL.M.NOM
Intended: 'The men$_1$ think that { each other$_1$'s sons/*themselves$_1$'s sons } are naughty.'

As for (23), it seems that the ρ-feature is located on the subordinate T, and that λ-conversion must apply above T, which means that the derivation will crash if no binder is found inside the embedded CP. This indeed appears to be the case. On the other hand, (27a) is unacceptable in Arabic, unlike in English. At this point, I have no satisfying answer to why the Arabic C appears to be less transparent than its English counterpart; all we can say for now is that the difference might be attributed to the position of ρ. Perhaps English allows ρ to be outside the embedded CP containing the subject-internal anaphor, but Arabic does not. Another possibility is that Arabic anaphors can only be licensed in an object position, and thus cannot surface in a subject position even if they are embedded within the subject. The reflexive and reciprocal possessives, illustrated in (27b), will be discussed in the next section.

To sum up, we have seen in this section that Arabic reflexives and reciprocals behave alike in vP and TP phases; nonetheless, they do exhibit asymmetries within possessive DPs, a topic to be explored below.

3. Binding asymmetry: DP phase

Before presenting the data and binding facts in this section, I would like to mention that the data in this paper are based on the author's intuitions. However, a grammaticality judgment test has been conducted with eight highly educated native speakers of Arabic. Six of the participants have completed a PhD, one is a PhD candidate, and one has an MA. Two are from Saudi Arabia, two from Jordan, one from Iraq, one from Palestine, one from Egypt and one from Algeria. The Iraqi participant and one of the Jordanians are professors of traditional Arabic grammar, and the former is the author of two books on classical Arabic grammar. Importantly, the participants were unanimous as to the (un)acceptability of the data in this paper. For instance, all of them found the sentences in (30) below ungrammatical, but those in (31) grammatical.

https://doi.org/10.1017/cnj.2021.22 Published online by Cambridge University Press

This section concentrates on reflexives and reciprocals that are not direct arguments of the verb predicate, particularly reflexive and reciprocal possessives.[13] Nominal possessive phrases in MSA are formed in two different ways: by attaching a possessive pronominal suffix to a noun, or by using the construct-state/synthetic construction (the combination of two nouns), as exemplified in (28) and (29), respectively.

(28) a. ar-rid͡ʒaal-u$_1$ ʕaanaq-uu [$_{DP}$ ʔabnaaʔ-a-hum$_1$].
DEF-men-NOM hugged-3PL.M sons-ACC-their.3PL.M
'The men$_1$ hugged their$_1$ sons.'

b. ar-rid͡ʒaal-u$_1$ madaħ-uu [$_{DP}$ bujuut-a-hum$_1$].
DEF-men-NOM praised-3PL.M houses-ACC-their.3PL.M
'The men$_1$ praised their$_1$ houses.'

(29) a. ar-rid͡ʒaal-u ʕaanaq-uu [$_{DP}$ ʔabnaaʔ-a Zajd-in].
DEF-men-NOM hugged-3PL.M sons-ACC Zayd-GEN
'The men hugged Zayd's sons.'

b. ar-rid͡ʒaal-u$_1$ madaħ-uu [$_{DP}$ bujuut-a Zajd-in].
DEF-men-NOM praised-3PL.M houses-ACC Zayd-GEN
'The men praised Zayd's houses.'

The synthetic possessive typically consists of the possessum, followed directly by the possessor, as in (29).[14] The possessor can also be an anaphor; however, not every anaphor is permitted in this type of possessive construction. Arabic disallows reflexive possessives, but allows reciprocal possessives. Consider (30) and (31).

(30) a. * ar-rad͡ʒul-u$_1$ ʕaanaq-a [$_{DP}$ ʔibn-a **nafsihi**$_1$].
DEF-man-NOM hugged-3SG.M son-ACC himself.3SG.M.GEN
* 'The man hugged himself's son.'

b. * ar-rad͡ʒul-u$_1$ wad͡ʒad-a [$_{DP}$ sajjaarat-a **nafsihi**$_1$].
DEF-man-NOM found-3SG.M car-ACC himself.3SG.M.GEN
* 'The man found himself's car.'

c. * ar-rad͡ʒul-u$_1$ zaar-a [$_{DP}$ ʔuχt-a **nafsihi**$_1$].
DEF-man-NOM visited-3SG.M sister-ACC himself.3SG.M.GEN
* 'The man visited himself's sister.'

d. * ar-rad͡ʒul-u$_1$ dahan-a [$_{DP}$ bajt-a **nafsihi**$_1$].
DEF-man-NOM painted-3SG.M house-ACC himself.3SG.M.GEN
* 'The man painted himself's house.'

e. * ar-rad͡ʒul-u$_1$ madaħ-a [$_{DP}$ ʃiqaq-a **nafsihi**$_1$].
DEF-man-NOM praised-3SG.M apartments-ACC himself.3SG.M.GEN
* 'The man praised himself's apartments.'

[13]Recall from section 1 that Arabic, unlike English, disallows the logophoric use of both types of anaphors.

[14]This construction is expressed in English either by the *of*-construction (e.g., the House of Representatives) or by the Saxon Genitive construction, which embeds the possessor DP and the modifying prenominal clitic *'s* inside the possessum DP (e.g., Amanda's book).

https://doi.org/10.1017/cnj.2021.22 Published online by Cambridge University Press

(31) a. ar-riʤaal-u$_1$ ʕaanaq-uu [$_{DP}$ ʔabnaaʔ-a **baʕḍihim** **baʕḍ-an$_1$**].
DEF-men-NOM hugged-3PL.M sons-ACC some.3PL.M.GEN some-ACC
'The men hugged each other's sons.'

b. ar-riʤaal-u$_1$ waʤad-uu [$_{DP}$ sajjaarat-i **baʕḍihim** **baʕḍ-an$_1$**].
DEF-men-NOM found-3PL.M cars-ACC some.3PL.M.GEN some-ACC
'The men found each other's cars.'

c. ar-riʤaal-u$_1$ zaar-uu [$_{DP}$ ʔaχawaat-i **baʕḍihim** **baʕḍ-an$_1$**].
DEF-men-NOM visited-3PL.M sisters-ACC some.3PL.M.GEN some-ACC
'The men visited each other's sisters.'

d. ar-riʤaal-u$_1$ dahan-uu [$_{DP}$ bujuut-a **baʕḍihim** **baʕḍ-an$_1$**].
DEF-men-NOM painted-3PL.M houses-ACC some.3PL.M.GEN some-ACC
'The men painted each other's houses.'

e. ar-riʤaal-u$_1$ madaħ-uu [$_{DP}$ ʃiqaq-a **baʕḍihim** **baʕḍ-an$_1$**].
DEF-men-NOM praised-3PL.M apartments-ACC some.3PL.M.GEN some-ACC
'The men praised each other's apartments.'

The sentences in (30)–(31) are asymmetrical in both Arabic and English. Reciprocals in both languages pattern with pronouns rather than with reflexives in this construction, as the examples in (28) and (31) show. According to the participants consulted, the very same linguistic phenomenon is also observed in various nonstandard Arabic dialects, as illustrated in (32)–(35).

(32) a. * ez-zlaam$_1$ ʕabaṭ-u [$_{DP}$ wlaad **haalhin$_1$**].[15]
DEF-men.NOM hugged-3PL.M sons.ACC themselves.3PL.F.GEN
* 'The men$_1$ hugged themselves$_1$' sons.'

b. ez-zlaam$_1$ ʕabaṭ-u [$_{DP}$ wlaad **baʕḍ$_1$** / **baʕḍhin**
DEF-men.NOM hugged-3PL.M sons.ACC some.3PL.M.GEN/ some.3PL.F.GEN
el-baʕuḍ$_1$].
the-some.GEN
'The men$_1$ hugged each other$_1$'s sons.'
(Palestinian Arabic, Dua'a Abu-Elhij'a, p.c.)

(33) a. * er-riʤʤaalah$_1$ ʕanq-u [$_{DP}$ ʔawlaad **erwaaħhum$_1$**].
DEF-men.NOM hugged-3PL.M sons.ACC themselves.3PL.M.GEN
* 'The men$_1$ hugged themselves$_1$' sons.'

b. er-riʤʤaalah$_1$ ʕanq-u [$_{DP}$ ʔawlaad **baʕḍiihim/**
DEF-men.NOM hugged-3PL.M sons.ACC some.3PL.M.GEN/
baʕḍiihim **el-baʕḍ**].
some.3PL.M.GEN the-some.GEN
'The men$_1$ hugged each other$_1$'s sons.'
(Algerian Arabic, Lamia Djeldjel, p.c.)

(34) a. * ar-riʤaal$_1$ ʕaanaq-u [$_{DP}$ ʔawlaad **ʔanfushim$_1$**].
DEF-men.NOM hugged-3PL.M sons.ACC themselves.3PL.M.GEN
'The men$_1$ hugged themselves$_1$' sons.'

[15] It is worth mentioning that the feminine plural marker on pronouns is used for both males and females in Palestinian Arabic.

https://doi.org/10.1017/cnj.2021.22 Published online by Cambridge University Press

b. ar-riḏaal$_1$ ʕaanaq-u [$_{DP}$ʔawlaad **baʕḍhum**].
DEF-men.NOM hugged-3PL.M sons.ACC some.3PL.M.GEN
'The men$_1$ hugged each other$_1$'s sons.'
(Saudi Arabic, Wafi Alshammari and Musa Alahmari, p.c.)

(35) a. * er-riggaalah$_1$ ħaḍan-u [$_{DP}$ wlaad **erwaahhum$_1$**].
DEF-men.NOM hugged-3PL.M sons.ACC themselves.3PL.M.GEN
* 'The men$_1$ hugged themselves$_1$' sons.'

b. er-riggaalah$_1$ ħaḍan-u [$_{DP}$ʔawlaad **baʕḍ$_1$**].
DEF-men.NOM hugged-3PL.M sons.ACC some.3PL.M.GEN
'The men$_1$ hugged each other$_1$'s sons.'
(Egyptian Arabic, Mohamed Ansary, p.c.)

Jordanian[16] and Kuwaiti[17] Arabic also show this pattern. Note that such reflexive-reciprocal asymmetry applies across the board to all the nonstandard dialects above. Crucially, if possessive pronouns are used instead of reflexives, then the sentences become grammatical, just like in MSA. Below is an illustrative example from Palestinian Arabic.

