

The partitive split in Finnish and Estonian^{*}

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Finnish and Estonian have several types of *split noun phrases* where a noun phrase is separated from the modifying quantifier or numeral. This paper provides a preliminary classification of split noun phrases in both languages and proposes a syntactic analysis of a specific type of split NP, the *partitive split*, where the noun phrase is in the partitive case. We propose that the partitive split is derived by discourse-related movement of the partitive NP. Particular attention is paid on contexts where the partitive noun phrase does not reconstruct to its position prior to movement. For example, numerals higher than one induce morphological mismatches in partitive split in both languages. A solution is proposed, where the partitive split involves an optionally pronounced classifier head, which facilitates the semantic selection and morphology. This analysis is shown to apply to Finnish, but the evidence for Estonian is not conclusive.

Keywords: *syntax, split NP, partitive split, Finnish, Estonian*

1 Introduction

This paper examines constructions where a noun phrase is separated from the quantifier or numeral that modifies it. The following examples from Finnish and Estonian illustrate the phenomenon. In (1), the noun *miehiä* ‘men’ occupies the position at the front, while the numeral that modifies it is at the end of the clause. The word order in (2), where the quantifier is at the front is also available, but less common in both languages.

(1) Finnish

Miehiä saapui paikalle viisi.
man.PL.PAR arrived place.to five.NOM
‘Five men arrived to the place.’

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(2) Estonian

Palju nägi Peeter kasse.
 many saw Peeter.NOM cat.PL.PAR
 ‘Peeter saw many cats.’

Constructions where the noun phrase is divided into two parts are here referred to as *split noun phrases* (following Fanselow 1988; van Riemsdijk 1989). Split NPs are frequent among languages and a subject of variation even within one language. The split noun phrases that involve an NP in the partitive case are sometimes referred to as *quantifier clauses* (kvanttorilauseet).¹ The quantifier clause has been considered as a special clause type in Finnish (e.g. Hakulinen and Karlsson 1979: 97–99, Hakulinen et al. 2004: §902).²

An analysis is proposed where the quantifying expression and the partitive NP are initially part of the same constituent, as in (3a),³ and the split construction is formed by moving the partitive NP out, as in (3b).⁴ This approach is referred to as *sub-extraction* account for split noun phrases and it was proposed by van Riemsdijk (1989) for German.

- (3) a. *Minä näin* [_{DP}[_{QP} *paljon* [_{NP} *lintuja*]]].
 I.NOM saw a lot bird.PL.PAR
 ‘I saw a lot of birds.’
- b. [_{NP} *Lintuja*] *minä näin* [_{DP}[_{QP} *paljon* ____]].
 bird.PL.PAR I.NOM saw a lot
 ‘I saw a lot of **birds**.’

We will show in this paper that the partitive split shares the basic properties with discourse-related movement to the left periphery: it has the same triggers and landing sites (e.g. contrastive focus) and it follows the basic constraints on movement, i.e. islands. For example, in (3b), the noun phrase *lintuja* ‘birds’ occupies a position where it receives a discourse interpretation of contrast. We propose that the movement is an instance of *A'-movement*, which displaces elements from their thematic positions and positions where the case and agreement properties are assigned.

¹ Finnish has two object cases, accusative and partitive, which are here glossed as ACC and PAR. The accusative form is realised with different suffixes depending on the type of the NP. Pronouns have accusative case suffix *-t*, plural NPs have suffix *-t*, which is the same as in the nominative case. In addition, Finnish has an unmarked object case, which is here glossed as NOM. The same convention is adopted for numerals with unmarked case. For Estonian, we use a different, albeit traditional convention whereby the object is glossed as GEN, since there is no unique morphology which can be identified as ACC. Other cases are glossed as ablative case = ABL, adessive = ADE, genitive = GEN, elative = ELA, illative = ILL, inessive = INE. Semantic cases are in many examples glossed with English prepositions. Singular/plural inflection on nominal present is either present in the English translation or marked explicitly with SG and PL. The person and number agreement on finite verbs is glossed only when needed for clarity, e.g. first person singular verb inflection = 1SG. Conditional = COND, infinitive = INF, passive = PASS, PTCPL = participial, possessive suffixes = PX, Q=question particle.

² The same convention has been adopted for Estonian in Erelt et al. (2016), where similar constructions are referred to as *kvanttorilause*, ‘quantifier clause’. Spoelman (2013: 65) uses the term *quantifying sentence*. However, these constructions may occur in smaller domains, such as in adverbial clauses.

³ The quantifier *paljon* ‘a lot’ appears in the object position in unmarked case form and is not sensitive to aspectual object case variation. Therefore, the accusative case marking of *paljon* is suppressed in the glosses.

⁴ The bold typeface indicates contrastive focus. The contrastive focus is marked only in sentences where the contrastive reading is strongly preferred for the constituent.

However, the analysis in terms of sub-extraction faces a problem in the morphological mismatch between the quantifying expression and the NP. In both Estonian and Finnish, numeral-noun constructions such as (4a) and (5a), require the NP in the singular, see (4b) and (5b). In the split construction, the partitive noun phrase is in the plural, as in (4c) and (5c). This means that the NP cannot be ‘returned’ to the complement of the numeral (see also Hakulinen and Karlsson 1979, Seppänen 1983: 165–169, Vilkkuna 1996, Hakulinen et al. 2004: §903).

(4) Finnish

- a. *Minä näin viisi lintua.*
I.NOM saw five.NOM bird.SG.PAR
‘I saw five birds.’
- b. **Minä näin viisi lintuja.*
I.NOM saw five.NOM bird.PL.PAR
- c. *Lintuja minä näin viisi.*
bird.PL.PAR I.NOM saw five.NOM
‘I saw five **birds**.’

(5) Estonian

- a. *Peeter ostis kolm raamatut.*
Peeter.NOM bought three.NOM book.SG.PAR
‘Peeter bought three books.’
- b. **Peeter ostis kolm raamatuid.*
Peeter.NOM bought three.NOM book.PL.PAR
- c. *Raamatuid Peeter ostis kolm.*
book.PL.PAR Peeter.NOM bought three.NOM
‘Peeter bought three books.’

We propose that the morphological mismatch can be avoided by assuming that the structure contains a classifier that licenses the partitive NP. Finnish has a classifier *kappale*, ‘piece’, which is typically used for counting individuals in sentences such as (6a) (see also Alho 1992: 7). The classifier enables the partitive NP to escape the noun phrase, as in (6b), in which case the classifier is only optionally pronounced.⁵

(6) Finnish

- a. *Pekka osti [DP[N_{umP} kolme [CIP kappaletta [NP kirjoja]]]].*
Pekka.NOM bought three.NOM piece.SG.PAR book.PL.PAR
‘Pekka bought three books.’
- b. *[NP Kirjoja] Pekka osti [DP[N_{umP} kolme [CIP (kappaletta) ___]]].*
book.PL.PAR Pekka bought three.NOM piece.SG.PAR
‘Pekka bought three **books**.’

However, the analysis of Estonian is more complicated. As in Finnish, the classifier is optionally present in the split construction (7a), but ungrammatical in a continuous NP

⁵ It should be noted that sentence (6a) has an artificial tone; we will consider the style and variation of this construction in Section 5.