(36) ez-zlaam$_1$ ʕabaṭ-u [$_{DP}$ wlaad-hin$_1$].
DEF-men.NOM hugged-3PL.M sons.ACC-their.3PL.F
'The men hugged their sons.'
(Palestinian Arabic, Dua'a Abu-Elhij'a, p.c.)

The other nonstandard dialects exhibit this behaviour as well. One notable difference between MSA and the nonstandard dialects is that the two components of the reciprocal (the range and contrast, *baʕḍihim* + *baʕḍ-an* 'each + other', respectively) must be used in MSA, but only one reciprocal component is used in the nonstandard dialects. Palestinian, Jordanian, and Algerian Arabic permit the use of either one or two reciprocal components, but Saudi, Kuwaiti, and Egyptian Arabic allow only one. It appears that one of the reciprocal elements in the nonstandard dialects undergoes some kind of ellipsis at some point in the syntactic derivation. Since investigating the reciprocal in the nonstandard dialects is beyond the scope of this article, I restrict my attention to the reflexive-reciprocal asymmetry in MSA. What is important to us is that all the varieties of Arabic mentioned above behave alike in allowing reciprocal possessives and disallowing reflexive possessives.[18]

Returning to the data in (30)–(31), the distributional difference between Arabic reflexives and reciprocals needs to be explained. Before doing so, let us see how this asymmetry has been accounted for in English. Despić (2011, 2015) argues that D is a phase head when it takes a possessive phrase (PossP) as its complement and thus constitutes a binding domain, just like vPs and CPs. This is shown in (37), from Despić (2015: 211).

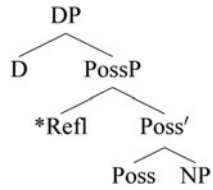
[16]Maher Al-Kateeb, p.c.

[17]Hawraa Sana, p.c.

[18]It is highly likely that other nonstandard Arabic varieties, such as Moroccan, Yemeni, and Lebanese, also display the same syntactic behaviour. Since I do not have access to speakers of these varieties, they are not exemplified here.

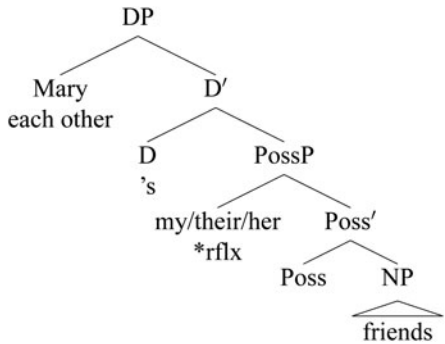
https://doi.org/10.1017/cnj.2021.22 Published online by Cambridge University Press

(37)



Since possessive DPs form a binding domain, the reflexive anaphor in Spec-PossP cannot be bound in its phasal domain. This explains why reflexive possessives do not occur in English, and why the possessive must take the non-reflexive pronominal form. However, reciprocal anaphors are permitted in English possessive DP structures, as in (38a–d), from Despić (2015: 213).

(38) a.



b. Mary's friends

c. each other's friends

d. *their's friends

Despić assumes that pronouns and reciprocals are licensed in different structural positions, and that possessive lexical DPs (non-pronominal DPs) and possessive reciprocals pattern together in English, in the sense that they are both licensed in a structural position higher than the position occupied by pronominal and reflexive possessors, as illustrated in (38). Since non-pronominal possessive DPs and possessive reciprocals are positioned at the leftmost edge of the DP phase – unlike reflexive possessives, which are positioned below the D head, as in (37) – reciprocals can be bound within the vP domain containing the DP. Although this analysis provides an elegant syntactic account of why reflexive possessives like **himself's son* are prohibited in English as opposed to reciprocal possessives like *each other's sons*, it falls short of explaining the asymmetry between **the sons of himself* versus *the sons of each other*, given that in these phrases, the two anaphors (the possessors) occupy the same structural position. The discussion below will attempt to account for the asymmetry in Arabic, and then extend the generalizations to capture some facts in English that Despić has not touched on.

I take as a point of departure Despić's (2011, 2015) proposal for English reflexive and reciprocal possessives, and Chomsky's (2001, 2008) claim that the phase edge is accessible to operations in a higher phase. With these elements in hand, an

https://doi.org/10.1017/cnj.2021.22 Published online by Cambridge University Press

account of the reflexive-reciprocal possessive asymmetry in Arabic that draws on the phasehood of possessive DPs seems promising. This is driven by the asymmetrical behaviour of possessive reflexives and reciprocals in both Arabic and English, as shown in (39) and (40).

(39) a. * ʔabnaaʔ-a ʔanfusihim
sons-ACC themselves.3PL.M.GEN
* 'themselves' sons'

b. ʔabnaaʔ-a baʕḍihim baʕḍ-an
sons-ACC some.3PL.M.GEN some-ACC
'each other's sons'

(40) a. * themselves' sons/the sons of themselves

b. each other's sons/the sons of each other

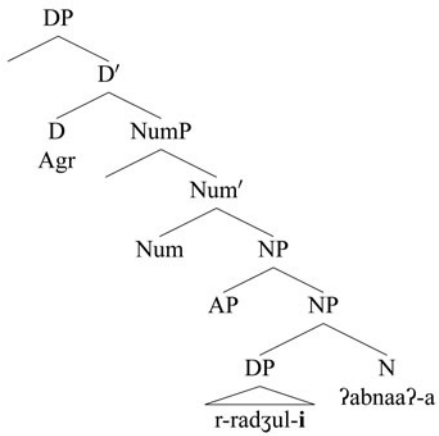
However, there is an independent issue in Arabic that requires explanation. In Arabic possessive phrases, the possessum always precedes the possessor, as in (39), whereas in English, the reverse order is also possible, as in (40). Despić's (2015) proposal that the English reflexive and reciprocal in *each other's friends/*themselves' friends* are generated in different base positions within the DP clearly does not apply to Arabic, nor does it explain the asymmetry in English between **the sons of themselves* versus *the sons of each other*. The question here is how the structure in (39) can be accounted for; in other words, how can we explain the grammaticality of reciprocal possessives versus the ungrammaticality of reflexive possessives in Arabic, given that the reflexive and reciprocal appear to occupy the same syntactic position in this language? The first step in addressing this question is to look into the structure of construct states in Arabic. Previous analyses (Ritter 1987, 1988, 1991; Siloni 1991, 1996, 1997; Benmamoun 2000; Longobardi 2001) have proposed that the Semitic construct states involve an additional functional category Num (number) heading NumP (number phrase), the raising of the possessor DP to Spec-NumP and the raising of N (the possessum) over Num to D, which ultimately incorporates with Agr.[19] Once Agr is morphologically supported, it assigns genitive Case to the argument in Spec-NumP under government. The Num head, first posited by Ritter (1991), is assumed to carry the number specification of the noun (Siloni 1997). The derivation of construct states like (41a) is shown in (41b, c) (see Ritter 1991: 45, Siloni 1997: 38, Benmamoun 2000: 143).

(41) a. ʔabnaaʔ-a r-raʤul-**i**
sons-ACC DEF-man-**GEN**
'the man's sons'

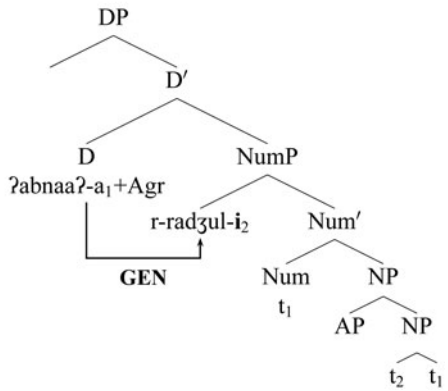
[19]The basic idea of postulating Agr in D in possessive noun phrases goes back to Abney's (1987) analysis of languages like Hungarian, Turkish and Yupik, which exhibit possessor-noun agreement analogous to subject-verb agreement. Abney (1987: 40) captures this parallelism by suggesting that such noun phrases are headed by a functional category D with Agr features, on a par with Infl in IP.

https://doi.org/10.1017/cnj.2021.22 Published online by Cambridge University Press

b.



c.



Once movement occurs, the adjacency requirement on the Case assignment of *r-radʒul-i* 'the man' is met under government (Chomsky 1981, Stowell 1981, Borer 1984, Ritter 1991, Hazout 1992, Rizzi 1996, Siloni 1997). The adjective phrase, if present, is adjoined to NP, as standardly assumed, and therefore follows the moved possessor. Fassi Fehri (1993) offers a slightly different analysis of Arabic construct states, postulating PossP instead of NumP as the additional functional category between DP and NP. He proposes that the maximal projection DP expressing ownership is a possessive phrase, on a par with Despić (2015). However, neither of these analyses of Semitic construct-states can explain the reflexive-reciprocal possessive asymmetry if we assume that the two anaphors are treated in the same manner. One proposal that may capture the binding facts of the Arabic data relies on the movement of one of the reciprocal elements. Heim, Lasnik, and May (1991) argue that *each* in an English reciprocal construction like (42a) moves and adjoins to its antecedent phrase at LF, as the representation in (42b) indicates (see also Belletti 1982, Roberts 1991).

https://doi.org/10.1017/cnj.2021.22 Published online by Cambridge University Press

(42) a. The men saw each other.

b. [$_S$ [$_{NP}$ [$_{NP}$ the men]$_1$ each$_2$] [$_{VP}$ saw [$_{NP}$ e$_2$ other]$_3$]]

(Heim, Lasnik, and May 1991: 66)

The derived LF representation in (42b) is assumed to correspond to the surface form *the men each saw the other*, with *each* serving as a distributor and *other* designating distinctness (i.e., x saw y and y saw x). Heim, Lasnik, and May also claim that *e* in [*e other*] is an anaphor bound by *each*, while the reciprocal *other* is an instance of the pronominal *other*. As a whole, [*e other*] is an R-expression, which explains why *each* and *e* in (42b) bear the same index but [*e other*] bears a different index. Their hypothesis is thus that the semantics of *each other* is inherited from the non-reciprocal elements *each* and *other*. Crucially, the reciprocal *each other* is interpreted as consisting of two parts, one anaphoric and one non-anaphoric, an analysis that reflects its complexity.