(7b). In a continuous NP, the noun *tükk* ‘piece’ takes only singular mass (or abstract) nouns as complement (7c). If a count noun occurs in this position, it is in the singular and coerced into a mass noun.⁶

(7) Estonian

- a. *Raamatuid Peeter ostis kolm (tükki).*
 book.PL.PAR Peeter.NOM bought three.NOM piece.SG.PAR
 ‘Peeter bought three books.’
- b. **Peeter ostis kolm tükki raamatuid.*
 Peeter.NOM bought three.NOM piece.SG.PAR book.PL.PAR
- c. *Peeter ostis kolm suurt tükki šokolaadi /*
 Peeter.NOM bought three.NOM big.SG.PAR piece.SG.PAR chocolate.SG.PAR
juustu.
 cheese.SG.PAR
 ‘Peeter bought three big pieces of chocolate/cheese.’

The classifier approach is compared to *morphological repair* account, where the partitive split is derived from the numeral-noun construction, but the plural number of the NP is assigned post-syntactically (Fanselow and Cavar 2002).

The paper is organised as follows: Section 2 provides a classification for the split NPs in Finnish and Estonian. Section 3 shows that the NP split is triggered by discourse and the landing sites are the same as in other types of discourse-related movement. Section 4 addresses the syntactic properties of partitive splits and section 5 provides an analysis. The paper is concluded in Section 6.

2 Introduction to split noun phrases in Finnish and Estonian

Finnish and Estonian have several types of expressions where a noun phrase is separated from the modifying quantifier or numeral. Some quantifiers permit splitting relatively freely, whereas others display a more restricted pattern. This section starts with an introduction to the general properties of noun phrases in both languages in section 2.1. We then outline the properties of three types of splits: the partitive split in Section 2.2, regular NP split in Section 2.3 and the relative split in Section 2.4.

2.1 Basic structure of the noun phrase in Finnish and Estonian

In Finnish and Estonian, noun phrases are composed of the noun head, adjectival modifiers, possessor, demonstrative/determiner and the quantifier, which all precede the noun head. Both languages display case concord within the noun phrase; adjectival modifiers, determiner/demonstratives and quantifiers generally inflect in the same case and number as the noun head, as illustrated in (8) (for Estonian, see example (10)).

⁶ The word *tükk* appears in split noun phrases mainly in spoken language (Erelt et al. 1993: 148). In written language, the meaning of ‘unit’ is implicit.

(8) Finnish

- a. *tämä pieni punainen talo*
 this.NOM small.NOM red.NOM house.NOM
 ‘this small red house.’
- b. *Nä-i-ssä pien-i-ssä punais-i-ssa talo-i-ssa*
 this-PL-INE small-PL-INE red-PL-INE house-PL-INE
 ‘in these small red houses’

However, numerals higher than one and certain quantifiers display a heterogeneous case assignment pattern, see e.g. Brattico (2008) and Nelson and Toivonen (2003). When the DP is in the nominative or accusative case, the numeral is in the nominative case and adjectives and noun head below the numeral are in the partitive singular (9a). The quantificational partitive case is absent when the DP appears in some other case, as in (9b). Same holds for Estonian (10a-b).

(9) Finnish

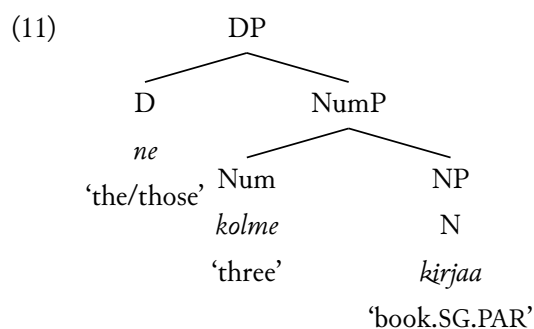
- a. *Nämä kaikki kolme pien-tä talo-a*
 this.PL.NOM all.NOM three.NOM small.SG-PAR house.SG-PAR
 ‘all these three small houses’
- b. *Nä-i-ssä kaikki-ssa kolme-ssa piene-ssä talo-ssa*
 this-PL-INE all-INE three-SG-INE small-SG-INE house-SG-INE
 ‘in all of these three small houses’

(10) Estonian

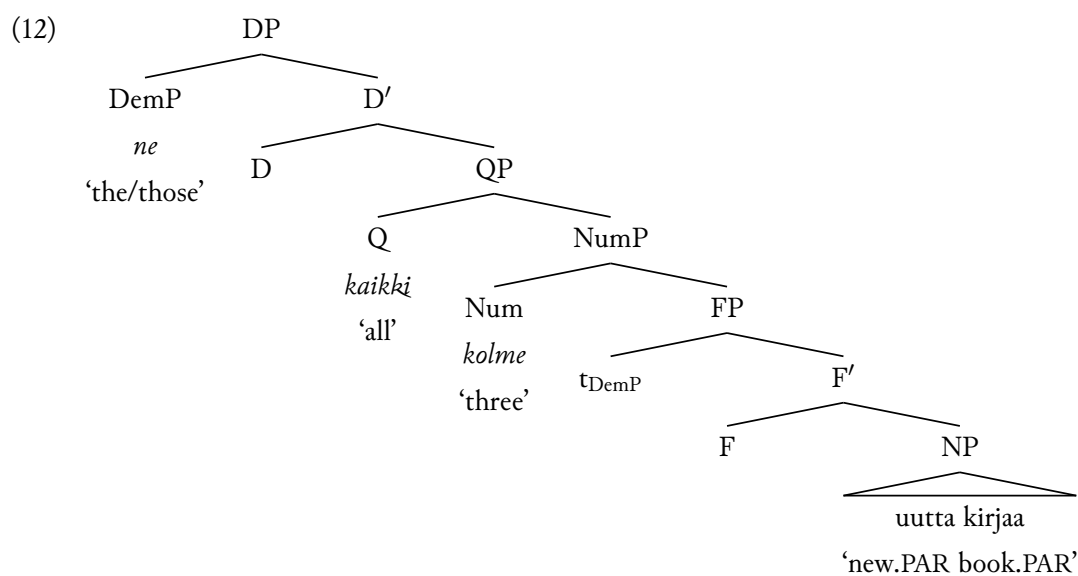
- a. *Ma leidsin [kaks pliiatsit].*
 1SG.NOM find.PST.1SG two.SG.NOM/(SG.ACC) pencil.SG.PAR
 ‘I found two pencils.’
 (Miljan and Cann 2013: 343)
- b. *kahelt teravalt pliiatsilt*
 two.SG.ABL sharp.SG.ABL pencil.SG.ABL
 ‘from two sharp pencils’
 (Miljan and Cann 2013: 343)

We assume here an analysis where the numeral is a head within the noun phrase (see Brattico 2008; Danon 2012; Ionin and Matushansky 2006; Nelson and Toivonen 2003; Norris 2014) and the NP occupies the complement of the numeral, see (19) below. In addition, the noun phrase may form a Determiner Phrase (DP) (see Gröndahl 2015; Norris 2014).⁷

⁷ In both languages, there are signs of development of indefinite and definite articles (Hiitam and Börjars 2003; Juvonen 2000; Laury 1991, 1997; Pajusalu 1997, 2000).