In order to explain why reflexive possessives like the one in (43) are prohibited in Arabic but reciprocal and pronominal possessives like those in (44)–(45) are permitted, I adopt the copy theory of movement (Chomsky 1993, and much subsequent work, e.g., Nunes 1995, Bošković and Nunes 2007, Corver and Nunes 2007, Stjepanović 2007). I also assume that possessive DPs are phases (Hiraiwa 2005; Despić 2011, 2015) and that the reciprocal element *other* is pronominal (Heim, Lasnik, and May 1991). The pertinent data are given in (43)–(45), repeated from (30a), (31a) and (28a).

(43) * ar-raʤul-u$_1$ ʕaanaq-a [$_{DP}$ ʔibn-a **nafsihi$_1$**].
DEF-man-NOM hugged-3SG.M son-ACC himself.3SG.M.GEN
* ‘The man hugged himself’s son.’

(44) ar-riʤaal-u$_1$ ʕaanaq-uu [$_{DP}$ ʔabnaaʔ-a **baʕḍihim** **baʕḍ-an$_1$**].
DEF-men-NOM hugged-3PL.M sons-ACC some.3PL.M.GEN some-ACC
‘The men hugged each other’s sons.’

(45) ar-riʤaal-u$_1$ ʕaanaq-uu [$_{DP}$ ʔabnaaʔ-a-**hum$_1$**]
DEF-men-NOM hugged-3PL.M sons-ACC-their.3PL.M
‘The men$_1$ hugged their$_1$ sons.’

Reducing binding domains to phases, including the DP, predicts that an anaphor should be bound but a pronoun should be free in its phase. This prediction is borne out in (43) and (45), but apparently violated in (44), given that both the reflexive and the reciprocal are anaphoric. However, upon closer scrutiny of the structure of the reciprocal, we find that *baʕḍihim* ‘each’ in (44) may move overtly to Spec-DP or even higher, as in (46). When movement applies, a distributive reading results. That is, there are two semantic interpretations available for a sentence like (44): collective and distributive. The collective reading, corresponding to *the men hugged each other’s sons collectively/simultaneously*, arises if the verb takes scope over the reciprocal quantifier *baʕḍihim* ‘each’. If, on the other hand, the quantifier has scope over the verb, as in (46), then a distributive reading arises.

https://doi.org/10.1017/cnj.2021.22 Published online by Cambridge University Press

(46) ar-riʤaal-u **baʕḍuhum** ʕaanaq-uu ʔabnaaʔ-a baʕḍ-in.
DEF-men-NOM some.3PL.M.NOM hugged-3PL.M sons-ACC some-GEN
'The men each hugged the others' sons. (at different times, or in turn)'

This collective-distributive distinction is induced by the movement of the reciprocal quantifier as well as by scope variation (see Heim, Lasnik, and May 1991, Roberts 1991, Lasersohn 1995, Moltmann 1997, Carlson 1998, Büring 2005, among others). Now, under the copy theory of movement, multiple copies of the distributor in (44) and (46) are created during the derivation, as sketched below.

(47) [$_{TP}$ [$_{DP}$ [$_{DP}$ ar-riʤaal-u]$_1$ **(baʕḍuhum)$_2$**] T [$_{vP}$ v ʕaanaq-uu [$_{DP}$ **(baʕḍuhum)$_2$**
DEF-men-NOM some.3PL.M.NOM hugged-3PL.M some.3PL.M.NOM
D ʔabnaaʔ-a [$_{PossP}$ [$_{DP}$ ~~**baʕḍihim$_2$**~~ baʕḍ-in]$_3$ Poss [$_{NP}$]]]]]
sons-ACC some.3PL.M.GEN some-GEN

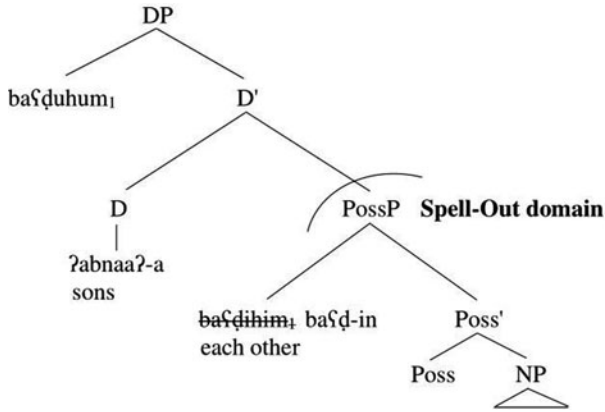
Two remarks are in order here, concerning Case and binding. In the lowest position in (47), the distributor *baʕḍihim* 'some.3PL.M.GEN' has genitive Case (*-i-i-*), as in (43), but the higher copies are nominative (*-u-u-*), as in (46) and (47). This means that the higher copies have a different Case. Following Béjar and Massam's (1999: 74) analysis of multiple Case checking in languages like Niuean, I assume that the lowest copy of the distributor is assigned genitive by Agr on the D head. When the distributor moves up, the higher copy enters into a Case-checking relation with a higher head (here, T), resulting in nominative Case marking. The lower Case (genitive) is still there but will not be pronounced. This way, both the lower and higher Cases are interpretable by configurationally being in a checking relation with functional heads (Agr and T, respectively), but only the higher Case is phonologically realized. This is exactly what happens in Niuean, according to Béjar and Massam (1999).[20] Regarding binding, it is possible for *baʕḍuhum* 'each' in (47) to be bound by the antecedent phrase and to bind its lower copy ~~*baʕḍihim*$_2$~~ located below the D head, if we assume that Principle A applies cyclically at the end of each phase (Lee-Schoenfeld 2008, Quicoli 2008), and further assume that all copies must have a single antecedent because they are part of the same chain, in accordance with the Chain Uniformity Condition (Chomsky 1995: 91; see also Freidin and Vergnaud 2001, Quicoli 2008). To illustrate how binding proceeds in (47), let us first consider the tree diagram in (48) and then those in (49) below.[21]

[20]The instances of the distributor in (47) are taken to be three copies of one element, in line with the copy theory of movement discussed, for example, in Chomsky (1995) and Nunes (2001, 2004), rather than as a single item linked to three different positions, as in the multidominance approach (e.g., Starke 2001, Gärtner 2002, Johnson 2012). This is motivated by the fact that the higher copies of the distributor in (47), unlike the lower one, show nominative Case, a fact that cannot be explained by the multidominance model.

[21]I ignore irrelevant details such as the prior movement of the reciprocal elements inside the DP, or the movement of the matrix subject *ar-riʤaal-u* 'the men' to Spec-TP.

https://doi.org/10.1017/cnj.2021.22 Published online by Cambridge University Press

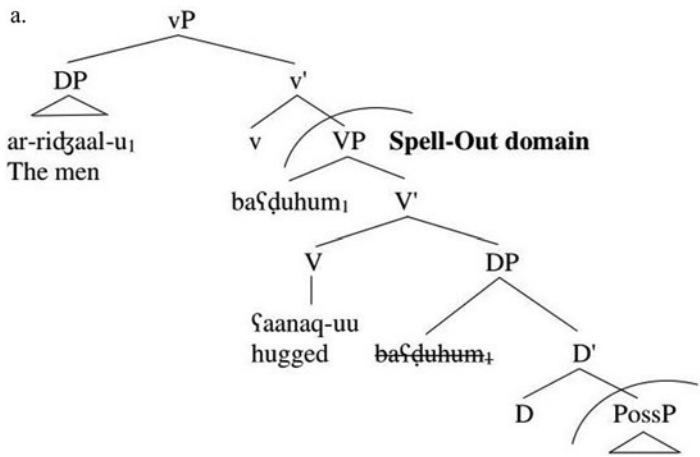
(48)



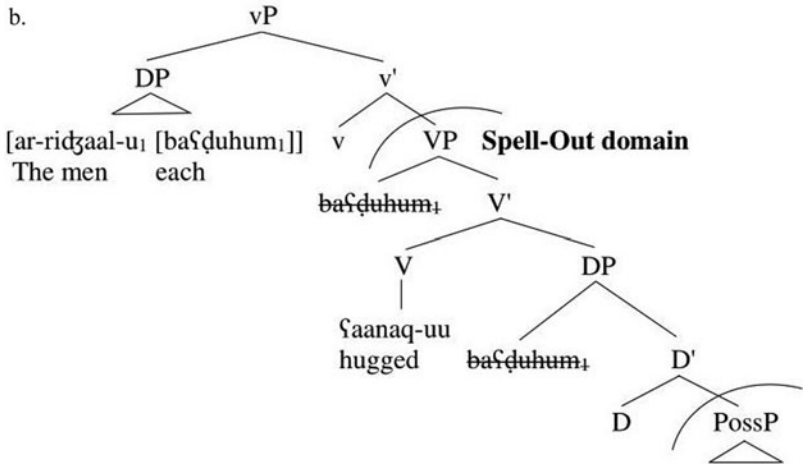
First, the distributor *baʕḍihim* 'each' in (48) moves from Spec-PossP to Spec-DP by internal merge, leaving a copy behind. It is at this point, upon the completion of the DP phase, that Principle A first applies at LF (Lee-Schoenfeld 2008, Quicoli 2008, Charnavel and Sportiche 2016) and the PossP complement of D undergoes Spell-Out. To be more precise, the anaphoric copy of the distributor in Spec-PossP is now properly bound in its phasal (DP) domain by the higher copy in Spec-DP, to which Principle A has not yet applied. Once the distributor occupies the edge of the DP phase, it is handed over to the vP phase and becomes accessible to the matrix subject (its antecedent phrase), in conformity with Chomsky's (2001) PIC. Whether the distributor remains and gets pronounced in Spec-DP or moves again, as shown in (49) below, its binding domain is now the vP phase, where Principle A applies again.

(49) vP phase

a.



https://doi.org/10.1017/cnj.2021.22 Published online by Cambridge University Press



Thus, after moving to Spec-DP, the distributor may undergo further movement, first to Spec-VP and then to Spec-vP where it finally adjoins to its antecedent phrase, as shown in (49a–b). Notably, the binding of both of the copies in (49b) occurs within their local domain (the vP phase) since the antecedent is in Spec-vP; the cyclic application of Principle A in vP is therefore satisfied.[22] The core idea here is that the derivation crashes if Principle A is violated in any phasal domain. For it to successfully apply in a higher phase, it must first have been satisfied in the lower phase. Overall, whether the lower or the higher copy of the distributor is pronounced, binding within the A-chain proceeds cyclically at the end of each phase (DP and vP), as described above. I now turn to the second reciprocal element, *baʕḍ-in* 'other' in ~~*baʕḍihim*~~ *baʕḍ-in* 'each other' (see (47) above). Since it, like English *other*, has pronominal properties (Heim, Lasnik, and May 1991), it must be free in its local domain. In (47), that domain is the DP phase. Accordingly, there are no violations of Principle A or Principle B, and the derivation converges at the PF and LF interfaces, correctly predicting that (47) is grammatical. Crucially, the D head and Spec-DP on the one hand, and the PossP on the other, are spelled out at different points in the derivation. Overall, the suggestion that each atomic element of the reciprocal inherits its semantics from its non-reciprocal usage (Heim, Lasnik, and May) appears consistent with the facts. This is because both elements can surface independently of the other in a sentence, as demonstrated below. Note that *baʕḍuhum* 'each' is always anaphoric, whether in reciprocal or non-reciprocal constructions, but *baʕḍ-in* 'other' is pronominal and hence grammatical when free, as in (50), supporting the current analysis.