Finally, we will assume that demonstratives head their own phrase; see Norris (2014) for Estonian and Gröndahl (2015) for Finnish. The DemP moves to the specifier of DP from a specifier position of a lower functional projection. The basic structure of a noun phrase is presented in (12).⁸



We will adopt the following convention for the terminology: in an argument position, the noun phrase is referred to as a DP. In the split construction, the partitive noun phrase is referred to as ‘partitive NP’, even though it later turns out that the noun phrase may contain a D-projection.

2.2 The partitive split

Finnish and Estonian partitive splits can be divided into two classes: The first class does not display any morphological mismatches and the second class does. The former class involves Finnish quantifiers *paljon* ‘much, a lot’, *vähän* ‘little’, *hiukan* ‘a little’, *enemmän* ‘more’, see examples (13a-c). Among the Estonian quantifiers that belong to the first class are *palju*, ‘much, many’ and *vähe*, ‘little, few’, see examples (14a-c).

⁸ Another option would be to assume that the demonstrative occupies D⁰ (Brattico 2010).

(13) Finnish

- a. *Minä näin paljon lintuja.*
I.NOM saw a lot bird.PL.PAR
'I saw a lot of birds.'
- b. *Lintuja minä näin paljon.*
bird.PL.PAR I.NOM saw a lot
'I saw a lot of **birds**.'
- c. *Maitoa Merja osti vähän.*
milk.SG.PAR Merja bought little.NOM
'Merja bought a little bit of **milk**.'

(14) Estonian

- a. *Peeter nägi palju kasse.*
Peeter.NOM saw many cat.PL.PAR
'Peeter saw many cats.'
- b. *Palju nägi Peeter kasse.*
many saw Peeter.NOM cat.PL.PAR
'Peeter saw many cats.'
- c. *Kasse nägi Peeter palju.*
cat.PL.PAR saw Peeter.NOM many
'Peeter saw many cats.'

These quantifiers are often ambiguous between the reading where the quantifier modifies the NP and the clausal reading in Finnish and Estonian (see also Hakulinen et al. 2004: §657 and §994). For example, the quantifier *paljon* 'much, a lot' can modify an event, as in (15a). This means that the sentence (15b) can mean either that I read a lot of books in one day, or that I read books a lot in one day. We will ignore the clausal reading in this paper and concentrate on the split reading.

- (15) a. *Luen paljon kirjoja.*
read.1SG a lot book.PL.PAR
'I read a lot of books.' / 'I read books a lot.'
- b. *Kirjoja luen paljon.*
book.PL.PAR read.1SG a lot
'I read a lot of **books**.' / 'I read **books** a lot.'

Let us now turn to quantifying expressions that produce morphological mismatches in partitive split. In Estonian, mismatches are caused by numerals higher than one. In Finnish, all the numerals introduce mismatches, and, in addition, the quantifier *monta* 'many', and singular and plural forms of the quantifier *muutama* 'some'. A typical example is provided in (16a-c): in the complement of the numeral, the NP occurs in the singular, but in the split NP, the noun phrase is always in the partitive plural (16b). The plural NP cannot be "returned" to the complement (16c), and hence, there is a morphological mismatch.

(16) Estonian

- a. *Peeter ostis kolm raamatut.*
 Peeter.NOM bought three.NOM book.SG.PAR
 ‘Peeter bought three books.’
- b. *Raamatuid Peeter ostis kolm.*
 book.PL.PAR Peeter.NOM bought three.NOM
 ‘Peeter bought three books.’
- c. **Peeter ostis kolm raamatuid.*
 Peeter.NOM bought three.NOM book.PL.PAR

We intend to show in this paper that the morphological mismatches are restricted to quantifying expressions that can take only countable complements. We will return to this question in Section 4. In addition, we propose that Finnish and Estonian partitive splits can be analysed in terms of sub-extraction, despite of the mismatches.

2.3 Regular NP split

Another class of split noun phrases involves Finnish quantifiers *monet* ‘many’, *useat* ‘several’, *harvat* ‘rare’ and Estonian quantifiers *paljud* ‘many’, *mõned* ‘some’, *vähesed* ‘rare’, among others. These quantifiers can be separated from the NP in several contexts where the partitive split is not available. For example, the transitive clause subject can be split in (17a-b). Neither the case nor the number of the NP are altered during the split.⁹

(17) a. Finnish

Opiskelijat ovat monet ostaneet kirjan.
 student.PL.NOM be.PRES.3PL many.PL.NOM bought book.SG.ACC
 ‘Many students have bought a book.’

b. Estonian

Üliõpilased on paljud ostnud õpiku.
 student.PL.NOM be.PRES.3PL many.PL.NOM bought textbook.SG.GEN
 ‘Many students have bought a textbook.’

⁹ Interestingly, singular forms of quantifiers such as *moni* ‘many’, *usea* ‘several’ and *harva* ‘few’ do not permit NP-split at all. Both the quantifier and its complement inflect in the singular and in the same case. They disallow regular splitting (i.a-b) and the partitive split (i.c). These quantifiers cannot occur in the accusative case (i.d).

(i) Finnish

- a. *Minä ihailen harvaa opettajaa.*
 I.NOM admire few.SG.PAR teacher.SG.PAR
 ‘I admire few teachers.’
- b. **Opettaja minä ihailen harvaa ____.*
 teacher.SG.PAR I.NOM admire few.SG.PAR
- c. **Opettaja minä ihailen harvaa ____.*
 teacher.PL.PAR I.NOM admire few.SG.PAR
- d. **Minä näin harvan opettajan.*
 I.NOM saw few.SG.ACC teacher.SG.ACC

We will return to the regular NP split briefly in Section 4.2, which addresses the distribution of the split noun phrases.

2.4 The elative split

Third type of split noun phrase introduced here is the elative split, where an elative NP is separated from the modifying quantifier, as in (18a-b). Although the elative split is superficially similar to the partitive split (e.g. in targeting the same discourse positions), there are some fundamental differences between the two. First, the application of the elative split is almost unrestricted. All the numerals and most of the quantifiers enable the elative split in a variety of structural positions.

(18) a. Finnish

Oppilaista Pekka tuntee kaksi.
 student.PL.ELA Pekka.NOM knows two.NOM
 ‘Pekka knows two of the students.’

b. Estonian

Õpilastest Peeter kutsub kaks.
 student.PL.ELA Peeter.NOM invites two.NOM
 ‘Peeter invites two of the students.’