(50) a. ar-ridʒaal-u **baʕḍuhum** ʕaanaq-uu l-ʔabnaaʔ-a.
DEF-men-NOM some.3PL.M.NOM hugged-3PL.M DEF-sons-ACC
'The men each hugged the sons.'

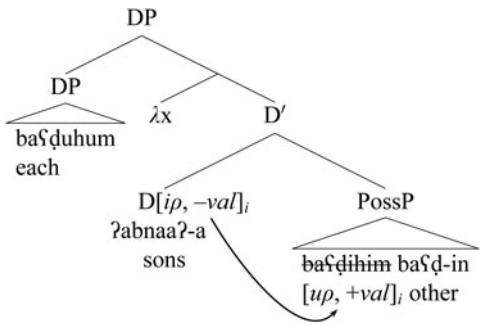
[22]In a sense, the highest copy inside vP is bound by its antecedent phrase and, at the same time, binds all the lower copies in the A-chain, the intermediate copies act as both binders and bindees, while the lowest one acts only as a bindee.

https://doi.org/10.1017/cnj.2021.22 Published online by Cambridge University Press

b. naħnu ʕaanaq-naa ʔabnaaʔ-a **baʕḍ-in**.
1PL.NOM hugged-1PL sons-ACC some-GEN
'We hugged others' sons.'

Building on Antonenko (2012), it seems reasonable to assume that the ρ-feature is placed on the D head and that λ-conversion applies above D, as the structure in (51) shows.

(51)



If this is correct, then (51) will yield the semantic derivation in (52).

(52) a. ∃e : Agent(e, Sub) & Sub λx D(e) & PossP(e, x)

b. ∃e : Agent(e, Sub) & D(e) & PossP(e, Sub)

On this view, the DP structure in (51) behaves like a full clause in that it has an anaphoric element ~~*baʕḍihim*~~ 'each' in Spec-PossP as well as the binder of ~~*baʕḍihim*~~ – the higher copy – in Spec-DP. That copy is itself accessible to the matrix subject in the higher phase. Moreover, ρ on D is valued through feature-sharing. Finally, *baʕḍuhum* 'each' is considered the Agent subject, since possessors actually correspond to Agents (see den Dikken 1995, Reintges and Lipták 2006).

To recapitulate, the copy theory of movement, the phasehood of possessive DPs, and the pronominal status of *baʕḍ-in* 'other' taken together, explain the binding facts in MSA. This type of movement is not possible for the reflexive and pronominal in such syntactic environments; therefore, the reflexive is left unbound in its phasal domain, causing ungrammaticality, while the pronominal is free, leading to grammaticality. On the whole, this analysis indeed seems to correctly explain the binding asymmetry in Arabic.

That Principle A applies successively at the end of each phase can also be shown for English, as illustrated in (53) and (54), from Quicoli (2008: 307).

(53) John$_1$ expected himself$_1$ to be elected t.

(54) a. [$_{vP}$ himself$_1$ v to be elected ~~himself$_1$~~]]

b. [$_{vP}$ John$_1$ v expected [$_{TP}$ [$_{vP}$ himself$_1$ v to be elected ~~himself$_1$~~]]

Quicoli argues that *himself* in (54a) moves to Spec-vP in the first vP phase, leaving a copy of *himself* behind. It is here at the end of the first vP phase where Principle A first applies, with *himself* binding the lower copy. Principle A does not apply to the higher *himself* in (54a) at this point because the reflexive is in the subject position of

https://doi.org/10.1017/cnj.2021.22 Published online by Cambridge University Press

the infinitive, which is not its local domain. The binding of *himself* by *John* occurs in the second vP phase in (54b) through new cyclic application of Principle A. It must be mentioned here that the syntactic derivation of the Arabic sentence in (48) differs from the derivation of the English sentence in (54), since the movement of *himself* in (54) is motivated by Case reasons, as suggested by a reviewer. This Case-based explanation in (54) does not work for Arabic, but nonetheless shows that binding applies cyclically.

By extending the above analysis to English, we can also capture the reflexive-reciprocal asymmetry illustrated in (55).

(55) The men$_1$ hugged the sons { of each other$_1$/*of themselves$_1$ }.

Despić's (2015) account cannot explain this asymmetry because both anaphors (the possessors) follow the possessum, as mentioned earlier. Under the current analysis, however, it seems reasonable to assume that the reciprocal is licensed in (55) because *each* moves covertly to a position outside DP, which is evident from the fact that (56a) can have either the distributive reading in which *each* takes scope over the verb and the hugging subevents took place in turn, or the collective reading, where *each* has lower scope and the hugging subevents took place simultaneously. Since it is possible for *each* to move as shown in (56b), binding can also be captured if the lowest *each* is locally bound within its DP phase by its copy in Spec-DP, and that copy is itself at the edge of the phase, accessible for higher binding.

(56) a. The men hugged the sons of each other.

b. … [$_{vP}$ The men ~~**each$_1$**~~ v hugged [$_{DP}$ ~~**each$_1$**~~ D the sons of **each$_1$** other]].

Phase edge Spell-Out domain

The question is why the lowest *each* in (56b) is the only copy to be pronounced. This may be explained by appealing to the reasoning that pronouncing the higher copy in (56b) triggers some violation. To illustrate, let us first consider Bošković and Nunes' (2007: 17–18) view that pronouncing the lower copy of a chain results from PF considerations. An illustrative example of this from Romanian is given in (57).

(57) a. Ce precede ce?
what precedes what

b. * Ce ce precede?
what what precedes
'Who precedes what?

c. [ce ~~ce$_1$~~ precede ce$_1$]

Bošković and Nunes state that all wh-words in Romanian, unlike in English, must be moved to the left periphery and pronounced there, except in constructions involving two homophonous wh-words, in which case only one wh-word is pronounced in Spec-CP, as seen in (57). Bošković and Nunes, following Franks (1998), add that the lower copy *ce* in (57c) surfaces in order to avoid a PF violation. By a similar reasoning, we could also hypothesize that the lower copy of *each* in (56b) is pronounced

https://doi.org/10.1017/cnj.2021.22 Published online by Cambridge University Press

because the phonological realization of the higher copy would lead to a violation in the sense that it allows *of* and *other* to appear in a string that is not possible in English if they are the only elements in the PP, as shown in (58).

(58) The men **each** hugged the sons [***of other***].

Theoretically, there appears to be nothing wrong with the string *of other* except that English does not allow it if *other* is not followed by an NP, as seen above. This is inspired by the fact that this string is possible in Arabic, as demonstrated below.

(59) a. ar-riʤaal -u_1 ʔaχað-uu ṣuwar-an [$_{PP}$ li-**baʕḍihim** baʕḍ-an_1].
DEF-men-NOM took-3PL.M pictures-ACC of-some.3PL.M.GEN some-ACC
'The men took pictures of each other.'

b. ar-riʤaal -u_1 baʕḍuhum ʔaχað-uu ṣuwar-an [$_{PP}$ **li-baʕḍ-in**$_1$].
DEF-men-NOM some.3PL.M.NOM took-3PL.M pictures-ACC of-some-GEN
Intended: 'The men each took pictures [*of other].'

Notice that the string *li-baʕḍ-in* 'of other' in (59) can surface in Arabic after *baʕḍihim* 'each' is moved and pronounced in a higher position. This contrasts with its English counterpart, as indicated by the English translation in (59b). Thus, it indeed seems that the possibility of pronouncing each copy in an A-chain is governed by language-specific requirements, as the above data from Romanian, English, and Arabic show.

Overall, it is the complex nature of the reciprocal that allows the English distributor *each* to move to, or be interpreted in, different positions, as shown in (56b). Again, this movement allows *each* to be properly bound in both the DP and vP phases. By contrast, the reflexive in English cannot move, and thus remains free in its phasal domain, leading to the ill-formedness of (60).

(60) *The men_1 hugged the sons of $themselves_1$.

This is also the case in Arabic, as we have seen above. Possessive DPs do in fact have peculiar properties, distinguishing them from other DPs. While there is evidence corroborating the phasehood status of Arabic DPs, as we will see in the following subsection, evidence that English DPs like the one in (56b) are phases is lacking at this point. None of the phasehood diagnostics provided by Citko (2014) distinguish the DP in (56b) from other English DPs, except that the DP in (56b) forms a binding domain. A full exploration of this issue must therefore await future research. The D head in possessive DPs like [$_{DP}$ *each other's sons*], by comparison, triggers ellipsis of its NP complement *sons* as in *John and Mary hugged Bill's sons as well as each other's* ~~*sons*~~. This confirms that such DPs are phases (Despić 2015).

3.1 The phasehood status of Arabic possessive DPs

There is evidence that possessive DPs are phasal in Arabic. First, such complex DPs contain a possessor and a possessum, as in (61), which in a sense respectively correspond to the Agent and Theme arguments in clausal possessives (den Dikken 1995, Reintges and Lipták 2006).

https://doi.org/10.1017/cnj.2021.22 Published online by Cambridge University Press

(61) [$_{DP}$ ʔabnaaʔ-a baʕḍihim baʕḍ-an]
sons-ACC some.3PL.M.GEN some-ACC
'each other's sons'

This property is not found in other Arabic DPs, even in non-possessive construct-state DPs that are also considered complex. Consider (62).

(62) ar-riʤaal-u juriid-uuna [$_{DP}$ taṭwiir-a ʔabnaaʔ-i-him].
DEF-men-NOM want-3PL.M improvement-ACC sons-GEN-their.3PL.M
'The men want the improvement of their sons.'