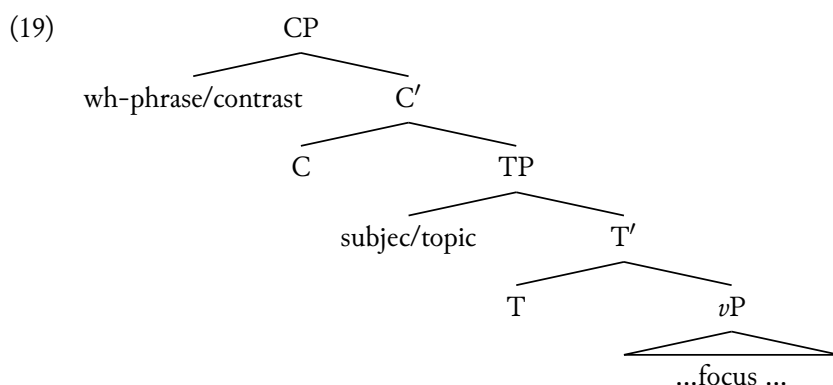
We will see later that the elative split does not obey island constraints (section 4.2) and permit noun doubling (section 4.3). This suggests that the elative split is not derived by movement. However, the analysis of the elative split is left for another occasion.

3 The partitive split and discourse

This section addresses discourse properties of the partitive split. It is proposed that in Finnish and Estonian, the partitive split is triggered by discourse features, such as topic, focus and contrast (see also Alho 1992; Arnhold 2009; Metslang 2016). In addition, wh-movement and relativization may induce splitting.

The basic word order in Estonian and Finnish is SVX, but the order is flexible. That is, the subject position can host also other elements in both languages. For example, it is typical that a non-subject occupies the subject position in sentences that do not contain a subject (Tael 1990; Vilkuna 1989, 1998). Nevertheless, the position of the wh-phrase is fixed to the beginning of the sentence (Erelt 2009; Vilkuna 1998).

We will follow the basic proposal by Vilkuna (1989, 1995) for Finnish, where the left periphery of a finite clause contains two discourse-related fields. The first one is able to host wh-phrases, relative pronouns and contrasted constituents and the second one is reserved for the subject or a topical element. These fields are represented structurally in (19) (Vainikka 1989). We will assume the same basic configuration for Estonian, although both positions have language-specific properties (see Henk 2010), such as the V2 constraint on Estonian word order (Tael 1990). Finally, new information focus occurs within the VP and is typically placed on a constituent at the end of the clause (Henk 2010; Tael 1990; Vilkuna 1989).



The partitive split may target both of these left-peripheral positions. Example (20a) shows that the split noun phrase can be a relative pronoun that occupies the Spec,CP of the relative clause. Example (20b) illustrates movement of a contrasted NP.

(20) Finnish

- a. *Merja näki leivokset, joita Pekka oli ostanut kolme.*
 Merja saw cake.PL.ACC which.PL.PAR Pekka be.PST.3SG bought three.NOM
 lit. 'Merja saw the cakes which Pekka had bought three.'
 'Merja saw the three cakes which Pekka had bought.'

Estonian

- b. *Raamatuid ta ostis palju.*
 book.PL.PAR s/he.NOM bought many
 'S/He bought many **books**.'

Similarly, the partitive NP can target the lower subject/topic position Spec,TP, as in examples (21a-b) (from Hakulinen et al. 2004: §902) and (22).

(21) Finnish

- a. *Vastauksia tuli vajaat 3000.*
 answer.PL.PAR came not.full 3000
 'Little less than 3000 answers arrived.'
- b. *Hakijoita kutsuttiin haastatteluun useita.*
 applicant.PL.PAR invited.PASS interview.to several.PL.PAR
 'Several applicants where invited to the interview.'

(22) Estonian

- Klaase purunes viis.*
 glass.PL.PAR broke five.NOM
 'Five glasses broke.'

According to Hakulinen and Karlsson (1979), the familiarity of discourse is not always required for the partitive NP to occur at the front of the sentence; this is illustrated with example (23a) (from Hakulinen and Karlsson 1979: p. 148). However, it is a general property of Finnish finite clauses that the element that occupies the subject position does not have to be familiar from the discourse, see (23b). For example, Holmberg and Nikanne (2002) propose that any element capable of functioning as a topic can occupy the subject position.

- (23) a. *Uistimia on kannettava mukana paljon.*
 spoon.bite.PL.PAR be.PRES.3SG carry.INF along a lot
 ‘You have to carry a lot of spoon bites with you.’
- b. *Uistimia on kannettava mukana.*
 spoon.bite.PL.PAR be.PRES.3SG carry.INF along
 ‘You have to carry spoon bites with you.’

It thus suffices to assume that the same properties that trigger movement of non-subjects to Spec,TP in other constructions trigger movement also in partitive splits.

In this paper, we concentrate on the order where the partitive NP occurs first, because it is more common in both languages. However, examples (24a-b) show that also the quantifying expression can move to the left periphery.

- (24) a. Finnish
Kuinka paljon Pekka kutsui vieraita?
 how much.NOM Pekka.NOM invited guest.PL.PAR
 ‘How many guests did Pekka invite?’
- b. Estonian
Kui palju Peeter sai toole?
 how many Peeter.NOM got chair.PL.PAR
 ‘How many chairs did Peeter get?’

This order is sometimes referred to as “inverted split” (Fanselow and Cavar 2002), since the linear order of the quantifier and the NP is opposite to the continuous NP. Hakulinen and Karlsson (1979: p. 149) provide examples such as (25a-b) of the order where the quantifier is at the front and write: “[...]it is possible to emphasise the quantifier by placing it to the beginning of the clause [...]” (Hakulinen and Karlsson 1979: p. 149) (author’s translation). This suggests that the quantifier has a discourse function at the left peripheral position. Metslang (2016) proposes that the movement of the quantifier in Estonian is triggered by focus. However, it is not always clear, whether the quantifier occupies the Spec,CP or the lower Spec,TP. The derivation of these type of splits is discussed in Section 4.5.

- (25) Finnish
- a. *Paljon olisi vielä kerrottavaa.*
 a lot be.COND still tellable.PAR
 ‘There is still a lot worth of telling’
- b. *Enemmän pitäisi siis olla opettajien, oppilaiden ja vanhempien
 keskinäistä kanssakäymistä.*
 more should therefore be teachers’ children’s and parents’
 mutual.SG.PAR interaction.SG.PAR
 ‘There should be more interaction between teachers, children and parents.’

In addition to the left peripheral positions, both languages permit other landing sites for the split constituents (26a-b) (see also Hakulinen et al. 2004: §902). These landing sites are often targeted by discourse-related movement, but their properties are not as well-known as the left periphery.

- (26) a. Finnish
Pekka on kirjoja ostanut kolme.
 Pekka.NOM be.PRES.3SG book.PL.PAR bought three.NOM
 ‘Pekka has bought three books.’
- b. Estonian
Mari sai seeni kolm.
 Mari.NOM got mushroom.PL.PAR three.NOM
 ‘Mari got three mushrooms.’

Finally, the constituent that is left behind (or, alternatively, displaced to the right edge of the clause) is typically interpreted as having new information focus or contrast.

In this paper, we propose that the partitive split is an instance of A' -movement. The fact that the split NP has the same triggers and the landing sites as regular discourse-related movement supports this proposal.

4 The sub-extraction analysis of the partitive split

This section examines the syntactic properties of the partitive split. It is proposed that the partitive split is derived by sub-extraction, where the partitive NP forms a constituent with the quantifying expression before the two parts are separated by movement. The proposed derivation is sketched in (27). We will leave the problem of morphological mismatch aside here; the analysis will be completed in Section 5.

- (27) **Sub-extraction of the partitive NP**
1. *Pekka osti [DP paljon [NP tuoleja]]*
 Pekka bought a lot chair.PL.PAR
 ‘Pekka bought a lot of chairs.’
 2. $[_{NP} Tuoleja]_i$ *Pekka osti [DP paljon ___i]*
 chair.PL.PAR Pekka bought a lot
 ‘Pekka bought a lot of **chairs**.’

The most important evidence for the sub-extraction analysis comes from islands; the partitive split is not possible in contexts that do not permit movement out of them. This data is discussed in Section 4.2. Other evidence in support for the movement account come from binding (section 4.1) and the absence of noun doubling (section 4.3). Finally, section 4.4 discusses controversial data from VP-fronting.

4.1 Binding

The evidence from reflexive binding is here used for ruling out the hypothesis, where the partitive NP would be base-generated (i.e. inserted directly) in the left-peripheral position. The binding data indicates that the partitive NP is base-generated in a low position, from where it moves to the left-peripheral position.

The Finnish third person possessive suffix is a reflexive anaphor that requires a correlate in a higher structural position, as exemplified in (28a-b) (Trosterud 1993; Vainikka 1989). The reflexive binding is not affected by movement of the NP (28c).¹⁰

- (28) a. *Pekka näki veljensä.*
 Pekka.NOM saw brother.SG.ACC.PX
 ‘Pekka_i saw his_i brother’
- b. **Veljensä näki Pekan.*
 brother.SG.NOM.PX saw Pekka.ACC
 Intended: ‘His_i brother saw Pekka_i.’
- c. [_{CP} [_{Veljensä}]_i [_C C [_{TP} *Pekka näki* ____i]]]!
 brother.SG.ACC.PX Pekka.NOM saw
 ‘Pekka_i saw **his_i brother!**’

Example (29) of a partitive split shows that, similarly as in the example (28c) above, the correlate of the partitive NP is the subject argument.

- (29) [_{CP} [_{Veljensä} *kirjoja*]_i [_C C [_{TP} *Pekka lukki* [_{viisi} ____i]]]].
 brother.GEN.PX book.PL.PAR Pekka.NOM read five.NOM
 ‘Pekka_i read five of **his_i brother’s** books’

We conclude that the partitive noun phrase is base-generated in a position below the subject, from where it moves to the left peripheral position. In the following section, we consider evidence from islands which suggest that this position is inside the same DP that contains the quantifying expression.

4.2 Islands

Islands are contexts that do not permit movement out of them. This section examines several types of islands and shows that the partitive split obeys island constraints. In addition, the comparison to regular NP split and relative split shows a clear contrast between the different types of split constructions.

However, let us first summon up the syntactic contexts where the partitive split commonly occurs. First, the direct object can be split, as we saw in examples (13)-(14). Second, subjects of unaccusative verbs and certain intransitive verbs permit the partitive split, as examples (30) and (31) illustrate.¹¹

¹⁰ The condition that the reflexive anaphor has to be bound by a c-commanding correlate is known as the Binding Condition A (Chomsky 1981).

¹¹ The subject of the unaccusative permits extraction in suitable contexts in Finnish (i.a-b).

- (i) a. *Kenestä saapui [kuva ___] toimistoon?*
 who.of arrived picture.SG.NOM office.to
 ‘Of whom did pictures arrive to the office?’
- b. *Mitä tuli [ajatus tehdä ___]?*
 what.PAR came idea.SG.NOM do.INF
 lit ‘What became an idea to do?’ ‘What was the idea to do?’

The movement to the left periphery is only possible when the subject occupies a low position.

(30) Estonian

- a. *Raamatuid ilmus palju.*
 book.PL.PAR appeared many
 ‘Many books appeared in print.’
- b. *Raamatuid ilmus kolm.*
 book.PL.PAR appeared three.NOM
 ‘Three books appeared in print.’

(31) Finnish

- Miehiä lähti kalaan viisi.*
 man.PL.PAR left.3SG fish.to five.NOM
 ‘Five men went fishing.’

Third, subjects of ECM (Exceptional Case Marking) constructions permit limited extraction and partitive split, as can be seen in examples (32) and (33). In the ECM-construction, the subject of the non-finite clause receives the case marking from the superordinate clause.¹²

(32) Finnish

- a. *Merja näki [INF lapsia leikkimässä].*
 Merja.NOM saw child.PL.PAR playing
 ‘Merja saw children playing.’
- b. *??Lapsia_i Merja näki [INF [kolme ___i] leikkimässä].*
 child.PL.PAR Merja.NOM saw three.NOM playing.
 ‘Merja saw three **children** playing.’

(33) Estonian

- a. *Mari nägi [INF lapsi mängimas].*
 Mari.NOM saw child.PL.PAR playing
 ‘Mari saw children playing.’
- b. *Lapsi nägi Mari mängimas kolm.*
 child.PL.PAR saw Mari.NOM playing three.NOM
 ‘Mari saw three children playing.’

In contrast, the examination of well-known islands such as Subject Condition and adjunct islands shows that the partitive split is not available in these contexts. First, the Subject Condition (Huang 1982; Ross 1967) states that extraction from the subject is more restricted than extraction from the object. For example, the nominative subject of a transitive verb does not permit the partitive split. Examples (34a-c) illustrate this for Finnish and examples (35a-b) for Estonian.¹³

¹² The word order in (33b), where the numeral occurs at the end of the sentence is preferred to the order where it occurs before the non-finite verb (32b). We propose that this preference is due to the information structure: in both languages, the element bearing the new information focus typically occurs at the end of the finite clause. If the numeral did not move, the new information focus would be placed on the non-finite verb. This is possible, but not a favored alternative. Note that in Estonian example (33b), also the V2 preference is in effect.

¹³ Note that the relative split is possible in all island contexts examined here. Thus, for example the sentence (i) is grammatical.

(34) Finnish

- a. *Kaksi miestä osti kirjan.*
two.NOM man.SG.PAR bought book.ACC
'Two men bought a book.'
- b. **Miehiä osti kaksi kirjan.*
man.PL.PAR bought two.NOM book.ACC
- c. **Miehiä kaksi osti kirjan.*
man.PL.PAR two.NOM bought book.ACC

(35) Estonian

- a. *Kaks meest ostsid raamatu.*
two.NOM man.SG.PAR bought book.SG.GEN
'Two men bought a book.'
- b. **Meest/mehi kaks ostis raamatu.*
man.SG.PAR/PL.PAR two.NOM bought.3SG/3PL book.SG.PAR
Intended: 'Two men bought a book.'

Another example is offered by *hiukan* 'a little', which does not trigger the morphological mismatch in (36a). Examples (b-c) show that splitting is not possible when the NP occupies the subject position. Example (36d) shows that the split is available in a non-island context.

(36) Finnish

- a. *Hiukan jauhoja korjaa taikinän rakenteen.*
little flour.PL.PAR fixes dough.GEN consistency.ACC
'A little bit of flour fixes the dough consistency'
- b. **Jauhoja korjaa hiukan taikinän rakenteen.*
flour.PL.PAR fixes little dough.GEN consistency.ACC
- c. **Jauhoja hiukan korjaa taikinän rakenteen.*
flour.PL.PAR little fixes dough.GEN consistency.ACC
- d. *Jauhoja Pekka osti hiukan.*
flour.PL.PAR Pekka.NOM bought little
'Pekka bought only a little bit of flour.'