The deverbal noun *taṭwiir-a* 'improvement' forms a construct-state DP with *ʔabnaaʔ-i-him* 'their sons'. Since this DP lacks a possessor, unlike the one in (61), all anaphors are licensed in this environment but pronouns are not, as shown in (63) and (64) respectively.

(63) a. ar-riʤaal-u$_1$ juriid-uuna [$_{DP}$ taṭwiir-a **ʔanfusihim**$_1$].
DEF-men-NOM want-3PL.M improvement-ACC themselves.3PL.M.GEN
'The men want the improvement of themselves.'

b. ar-riʤaal-u$_1$ juriid-uuna [$_{DP}$ taṭwiir-a **baʕḍihim** **baʕḍ-an**$_1$].
DEF-men-NOM want-3PL.M improvement-ACC some.3PL.M.GEN some-ACC
'The men want the improvement of each other.'

(64) * ar-riʤaal-u$_1$ juriid-uuna [$_{DP}$ taṭwiir-a-**hum**$_1$].
DEF-men-NOM want-3PL.M improvement-ACC-them.3PL.M
* 'The men$_1$ want the improvement of them$_1$.'

One crucial difference between non-possessive construct states like (63) and (64), and their possessive counterparts, as in (61), is that the non-possessive construct-state DPs lack a subject. One natural hypothesis, raised by a reviewer, is that the DPs in (63) and (64) have a null subject binding the anaphors, along the lines of Chomsky's (1986: 167) "PRO in NP" analysis. However, there is reason to reject this hypothesis. If there were, in fact, a null subject inside the DP, the reflexive and the reciprocal in (65) would have a binder in the DP phase, wrongly predicting that (65) should be grammatical.

(65) * [$_{DP}$ taṭwiir-u ʔanfusihim/ baʕḍihim baʕḍ-an]
improvement-NOM themselves.3PL.M.GEN/some.3PL.M.GEN some-ACC
ʔamr-un muhimm-un.
matter-NOM important-NOM
Intended: 'The improvement of themselves/each other is an important matter.'

The ungrammaticality of (65) therefore supports the hypothesis that the actual binder in (63) and (64) is the matrix subject, not a null subject in Spec-DP.

Second, one of the diagnostics of phasehood in Citko (2014: 110) is that an element moving out of a phase can be pronounced at the phase edge. By applying this diagnostic to Arabic DPs, we find that the distributor moving out of a DP can be pronounced at the edge only in possessive DPs. Compare (66) to (67).

(66) a. [$_{TP}$ al-ʔaqaarib-u$_1$ T [$_{DP}$ D ʔanṣaar-u [$_{PossP}$ **baʕḍihim** baʕḍ-an$_1$]]].
DEF-relatives-NOM supporters-NOM some.3PL.M.GEN some-ACC
'Relatives$_1$ are supporters of each other$_1$.'

https://doi.org/10.1017/cnj.2021.22 Published online by Cambridge University Press

b. [$_{TP}$ al-ʔaqaarib-u$_1$ T [$_{DP}$ **baʕḍuhum$_2$** D ʔanṣaar-u [$_{PossP}$ **t$_2$** baʕḍ-in$_1$]]].[23]
DEF-relatives-NOM some.3PL.M.NOM supporters-NOM some-GEN
'Relatives$_1$ are supporters of each other$_1$.'

(67) a. [$_{TP}$ hadaf-u-hum$_1$ T [$_{DP}$ D taṭwiir-u [$_{PossP}$ **baʕḍihim** baʕḍ-an$_1$]]].
goal-NOM-3PL.M improvement-NOM some.3PL.M.GEN some-ACC
'Their$_1$ goal is the improvement of each other$_1$.'

b. * [$_{TP}$ hadaf-u-hum$_1$ T [$_{DP}$ **baʕḍuhum$_2$** D taṭwiir-u [$_{PossP}$ **t$_2$** baʕḍ-in$_1$]]].
goal-NOM-3PL.M some.3PL.M.NOM improvement-NOM some-GEN
Intended: Their$_1$ goal is the improvement of each other$_1$.'

Baʕḍihim 'some.3PL.M.GEN' in (66a) is in Spec-PossP, but in (66b) it has moved to Spec-DP, where it is realized as the nominative form *baʕḍuhum* 'some.3PL.M.NOM'. In contrast, *baʕḍihim* 'some.3PL.M.GEN' in (67a) cannot undergo movement to Spec-DP or be pronounced there, as shown by the ungrammaticality of (67b). Arabic verbless equational sentences, which have a TP projection but no v/VP (Benmamoun 2000, Aoun, Benmamoun, and Choueiri 2010), contain a subject and a non-verbal predicate. The predicate cannot move or adjoin to the subject in Spec-TP, since it is the complement that provides information about the subject. If we were to assume that *baʕḍuhum* 'some.3PL.M.NOM' lands in Spec-TP by adjoining to its antecedent phrase *ʔulaaʔika/hadaf-u-hum* 'those/their goal', then we would wrongly predict both sentences to be grammatical. This provides evidence that *baʕḍuhum* 'some.3PL.M.NOM' is pronounced at the edge of the predicate DP rather than in Spec-TP, and in turn supports the idea that movement out of possessive DPs proceeds through their edge in (48) above. This is in line with Citko's (2014: 10) proposal about DP phases.

A third diagnostic of the phasehood of a DP in Citko (2014: 112, 123) is whether that DP is a binding domain. Accordingly, the fact that reflexive possessives induce ungrammaticality while pronominal possessives do not, as discussed above, suggests that possessive DPs form phases. Reciprocals, unlike reflexives, are locally bound in their DP phase due to the movement of the distributor, as noted above. This pattern also holds in English possessive DPs, discussed earlier.

It is worth mentioning that Citko (2014) provides more diagnostics distinguishing DP phases from regular DPs, such as whether an element can be stranded at the edge of DP due to the movement of the other DP-internal elements, whether ellipsis can target the complement of D, or whether the D head is a locus of uninterpretable features. The first two diagnostics do not apply to all Arabic DPs. The third one, on the other hand, holds for all Arabic construct-state DPs, whether or not the DP involves PossP, since construct states are complex DPs with multiple functional

[23] A similar example, from Chapter 8 of the Quran, verse 72, is shown in (i). the English translation is based on Abdel Haleem (2005: 115).

(i) [$_{TP}$ ʔulaaʔika$_1$ T [$_{DP}$ **baʕḍuhum$_2$** D ʔawlijaaʔ-u [$_{PossP}$ **t$_2$** baʕḍ-in$_1$]]].
those-3PL.M.NOM some.3PL.M.NOM allies-NOM some-GEN
'Those$_1$ are allies of each other$_1$.'

https://doi.org/10.1017/cnj.2021.22 Published online by Cambridge University Press

projections, involving the valuation of features such as phi-features and Case (see, for example, Ritter 1991, Fassi Fehri 1999, Danon 2011).

There is also strong cross-linguistic evidence that possessive DPs are phases. For example, in Somali and Halkomelem Salish, the sentential tense morphology is also employed in possessive phrases, which, as argued by Wiltschko (2003), indicates that T is interpreted on D in such nominal possessive domains, as in (68b).

(68) a. th'í:qw'e-th-omé-tsel-**cha**.
punch-TR-2SG.O-1SG.S-FUT
'I will punch you.' (Galloway 1993: 317, cited in Wiltschko 2003: 667)

b. te-l swáqeth-**cha**.
DET-1SG.POSS husband-FUT
'my future husband' (Wiltschko 2003: 665)

By the same token, Szabolcsi (1994) shows that possessive DPs in Hungarian contain Infl, and therefore have sentence-like structures. In some other languages, as pointed out by Blake (1994) and Hiraiwa (2005), the same Case-marking is employed for both agents and possessors. One language showing this parallelism is Yup'ik Eskimo, as seen in (69), from Blake (1994: 151).

(69) a. angute-**m** nera-a neqa.
man-REL eat-3SG.3SG fish
'The man is eating the fish.'

b. angute-**m** qimugta-i.
man-REL dog-3PL.ABS.3SG.ERG
'The man's dog.'

Similarly, Reintges and Lipták (2006) point out that in Egyptian-Coptic, clausal possessives and nominal possessives have parallel structures, with the former derived from the latter via movement of both the possessor and the P head. These properties of nominal possessive phrases make it unsurprising that possessive DPs have the characteristics of phases. Accordingly, it has been hypothesized (Hiraiwa 2005, Despić 2011) that it is the combination of two syntactic heads, the D-Poss complex, that makes the DP a phase. This pairing corresponds to the C-T pair in CPs or the v-V pair in vPs.

In summary, I have argued above that a possessive DP in MSA constitutes a phase, and that Principle A is satisfied only when an anaphor is locally bound within its DP phase. Reflexives cannot appear in such DPs because they remain unbound, but reciprocals can appear there, due to the overt movement of the distributor, which is itself a binder that antecedes its own copy within the DP.[24] Pronominals, on the other hand, are free inside their phasal domain and thus Principle B is

[24]The binding facts examined indicate that reflexives in MSA do not undergo any LF/covert movement to the phase edge, contrary to what has been proposed for English and German reflexives (see, for example, Chomsky 1986; Safir 2004; Lee-Schoenfeld 2004, 2008). If such covert reflexive movement actually happens in MSA, then reflexives and reciprocals would be expected to exhibit symmetrical binding behaviour. As shown, however, this conflicts with the facts in Arabic.

https://doi.org/10.1017/cnj.2021.22 Published online by Cambridge University Press

respected. Another syntactic environment in which reciprocals can, but reflexives cannot, appear involves constructions with possessive PPs, a topic I turn to next.

4. Binding asymmetry in possessive PPs: PP phase

Reflexives and reciprocals in Arabic can both be the object of a preposition, as shown in (70) and (71).

(70) a. ar-raʤul-u$_1$ ʔiddaχar-a maal-an [$_{PP}$ li-nafsihi$_1$/
DEF-man-NOM saved-3SG.M money-ACC for-himself.3SG.M.GEN/
* la-hu$_1$].
for-him.3SG.M.GEN
'The man$_1$ saved money for himself$_1$/*him$_1$.'

b. ar-raʤul-u$_1$ ʔaχað-a ṣuurat-an [$_{PP}$ li-nafsihi$_1$/
DEF-man-NOM took-3SG.M picture-ACC for-himself.3SG.M.GEN/
* la-hu$_1$].
for-him.3SG.M.GEN
'The man$_1$ took a picture of himself$_1$/*him$_1$.'