Adjuncts offer another well-known context that resists movement out of them (Ross 1967). The following examples show that an adjunct cannot be split:

(37) Finnish

- a. *Pekka luki kirjaa kolme tuntia.*
Pekka.NOM read book.SG.PAR three.NOM hour.SG.PAR
'Pekka was reading a book for three hours.'
- b. **Kolme Pekka luki kirjaa tunteja.*
three.NOM Pekka.NOM read book.SG.PAR hour.PL.PAR

(i) *Miehistä osti kaksi kirjan.*
man.PL.ELA bought two book.ACC
'Two of the men bought a book.'

- c. **Tunteja Pekka luki kirjaa kolme.*
hour.PL.PAR Pekka.NOM read book.SG.PAR three.NOM

(38) Estonian

- a. *Peeter töötas kolm nädalavahetust.*
Peeter.NOM worked three.NOM weekend.SG.PAR
'Peeter worked for three weekends.'
- b. *?*Nädalavahetust Peeter töötas kolm.*
weekend.SG.PAR Peeter.NOM worked three.NOM

The final island context examined here is formed by DPs in semantic cases, which resist extraction. This is illustrated in example (39a-b), where the elative modifier cannot be moved out of a DP in the illative case (see also Huhmarniemi 2012). The partitive split is not permitted, even if the DP occupies the complement of the verb (39c).¹⁴

(39) Finnish

- a. *Pekka tarttui kirjaan presidentistä.*
Pekka grabbed book.ILL president.ELA
'Pekka grabbed the book about the president.'
- b. **Kenestä Pekka tarttui kirjaan?*
who.ELA Pekka.NOM grabbed book.ILL
- c. *?*Opiskelijoihin on Pekka tutustunut viiteen.*
student.PL.ILL be.PRES.3SG Pekka get.known five.ILL

To summarise, the partitive split is not available for transitive clause subjects, adjuncts or DPs in semantic cases. In contrast, the elative split is mostly not restricted by islands and the regular NP split may take place in at least some of these contexts. One of the quantifiers that enables NP split relatively freely is Finnish *monet*, 'many'. As can be seen in the following examples, subjects (40a), adjuncts (40b) and DPs in semantic cases (40c) all permit NP split in the presence of this quantifier.

(40) Finnish

- a. *Miehet ovat (monet) ostaneet kirjan.*
man.PL.NOM be.PRES.3PL many.PL.NOM bought book.SG.ACC
'Many men bought a book.'

¹⁴ Alho (1992: 8) notes that Finnish partitive verbs such as *ihailia* 'to admire' do not permit splitting, examples (i.a-b) are from Alho (1992). The example (i.b) is ungrammatical also when the classifier is not present. However, the object of a partitive verb appears to be an island also for other elements than split NPs (i.c).

(i) Finnish

- a. **Matti ihaillee kahta kappaletta lingvistejä.*
Matti admires two.PAR piece.SG.PAR linguist.PL.PAR
- b. **Lingvistejä Matti ihaillee kahta kappaletta.*
Linguist.PL.PAR Matti admires two.PAR piece.SG.PAR
- c. *?*Merjasta Pekka ihaillee kuvaa ____.*
Merja.of Pekka admires picture.SG.PAR
Intended: 'Pekka admires the picture of Merja.'

- b. *?Hotelleissa on Pekka työskennellyt monissa.*
 hotel.PL.INE be.PRES.3SG Pekka.NOM worked many.PL.INE
 ‘Pekka has worked in many hotels.’
- c. *?Moniin on Pekka vienyt Merjan kokouksiin.*
 many.PL.ILL be.PRES.3SG Pekka.NOM taken Merja.ACC meeting.PL.ILL
 ‘Pekka taken Merja to many meetings.’

The distribution of the elative split is even more widespread. For example, transitive clause subjects do not normally permit extraction, but the elative split is available (41a). Another example is offered by the DP in the illative case in (41b) (see also Alho 1992) and example (41c) shows that adverbial modifiers enable the elative split. However, relative clauses and adjective participials, among others, appear to be strong islands for the elative split.

- (41) a. *Miehistä osti kirjan viisi.*
 man.PL.ELA bought book.SG.ACC five.NOM
 ‘Five of the men bought the book’
- b. *Kirjoista Pekka tutustui viiteen.*
 book.PL.ELA Pekka.NOM explored five.ILL
 ‘Of the books, Pekka explored five of them.’
- c. *Näistä autoista Pekka on ajanut kolarin [viidellä ____].*
 these.PL.ELA cars.ELA Pekka.NOM be.PRES.3SG driven crash five.by
 ‘Pekka has caused a crash with five of these cars.’

Taken together, neither the elative split nor the regular NP split obey the island constraints typical for A'-movement.

4.3 Absence of noun doubling

The island data examined in the previous section indicates that the constituent containing the quantifier or the numeral and the partitive NP are syntactically related. However, the island data does not rule out the option that what we are seeing is not movement, as we will propose here, but some other type of A'-relation, which is sensitive to islands. This option can be excluded by investigating the phrase that contains the quantifier or the numeral. Movement typically leaves a *gap*, an empty position in the place of the moved element.¹⁵

It turns out that Finnish and Estonian partitive splits always involve a gap that cannot be filled by any other element. First, example (42a) shows that the noun head cannot be doubled to two locations. Second, example (42b) and (43) demonstrate that the quantifying phrase cannot contain any other noun head. We conclude that the structure contains a gap created by the movement of the partitive NP.

¹⁵ The copy theory of movement (Chomsky 1995) takes movement to be an instance of copying, where only one or some of the copies are pronounced. It is possible to adopt this hypothesis for A'-movement also for split NPs.

(42) Estonian

- a. **Linde ta tunneb ainult väikseid linde.*
 bird.PL.PAR s/he.NOM knows only small.PL.PAR bird.PL.PAR
 lit. 'Birds s/he only knows small birds.'
- b. **Juurvilju / *juurviljad Peeter sõi ainult kaks porgandit.*
 vegetable.PL.PAR vegetable.PL.NOM Peeter.NOM ate only two.NOM
 carrot.SG.PAR
 lit. 'Vegetables Peeter ate only two carrots.'

(43) Finnish

- *?*Lemmikkejä Pekka haluaa vain kolme koiraa.*
 pet.PL.PAR Pekka wants only three dog.SG.PAR
 lit. 'Pets Pekka only wants three dogs.'