(71) a. ar-riʤaal-u$_1$ ʔiddaχar-uu maal-an [$_{PP}$ li-baʕḍihim baʕḍ-an$_1$/
DEF-men-NOM saved-3PL.M money-ACC for-some.3PL.M.GEN some-ACC/
* la-hum$_1$].
for-them.3PL.M.GEN
'The men$_1$ saved money for each other$_1$/*them$_1$.'

b. ar-riʤaal-u$_1$ ʔaχað-uu ṣuurat-an [$_{PP}$ li-baʕḍihim baʕḍ-an$_1$/
DEF-men-NOM took-3PL.M picture-ACC for-some.3PL.M.GEN some-ACC/
* la-hum$_1$].
for-them.3PL.M.GEN
'The men$_1$ took pictures of each other$_1$/*them$_1$.'

Both types of anaphors, unlike pronouns, are licensed in (70) and (71). However, this is not the case if they are preceded by prepositions denoting possession, as in (72) and (73).

(72) a. * ar-raʤul-u$_1$ ʔiddaχar-a maal-an [$_{PP}$ ʕinda/ladaa **nafsihi$_1$**].
DEF-man-NOM saved-3SG.M money-ACC at/at himself.3SG.M.GEN
* 'The man saved money at himself's place.'

b. * ar-raʤul-u$_1$ waʤad-a kutub-an [$_{PP}$ ʕinda **nafsihi$_1$**].
DEF-man-NOM found-3SG.M books-ACC at himself.3SG.M.GEN
*'The man found books at himself's disposal.'

(73) a. ar-riʤaal -u$_1$ ʔiddaχar-uu maal-an [$_{PP}$ ʕinda/ladaa **baʕḍihim**
DEF-men-NOM saved-3PL.M money-ACC at/at some.3PL.M.GEN
baʕḍ-an$_1$].
some-ACC
'The men$_1$ saved money in each other$_1$'s places.'

b. ar-riʤaal-u$_1$ waʤad-uu kutub-an [$_{PP}$ ʕinda **baʕḍihim**
DEF-men-NOM found-3PL.M books-ACC at some.3PL.M.GEN

https://doi.org/10.1017/cnj.2021.22 Published online by Cambridge University Press

baʕḍ-an$_1$].
some-ACC
'The men found books at each other's disposal.'

The reflexives and reciprocals in (72) and (73) exhibit asymmetrical behaviours in that reflexives cause ungrammaticality but reciprocals do not. Interestingly, Arabic possessive pronouns, like reciprocals, are licensed in such environments. Consider (74).

(74) a. ar-riʤaal-u$_1$ ʔiddaχar-uu maal-an [$_{PP}$ ʕinda-/ladaj-him$_1$].
DEF-men-NOM saved-3PL.M money-ACC at/at-their.3PL.M.GEN
'The men$_1$ saved money in their places.'

b. ar-riʤaal-u$_1$ waʤad-uu kutub-an [$_{PP}$ ʕinda-hum$_1$].
DEF-men-NOM found-3PL.M books-ACC at-their.3PL.M.GEN
'The men found books at their disposal.'

Two questions arise here. First, why is there a discrepancy between reflexives and reciprocals in constructions involving possessive prepositions, as in (72) and (73)? Second, what distinguishes such prepositions (Ps) from others like those in (70) and (71)?

In the discussion of reflexive and reciprocal possessives in section 3, I proposed, following Hiraiwa (2005) and Despić (2011, 2015), among many others, that the DP qualifies as a phase, and consequently constitutes its binding domain, only when the DP contains a PossP. Following the same line of reasoning, the PPs in (70) and (71) do not contain a PossP, and accordingly, cannot qualify as phases. This explains the grammaticality of the reflexive in (70) and the reciprocal in (71), since they can both seek an antecedent outside DP, within vP (their phasal binding domain). The pronouns cannot appear in such PPs if they are not free, since this would violate Principle B. The PPs in (72) and (73), on the other hand, denote possession, which indicates that there is a maximal projection PossP embedded in the PP. This suggests that these possessive PPs also count as phases, on a par with possessive DPs. This idea is motivated by the fact that anaphors and pronouns display the same binding patterns in possessive DPs and PPs; that is, pronouns and reciprocals are licensed, but reflexives are not. A logical explanation for this distinct behaviour of reciprocals stems from the ability of the distributor to appear in a higher position, just as in possessive DPs. This is illustrated for a possessive PP in (75).

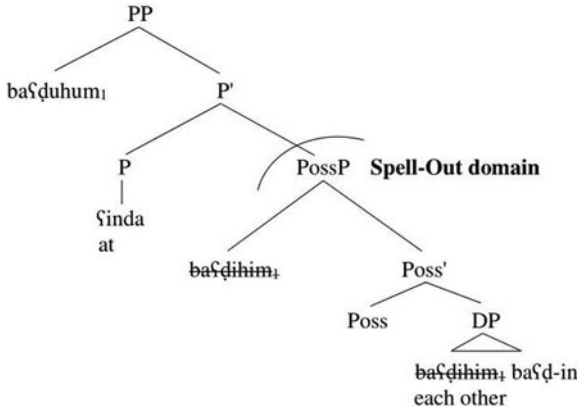
(75) ar-riʤaal-u$_1$ (**baʕḍuhum**) ʔiddaχar-uu maal-an [$_{PP}$ (**baʕḍuhum**)
DEF-men-NOM some.3PL.M.NOM saved-3PL.M money-ACC some.3PL.M.NOM
P ʕinda baʕḍ-in$_1$].
at some-GEN
'The men$_1$ each saved money in the other$_1$'s place.'
'The men$_1$ saved money in each other$_1$'s places.'

Given that multiple copies of *baʕḍuhum* 'each' are created during the course of the derivation, binding in (75) can be accounted for. As in possessive DPs, the lowest copy of the A-chain is locally bound by the intermediate copy. Assuming that

https://doi.org/10.1017/cnj.2021.22 Published online by Cambridge University Press

Principle A applies cyclically, as previously mentioned, then the derivation in (75) will proceed as in (76):

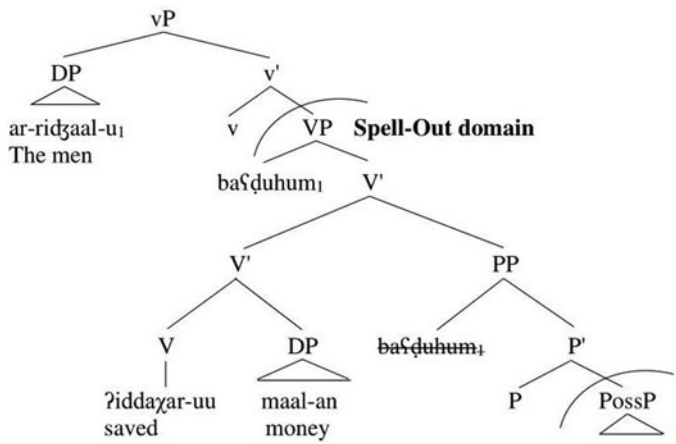
(76) PP phase:



Again, the distributor *baʕḍuhum* 'each' at the edge of PP serves a dual purpose. First, it binds its copies within the PP, satisfying the first application of Principle A. Once the PP phase is completed, the PossP complement of P is immediately sent to Spell-Out. Second, *baʕḍuhum* in Spec-PP is accessible to the matrix subject (to which it optionally adjoins after further movement) for binding purposes, as shown in (77).[25]

(77) vP phase:

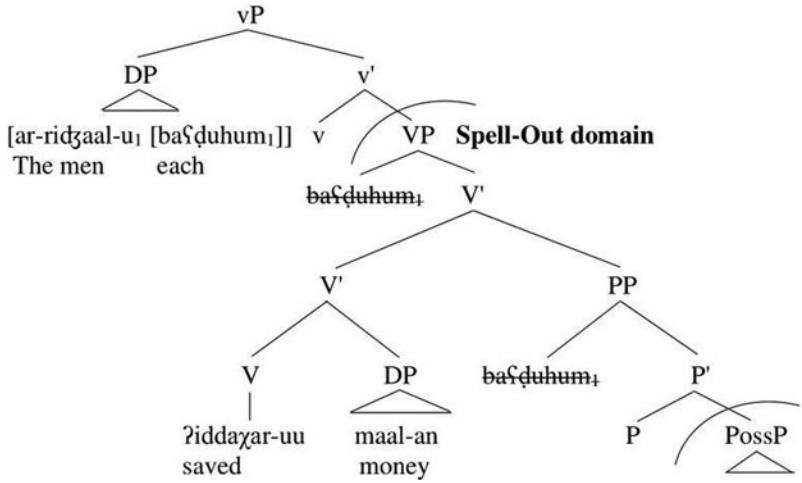
a.



[25]Nominative Case on the higher copies is checked/valued by T while the genitive Case on the lower copy, which is assigned by P, is on an unpronounced copy/category, and is thus not pronounced, as was assumed for possessive DPs (Béjar and Massam 1999: 74).

https://doi.org/10.1017/cnj.2021.22 Published online by Cambridge University Press

b.



Since the P and its edge are spelled out along with the complement of the higher phase head (v), in conformity with the PIC, Principle A applies again within the vP phase. At that point, the antecedent phrase *ar-ridʒaal-u* 'the men' in Spec-vP locally binds the three copies of *baʕḍuhum* 'each' in this phase. In principle, Antonenko's (2012) approach should also work here if we assume that the ρ-feature is on P, and that λ-conversion applies above P. Importantly, Principle A, which applies successive-cyclically, is respected here, and the derivation converges at the interfaces. The other reciprocal element *baʕḍ-in* 'other', the one fulfilling the contrast requirement, is pronominal and hence free in the PP phase, thereby satisfying Principle B. Movement then serves as an escape hatch for reciprocals, saving the structure of reciprocal possessives from violating Principle A. As before, this overt movement is not available for reflexives, which accounts for the ill-formedness of structures in (72). This analysis is thus congruent with that of possessive DPs provided in (48) above.

Possessive Ps do in fact differ from non-possessive Ps in many ways. First, Ps like *ʕinda* or *ladaa* 'at the disposal of/in the possession of' not only express possession but also have an adverbial (locative) function (e.g., *ʕinda l-bajt-i* 'next to the house'), which makes them overlap with nouns in the sense of Bresnan (1994) and Kayne (2005). Second, *ʕinda* and *ladaa* have a triliteral root (*ʕ-n-d* and *l-d-j*, respectively), as nouns do (see Ryding 2005). Third, possessive PPs pattern with possessive DPs with respect to binding, as demonstrated in (78) and (79).

(78) ar-ridʒaal-u$_1$ ʕaanaq-uu [$_{DP}$ ʔabnaaʔ-a-hum$_1$/ ʔabnaaʔ-a
DEF-men-NOM hugged-3PL.M sons-ACC-their.3PL.M/ sons-ACC
baʕḍihim baʕḍ-an$_1$/ ***ʔabnaaʔ-a** **ʔanfusihim$_1$**].
some.3PL.M.GEN some-ACC/ sons.ACC themselves.3PL.M.GEN
'The men$_1$ hugged their$_1$ sons/each other$_1$'s sons/*themselves$_1$' sons.'

https://doi.org/10.1017/cnj.2021.22 Published online by Cambridge University Press

(79) ar-riʤaal-u$_1$ ʔiddaχar-uu maal-an [$_{PP}$ ʕinda-hum$_1$/ ʕinda
DEF-men-NOM saved-3PL.M money-ACC at-their.3PL.M.GEN/ at
baʕḍihim baʕḍ-an$_1$/ ***ʕinda ʔanfusihim$_1$**].
some.3PL.M.GENsome-ACC/ at themselves.3PL.M.GEN
'The men saved money in their places/in each other's places/*in themselves' places.'

Note that the reflexive is impossible in both possessive DPs and possessive PPs, suggesting that possessive PPs, like possessive DPs, are phase-defining (Citko 2014).[26] The licensing of reciprocals is possible because of the overt movement of the distributor, as argued above. Fourth, as shown in (80), an element moving out of a possessive PP can be pronounced at the edge of PP (which is another one of Citko's (2014) diagnostics for phasehood). Again, possessive PPs parallel possessive DPs.

(80) a. ar-riʤaal-u$_1$ ʔiddaχar-uu maal-an [$_{PP}$ P ʕinda [$_{PossP}$ Poss
DEF-men-NOM saved-3PL.M money-ACC at
[$_{DP}$ **baʕḍihim** baʕḍ-an$_1$]]].
some.3PL.M.GENsome-ACC
'The men$_1$ saved money in each other$_1$'s places.'

b. ar-riʤaal-u$_1$ ʔiddaχar-uu maal-an [$_{PP}$ **baʕḍuhum$_2$** P ʕinda
DEF-men-NOM saved-3PL.M money-ACC some.3PL.M.NOM at
[$_{PossP}$ Poss [$_{DP}$ ~~**baʕḍihim$_2$**~~ baʕḍ-in$_1$]]].
some.3PL.M.GEN some-GEN
'The men each saved money in the other's places.'

Fifth, as pointed out by a reviewer, the fact that possessive Ps have an adverbial function suggests that they are not strictly subcategorized by the verb, and that they assign their own theta-role to the object. For Lee-Schoenfeld (2004, 2008), this is a phase-defining property of PPs in German.

Non-possessive Ps, on the other hand, share no properties with nouns; they do not, for instance, have a triliteral root. Lacking an adverbial function, they are subcategorized by the verb, and thus assign a theta-role to their object through the verb, not on their own. Additionally, no reflexive-reciprocal asymmetry is observed in PPs headed by non-possessive Ps, in contrast to possessive DPs or PPs, as shown in (81).

(81) ar-riʤaal-u$_1$ ʔiddaχar-uu maal-an [$_{PP}$ li-ʔanfusihim$_1$/
DEF-men-NOM saved-3PL.M money-ACC for-themselves.3PL.M.GEN/
li-baʕḍihim baʕḍ-an$_1$/ ***la-hum$_1$**].
for-some.3PL.M.GEN some-ACC/ for-them.3PL.M.GEN
'The men$_1$ saved money for themselves$_1$/each other$_1$/*them$_1$.'

Given that possessive Ps, unlike non-possessive Ps, display nominal-like features, it is not surprising that possessive Ps behave like nouns as far as binding is concerned. The inability of an element moving out of a non-possessive PP to be pronounced at the edge of the PP, as in (82), is yet another important characteristic distinguishing non-possessive from possessive PPs.

[26]Recall that for Citko, forming a binding domain is one of the diagnostics of phasehood.

https://doi.org/10.1017/cnj.2021.22 Published online by Cambridge University Press

(82) a. ar-riʤaal-u$_1$ ʔiddaχar-uu maal-an [$_{PP}$ P li- [$_{DP}$ **baʕḍihim**
DEF-men-NOM saved-3PL.M money-ACC for some.3PL.M.GEN
baʕḍ-an$_1$]].
some-ACC
'The men$_1$ saved money for each other$_1$.'

b. *ar-riʤaal-u$_1$ ʔiddaχar-uu maal-an [$_{PP}$ **baʕḍuhum$_2$** P li-
DEF-men-NOM saved-3PL.M money-ACC some.3PL.M.NOM for
[$_{DP}$ ~~**baʕḍihim$_2$**~~ baʕḍ-in$_1$]]].
some.3PL.M.GEM some-GEN
Intended: 'The men each saved money for the other.'

Since the non-possessive PP in (82) is not a phase, *baʕḍuhum* 'each' cannot be pronounced in Spec-PP, unlike in (80) above. This is shown in (82b). It is worth mentioning that the distributor can precede, and take scope over, the verb in constructions involving either possessive or non-possessive PPs, but only in possessive PPs can the distributor be phonologically realized at the edge of PP.

Finally, and importantly, the possessive PPs discussed above also seem to contain both the possessor and possessum. Unlike possessive DPs, which display these two elements overtly, as demonstrated in the previous section, possessive PPs seem to have an overt possessor, but some kind of implied possessum. Put differently, the PP in (83) implies that *the man* has something, though unknown, so the possessum is implicit, as indicated by the English translation.

(83) [$_{PP}$ ʕinda r-raʤul-i]
at DEF-men-GEN
'at the man's disposal/in the man's possession'

If that is correct, which seems so, then the PP in (83) should be aligned with possessive DPs with respect to its phasehood status. This same pattern is found in English, where reciprocals but not reflexives are licensed in the PP *at one's disposal*, as in *at each other's disposal* versus **at themselves' disposal*, just as in possessive DPs (*each other's books* versus **themselves' books*). In addition, the idea that PPs exhibit phasal properties is attested in other languages. Bošković (2014), for example, argues that PPs are phases in both Serbo-Croatian and English. Similarly, Lee-Schoenfeld (2008) suggests that in German, PPs form phases if headed by Ps that assign their own θ-roles to their DP complements (see also Lee-Schoenfeld 2004). This is also true of Arabic PPs.

5. Conclusion

In this article, I have shown that anaphors in Arabic must be locally bound, whether or not they are part of the argument structure of the verb. Moreover, following Lee-Schoenfeld (2004, 2008), Quicoli (2008), and Despić (2011, 2015), among many others, I have established that binding domains in Arabic can be formulated in terms of phases. That is, an anaphor must be bound in its phase, while a pronominal must be free in its phase. Binding domains in Arabic can therefore be reduced to TP and vP phases as well as to DP and PP phases, as is the case in other languages. In MSA, a possessive DP or PP structure forms a phase, along the lines of possessive

https://doi.org/10.1017/cnj.2021.22 Published online by Cambridge University Press

phrases in other languages (see, for example, Hiraiwa 2005, Reintges and Lipták 2006, Despić 2015). I have argued that in possessive constructions, reflexives and reciprocals both occupy a syntactic position below the D or P head. However, only the reciprocal is licensed in such environments, a phenomenon attributed to the overt movement of the distributor. Three assumptions – the copy theory of movement, the phasehood of possessive DPs/PPs, and the pronominal status of the reciprocal "other" element marking contrast – have explained the reflexive-reciprocal asymmetries attested in the Arabic DP and PP structures. That is, a reflexive anaphor, unlike a reciprocal, is left unbound in its DP or PP phase, causing the derivation to crash. I have also shown that Principle A applies cyclically at the end of each phase (Quicoli 2008). Overall, this analysis appears to capture the distribution of anaphors and pronomonals in MSA more elegantly than the standard binding theory does, particularly at the DP/PP level. Finally, the generalizations arrived at have been extended to English in order to explain the asymmetry between reflexives and reciprocals (e.g., *the sons of each other* versus **the sons of themselves*), though the phasehood status of such DPs has remained unresolved.

References

Abdel Haleem, Muhammad A. S. 2005. *The Qur'an: A new translation*. Oxford: Oxford University Press.

Abney, Steven Paul. 1987. The English noun phrase in its sentential aspect. Doctoral dissertation, Massachusetts Institute of Technology.

Antonenko, Andrei. 2012. Feature-based binding and phase theory. Doctoral dissertation, Stony Brook University.

Aoun, Joseph E., Elabbas Benmamoun, and Lina Choueiri. 2010. *The syntax of Arabic*. Cambridge: Cambridge University Press.

Bailyn, John Frederick. 2007. A derivational approach to microvariation in Slavic binding. In *Formal approaches to Slavic linguistics 15,* ed. Richard Compton, Magdalena Goledzinowska, and Ulyana Savchenko, 25–41. Ann Arbor, MI: Michigan Slavic Publications.

Béjar, Susana, and Diane Massam. 1999. Multiple case checking. *Syntax* 2(2): 65–79.

Belletti, Adriana. 1982. On the anaphoric status of the reciprocal construction in Italian. *The Linguistic Review* 2(2): 101–138.

Benmamoun, Elabbas. 2000. *The feature structure of functional categories: A comparative study of Arabic dialects*. Oxford: Oxford University Press.

Blake, Barry J. 1994. *Case*. Cambridge: Cambridge University Press.

Borer, Hagit. 1984. *Parametric syntax: Case studies in Semitic and Romance languages*. Dordrecht: Foris Publications.

Bošković, Željko. 2012. Phases in NPs and DPs. In *Phases: Developing the framework,* ed. Ángel J. Gallego, 343–383. Berlin: Mouton de Gruyter.

Bošković, Željko. 2014. Now I'm a phase, now I'm not a phase: On the variability of phases with extraction and ellipsis. *Linguistic Inquiry* 45(1): 27–89.