Another example of how a filled complement position prevents splitting is offered by quantifying noun phrases. Consider example (44a), where a noun *pullon* 'a bottle' selects an NP-complement. When this complement is present, the partitive split cannot be formed (16b).¹⁶

(44) Finnish

- a. *Pekka osti pullon mehua.*
 Pekka bought bottle.SG.ACC juice.SG.PAR
 'Pekka bought a bottle of juice.'
- b. **Juomia Pekka osti viisi pulloa mehua.*
 drink.PL.PAR Pekka bought five.NOM bottle.SG.ACC juice.SG.PAR

The partitive NP thus appears to occupy a position in the complement domain of the NumP. Finally, the comparison to relative split shows that the two constructions involve a different syntactic derivation. The relative split permits noun doubling:

(45) a. Finnish

- Linnuista Pekka tuntee satakjelen.*
 bird.PL.ELA Pekka.NOM knows nightingale.ACC
 'Of birds, Pekka knows the nightingale.'

¹⁶ The partitive split appears to escape this constraint in list contexts (i.a). In addition, the list context differs from the partitive split in other respects. For example, the adjective can be split in list context in (i.b), although this is not normally possible (i.c). A possible hypothesis is that list contexts enable elliptical constructions that are not available in the partitive split.

- (i) a. *Lemmikkejä Pekka haluaa kolme koiraa ja kaksi ponia.*
 pet.PL.PAR Pekka.NOM wants three.NOM dog.SG.PAR and two.NOM pony.SG.PAR
 'As for pets, Pekka wants three dogs and two ponies.'
- b. *Tuoleja Pekka osti punaisen ja sinisen.*
 chair.PL.PAR Pekka.NOM bought red.SG.ACC and blue.SG.ACC
 'As for chairs, Pekka bought a red one and a blue one.'
- c. **Tuoleja Pekka osti punaisen.*
 chair.PL.PAR Pekka.NOM bought red.SG.ACC

b. Estonian

Juurviljadest Peeter sõi ainult kaks porgandit.
 vegetables.PL.ELA Peeter.NOM ate only two.NOM carrot.SG.PAR
 ‘Of the vegetables, Pekka ate two carrots.’

To summarise, the presence of a gap indicates that the partitive NP has occupied a position in the complement domain of the numeral. Therefore, the two parts of the partitive split are structurally related and not independent phrases as has been proposed for some other languages (Fanselow 1988; Ott 2011). The absence of noun doubling thus supports the sub-extraction analysis for the partitive split.

4.4 Evidence from VP-fronting

The final diagnostic property of sub-extraction considered in this paper concerns the properties of VP-fronting, movement of the verb phrase to the left periphery. In Finnish, the verb phrase can move as a whole, but the construction is marked. This is indicated with ‘?’ in example (46b) below.

- (46) a. *Merja oli* [_{VP} *ostanut kirjaa*].
 Merja.NOM be.PST.3SG bought book.ACC
 ‘Merja had bought a book.’
 b. ?[_{VP} *Kirjaa ostanut*] *Merja oli* ____!
 book.ACC bought Merja.NOM be.PST.3SG
 ‘Merja had **bought a book**.’

In this paper, we defend an analysis where the partitive split is formed by moving the partitive NP, as in (47).

- (47) a. *Pekka on* [_{VP} *ostanut* [_{DP} *paljon* [_{NP} *tuoleja*]]]
 Pekka be.PRES.3SG bought a lot chair.PL.PAR
 b. [_{NP} *Tuoleja*]_i *Pekka on* [_{VP} *ostanut* [_{DP} *paljon* _____i]]
 chair.PL.PAR Pekka be.PRES.3SG bought a lot

Against this background, the example (48), where the moved VP contains the verb and the quantifier is expected to be possible. In this example, the partitive NP has moved out of the verb phrase, and after that, the verb phrase has been fronted.

- (48) ?[_{VP} *Ostanut paljon* _____i] *on* *Pekka* [_{NP} *tuoleja*]_i!
 bought a lot be.PRES.3SG Pekka.NOM chair.PL.PAR
 ‘Pekka has bought a lot of chairs.’

In contrast, the construction where the partitive NP moves together with the verb as in (49a-b) is expected to be ungrammatical. However, these type of sentences are accepted by some Finnish speakers. In a speaker experiment, test sentences such as (49a-b) were subject to a considerable amount of speaker variation. However, with the exception of one liberal speaker, none of our Finnish informants found splitting in VP fronting contexts completely acceptable.

- (49) a. ??[*Ostanut autoja*] *hän on kolme.*
 bought car.PL.PAR s/he be.PRES.3SG three.NOM
 lit. 'Bought cars she has three.'
- b. ??[*Autoja ostanut*] *hän on kolme.*
 car.PL.PAR bought s/he be.PRES.3SG three.NOM

In contrast, the VP-fronting appears to be possible in Estonian:

- (50) Estonian
- a. [*Raamatuid lugenud*] *on ta palju / kolm*
 book.PL.PAR read.PTCPL be.PRES.3SG s/he.NOM many / three.NOM
 'He has read many books.'
- b. [*Raamatuid lugeda*] *ta tahab kolm.*
 book.PL.PAR read.INF s/he.NOM want.3SG.PRES three.NOM
- c. [*Lugeda raamatuid*] *ta tahab kolm.*
 read.INF book.PL.PAR s/he.NOM want.3SG.PRES three.NOM

The fact that the Finnish speakers are reluctant to accept the VP-fronting where the quantifier/numeral has been stranded, points towards the sub-extraction account. However, more research is needed for determining the exact contexts that permit VP-fronting in both languages.

4.5 Movement of the quantifying expression

This far, we have provided evidence from islands, binding and noun doubling in support of the sub-extraction account of the partitive split. Before continuing with the analysis, we will briefly examine the movement of the quantifying expression to the left periphery. As we saw in (14b), repeated here as (51), quantifiers can occupy the left-peripheral position. Same holds for the numeral in example (52a) (see also Arnhold 2009; Metslang 2016). Example (52b) illustrates wh-movement.

- (51) Estonian
- Palju on Peeter näinud kasse.*
 many be.PRES.3SG Peeter.NOM seen cat.PL.PAR
 'Peeter has seen many cats.'

- (52) Finnish
- a. ?[_{CP} *Kolme* [_C *C* [_{TP} *Pekka on ostanut tuoleja*]]]
 three.NOM Pekka.NOM be.PRES.3SG bought chair.PL.PAR
 'Pekka has bought **three** chairs!'
- b. [_{CP} [*Kuinka monta*] [_C *C* [_{TP} *Pekka on ostanut tuoleja*]]]?
 how many Pekka.NOM be.PRES.3SG bought chair.PL.PAR
 'How many chairs has Pekka bought?'

For the derivation of these sentences, we propose an analysis where the partitive NP first moves out of the DP containing the quantifier/numeral. This is illustrated in steps 1-2 in example (53).¹⁷ In step 3, the rest of the DP moves to the left periphery.¹⁸

- (53) 1. *Pekka osti* [DP[QP *kuinka paljon* [NP *tuoleja*]]]
 Pekka bought how much chair.PL.PAR
2. *Pekka osti* [NP *tuoleja*]_i [DP[QP *kuinka paljon* ____i]]
 Pekka bought chair.PL.PAR how much
3. [DP[QP *Kuinka paljon* ____i]]_j C [TP *Pekka osti* [NP *tuoleja*]_i ____j]]?
 how much Pekka bought chair.PL.PAR
 ‘How many **chairs** did Pekka buy?’