Bošković, Željko, and Jairo Nunes. 2007. The copy theory of movement: A view from PF. In *The copy theory of movement,* ed. Norbert Corver and Jairo Nunes, 13–74. Amsterdam: John Benjamins.

https://doi.org/10.1017/cnj.2021.22 Published online by Cambridge University Press

Bouchard, Denis. 1984. *On the content of empty categories*. Dordrecht: Foris Publications.
Bresnan, Joan. 1994. Locative inversion and the architecture of universal grammar. *Language* 70(1): 72–131.
Büring, Daniel. 2005. *Binding theory*. Cambridge: Cambridge University Press.
Canac-Marquis, Réjean. 2005. Phases and binding of reflexives and pronouns in English. In *Proceedings of the 12th International Conference on Head-driven Phrase Structure Grammar,* ed. Stefan Müller, 482–502. Stanford, CA: CLSI Publications.
Carlson, Greg. 1998. Thematic roles and the individuation of events. In *Events and grammar*, ed. Susan D. Rothstein, 35–51. Dordrecht: Kluwer Academic Publishers.
Charnavel, Isabelle, and Dominique Sportiche. 2016. Anaphor binding: What French inanimate anaphors show. *Linguistic Inquiry* 47(1): 35–87.
Chomsky, Noam. 1981. *Lectures on government and binding*. Dordrecht: Foris Publications.
Chomsky, Noam. 1986. *Knowledge of language: Its nature, origin, and use*. New York: Praeger.
Chomsky, Noam. 1993. A minimalist program for linguistic theory. In *The view from Building 20: Essays in linguistics in honor of Sylvain Bromberger,* ed. Kenneth Hale and Samuel Jay Keyser, 1–52. Cambridge, MA: MIT Press.
Chomsky, Noam. 1995. *The minimalist program.* Cambridge, MA: MIT Press.
Chomsky, Noam. 2001. Derivation by Phase. In *Ken Hale: A life in language,* ed. Michael Kenstowicz, 1–52. Cambridge, MA: MIT Press.
Chomsky, Noam. 2008. On Phases. In *Foundational issues in linguistic theory: Essays in honor of Jean-Roger Vergnaud,* ed. Robert Freidin, Carlos P. Otero, and María Luisa Zubizarreta, 133–166. Cambridge, MA: MIT Press.
Citko, Barbara. 2014. *Phase theory: An introduction*. Cambridge: Cambridge University Press.
Corver, Norbert and Jairo Nunes. 2007. From trace theory to copy theory. In *The copy theory of movement,* ed. Norbert Corver and Jairo Nunes, 1–10. Amsterdam: John Benjamins.
Danon, Gabi. 2011. Agreement and DP-internal feature distribution. *Syntax* 14(4): 297–317.
Despić, Miloje. 2011. Syntax in absence of determiner phrase. Doctoral dissertation, University of Connecticut.
Despić, Miloje. 2015. Phases, reflexives, and definiteness. *Syntax* 18(3): 201–234.
Den Dikken, Marcel. 1995. Copulas. Ms., Free University of Amsterdam.
Drummond, Alex, Dave Kush, and Norbert Hornstein. 2011. Minimalist construal: Two approaches to A and B. In *The Oxford handbook of linguistic minimalism,* ed. Cedric Boeckx, 396–426. Oxford: Oxford University Press.
Fassi Fehri, Abdelkader. 1993. *Issues in the structure of Arabic clauses and words*. Dordrecht: Kluwer Academic Publishers.
Fassi Fehri, Abdelkader. 1999. Arabic modifying adjectives and DP structures. *Studia Linguistica* 53(2), 105–154.
Freidin, Robert, and Jean-Roger Vergnaud. 2001. Exquisite connections: Some remarks on the evolution of linguistic theory. *Lingua* 111(9): 639–666.
Franks, Steven. 1998. Clitics in Slavic. Presented at the comparative Slavic morphosyntax workshop, Spencer Creek, Indiana.
Galloway, Brent D. 1993. *A grammar of Upriver Halkomelem.* Berkeley: University of California Press.
Gärtner, Hans-Martin. 2002. *Generalized transformations and beyond: Reflections on minimalist syntax*. Berlin: Akademie Verlag.
Hazout, Ilan. 1992. The verbal gerund in Modern Hebrew. *Natural Language and Linguistic Theory* 10(4): 523–553.

Heim, Irene, Howard Lasnik, and Robert May. 1991. Reciprocity and plurality. *Linguistic Inquiry* 22(1): 63–101.
Hicks, Glyn. 2009. *The derivation of anaphoric relations*. Amsterdam: John Benjamins.
Hiraiwa, Ken. 2005. Dimensions of symmetry in syntax: Agreement and clausal architecture. Doctoral Dissertation, MIT.
Johnson, Kyle. 2012. Towards deriving differences in how Wh Movement and QR are pronounced. *Lingua* 122(6): 529–553.
Kayne, Richard S. 2005. *Movement and silence*. Oxford: Oxford University Press.
Kiss, Tibor. 2001. Anaphora and exemptness: A comparative treatment of anaphoric binding in German and English. In *Proceedings of the 7th International HPSG Conference,* ed. Dan Flickinger and Andreas Kathol, 182–197. Stanford: CSLI Publications.
Lasersohn, Peter. 1995. *Plurality, conjunction, and events*. Dordrecht: Kluwer Academic Publishers.
Lee-Schoenfeld, Vera. 2004. Binding by phase: (Non-)complementarity in German. *Journal of Germanic Linguistics* 16(2): 111–171.
Lee-Schoenfeld, Vera. 2008. Binding, phases, and locality. *Syntax* 11(3): 281–298.
Longobardi, Giuseppe. 2001. The structure of DPs: Some principles, parameters, and problems. In *The handbook of contemporary syntactic theory,* ed. Mark Baltin and Chris Collins, 562–603. Malden, MA: Blackwell.
Moltmann, Friederike. 1997. *Parts and wholes in semantics*. Oxford: Oxford University Press.
Nunes, Jairo. 1995. The copy theory of movement and linearization of chains in the minimalist program. Doctoral dissertation, University of Maryland, College Park.
Nunes, Jairo. 2001. Sideward movement. *Linguistic Inquiry* 32(2). 303–344.
Nunes, Jairo. 2004. *Linearization of chains and sideward movement*. Cambridge, MA: MIT Press.
Pesetsky, David, and Esther Torrego. 2007. The syntax of valuation and the interpretability of features. In *Clausal and Phrasal Architecture: Syntactic derivation and interpretation*, ed. Simin Karimi, Vida Samiian, and Wendy K. Wilkins, 262–294. Amsterdam: John Benjamins.
Pollard, Carl, and Ivan Sag. 1992. Anaphors in English and the scope of the binding theory. *Linguistic Inquiry* 23(2): 261–305.
Quicoli, A. Carlos. 2008. Anaphora by phase. *Syntax* 11(3): 299–329.
Reinhart, Tanya, and Eric Reuland. 1991. Anaphors and logophors: An argument structure perspective. In *Long-distance anaphora,* ed. Jan Koster and Eric Reuland, 283–321. Cambridge, New York: Cambridge University Press.
Reinhart, Tanya, and Eric Reuland. 1993. Reflexivity. *Linguistic Inquiry* 24(4): 657–720.
Reintges, Chris H., and Anikó Lipták. 2006. 'Have' = 'be' + prep(osition): New evidence for the preposition incorporation analysis of clausal possession. In *Phases and interpretation,* ed. Mara Frascarelli, 107–132. Berlin: Mouton de Gruyter.
Reuland, Eric and Jan Koster. 1991. Long-distance anaphora: An overview. In *Long-distance anaphora*, ed. Jan Koster and Eric Reuland, 1–25. Cambridge, New York: Cambridge University Press.
Ritter, Elizabeth. 1987. NSO noun phrases in Modern Hebrew. In *Proceedings of NELS 17*, ed. Joyce McDonough and Bernadette Plunkett, 521–537. Amherst: Graduate Student Linguistics Association, University of Massachusetts.
Ritter, Elizabeth. 1988. A head-movement approach to construct-state noun phrases. *Linguistics* 26(6): 909–930.
Ritter, Elizabeth. 1991. Two functional categories in noun phrases: Evidence from Modern Hebrew. In *Syntax and semantics* 25, ed. Susan Rothstein, 37–62. New York: Academic Press.

Rizzi, Luigi. 1996. Residual verb second and the wh-criterion. In *Parameters and functional heads: Essays in comparative syntax,* ed. Adriana Belletti and Luigi Rizzi, 63–90. Oxford: Oxford University Press.

Roberts, Craige. 1991. Distributivity and reciprocal distributivity. In *Proceedings of SALT 1,* ed. Steven K. Moore and Adam Zachary Wyner, 209–229. Ithaca: Department of Modern Languages and Literatures Publications.

Ryding, Karin C. 2005. *A reference grammar of Modern Standard Arabic*. Cambridge: Cambridge University Press.

Safir, Ken. 1992. Implied non-coreference and the pattern of anaphora. *Linguistics and Philosophy* 15(1): 1–52.

Safir, Ken. 2004. *The syntax of anaphora*. Oxford: Oxford University Press.

Safir, Ken. 2011. One true anaphor. Ms. Rutgers University, New Brunswick, NJ.

Siloni, Tal. 1991. Noun raising and the structure of noun phrases. In *MIT Working Papers in Linguistics* 14, ed. Jonathan D. Bobaljik and Tony Bures, 255–270. Cambridge: MIT.

Siloni, Tal. 1996. Hebrew noun phrases: Generalized noun raising. In *Parameters and functional heads: Essays in comparative syntax,* ed. Adriana Belletti and Luigi Rizzi, 239–267. Oxford: Oxford University Press.

Siloni, Tal. 1997. *Noun phrases and nominalizations: The syntax of DPs*. Dordrecht: Kluwer Academic Publishers.

Starke, Michal. 2001. Move dissolves into merge. Doctoral dissertation, University of Geneva.

Stjepanović, Sandra. 2007. Free word order and copy theory of movement. In *The copy theory of movement,* ed. Norbert Corver and Jairo Nunes, 219–248. Amsterdam: John Benjamins.

Stowell, Timothy Angus. 1981. Origins of phrase structure. Doctoral dissertation, Massachusetts Institute of Technology.

Szabolcsi, Anna. 1994. The noun phrase. In *Syntax and semantics 27: The syntax of Hungarian,* ed. Ferenc Kiefer and Katalin É. Kiss, 179–274. San Diego: Academic Press.

Wiltschko, Martina. 2003. On the interpretability of tense on D and its consequences for case theory. *Lingua* 113(7): 659–696.