Note that the quantifier *paljon* in above examples does not trigger morphological mismatches. However, we propose in Section 5 that the similar sub-extraction account applies also to numerals and quantifiers that trigger mismatches.

This analysis receives support from an analogous derivation of quantifying constructions, such as (54a) below, where the NP occupies the complement position of the measure expression. The measure phrase is able to move to the left-periphery, stranding the partitive NP, as in (54b).¹⁹

- (54) Finnish
- a. *Pekka osti* [*montako* [*pussia* [NP *jauhoja*]]].
 Pekka.NOM bought how many bag.PAR flour.PL.PAR
- b. [*Montako* *pussia* ____i]_j *Pekka osti* [NP *jauhoja*]_i ____j?
 how many bag.PAR Pekka.NOM bought flour.PL.PAR
 ‘How many bags did Pekka buy **flour**?’

It follows from this analysis that the movement of the quantifier/numeral is a more complex phenomenon than the movement of the partitive NP. This may be partially responsible for the fact that the order where the quantifier/numeral is at the front is less common than the order where the partitive NP is at the front.

¹⁷ Movement of the partitive DP could be an instance of object shift or similar phenomenon familiar among others from Finnish ditransitives (see Kaiser 2002).

¹⁸ Alternatively, if the partitive NP occurs at the end of the clause and is interpreted as focused, it is possible that the movement is rightward, targeting the right periphery of the finite clause (for examples of the position of the subject, see Brattico 2016).

¹⁹ In both constructions, the preferred means to form a wh-question is by moving the whole NP along with the wh-phrase, as in the examples below.

- (i) Finnish
- a. [CP [*Kuinka monta tuolia*] [C' C [TP *Pekka osti* ___]]]?
 how many chair.SG.PAR Pekka bought
 ‘How many chairs did Pekka buy?’
- b. [*Montako* *pussia* *jauhoja*] *Pekka osti* ___?
 how many.Q bag.SG.PAR flour.PL.PAR Pekka bought
 ‘How many bags of flour did Pekka buy?’

5 The structure of the partitive split in Finnish and Estonian

This section examines the syntactic derivation of the partitive split in Finnish and Estonian. First, the analysis of partitive splits that does not involve morphological mismatches is straightforward. The partitive NP is first-merged to the complement of the quantifier, as in (55a). In step (55b), the NP has moved to the left periphery of the finite clause and is interpreted as contrastively focused. The movement of the NP in this example is triggered by the discourse feature [+contrast].

(55) Sub-extraction of the partitive NP

- a. *Pekka osti* [DP *paljon* [NP *tuoleja*]]
 Pekka bought a lot chair.PL.PAR
- b. [NP *Tuoleja*]_i *Pekka osti* [DP *paljon* ____i]
 chair.PL.PAR Pekka bought a lot

However, not all partitive NPs *reconstruct* to the position below the quantifying expression. In partitive split, the NP is typically in the plural, as in (56a-b), but in a continuous NP, it has to be in the singular (56c). This morphological mismatch is problematic for the sub-extraction account.

(56) Finnish

- a. [NP *Lintuja*] *minä näin* [DP *kolme* ___].
 bird.PL.PAR I.NOM saw three.NOM
 ‘I saw three **birds**.’
- b. *[NP *Lintua*] *minä näin* [DP *kolme* ___].
 bird.SG.PAR I.NOM saw three.NOM
- c. *Minä näin* [DP [QP *kolme* [NP *lintua* / **lintuja*]]].
 I.NOM saw three.NOM bird.SG.PAR bird.PL.PAR

In this section, we consider two alternative approaches for the morphological mismatch. According to the first alternative, the split construction contains a classifier head that selects a partitive plural NP, as in (57a). In example (57b) the NP has moved to the left periphery of the finite clause and the classifier is only optionally present. This analysis for Finnish partitive splits has been previously presented by Alho (1992: 8).

(57) Finnish

- a. *Pekka osti* [DP [QP *kolme* [CI *kappaletta* [NP *kirjoja*]]]].
 Pekka bought three.NOM piece.SG.PAR book.PL.PAR
 ‘Pekka bought three books.’
- b. [NP *Kirjoja*] *Pekka osti* [DP [QP *kolme* [CI (*kappaletta*) ___]]].
 book.PL.PAR Pekka bought three.NOM piece.SG.PAR
 ‘Pekka bought three **books**.’

According to this proposal, the partitive split is thus not derivationally related to the numeral-noun construction, but has a different underlying syntactic structure. It follows that the morphological mismatch is only apparent. However, although this analysis accounts for the Finnish data, the same analysis cannot be applied directly to Estonian; we

will discuss the remaining problems in the end of this section and examine an alternative, *morphological repair* account in Section 5.4.

The following section points out the differences between the numeral-noun construction and the partitive split and motivates an analysis where the two constructions are not derivationally related. Section 5.2 introduces the classifier analysis and section 5.3 provides further evidence for this analysis. Finally, section 5.4 considers the morphological repair account.

5.1 Morphological mismatches in Finnish and Estonian

This section outlines the differences between the numeral-noun construction and the partitive split. We have already seen that in the partitive split, the partitive NP is often in the plural, whereas in the numeral-noun construction, it has to be in the singular. However, these constructions differ also in other respects. First, Finnish partitive split displays case mismatches, as is explained in Section 5.1.1. Second, in both languages, the partitive noun phrase can be a full DP, while this is not the case in the numeral-noun construction. This is discussed in Section 5.1.2.

5.1.1 Case mismatches

In addition to number mismatches, Finnish partitive split triggers case mismatches. Consider examples (58a-b). In a continuous NP, the noun phrase selected by the numeral *yksi*, ‘one’ appears always in the same case as the numeral. In example (a), the NP is in the accusative in the same context where the numeral *kaksi* ‘two’ requires a partitive NP. However, in the split construction, the NP is in the partitive plural (58b) and there is a morphological mismatch (58c).²⁰

(58) Finnish

- a. *Pekka löysi yhden kirjan / kaksi kirjaa.*
 Pekka found one.ACC book.SG.ACC two.NOM book.SG.PAR
 ‘Pekka found one book / two books.’

²⁰ Finnish numeral *yksi* ‘one’ offers another example of a case change, this time from zero-accusative to partitive in examples (i.a-c). In Finnish, the object argument appears in the zero-accusative (nominative) case in finite clauses that do not display subject agreement inflection (Vainikka and Brattico 2009). In (i.a), both the numeral and the NP are in the zero-accusative case. In (i.b), the fronted NP is in the partitive. Example (i.c) shows the mismatch.

(i) Finnish

- a. *Me ostettiin yksi talo.*
 we.NOM bought.PASS one.NOM house.SG.NOM
 b. *Taloja me ostettiin yksi.*
 house.PL.PAR we.NOM bought.PASS one.NOM
 ‘We bought one **house**.’
 c. **Me ostettiin yksi taloja.*
 we.NOM bought.PASS one.NOM house.PL.PAR

- b. *Kirjoja Pekka löysi [yhden ____].*
 book.PL.PAR Pekka found one.ACC
 ‘Pekka found one **book**.’
- c. **Pekka löysi [yhden kirjoja].*
 Pekka found one.ACC book.PL.PAR

Finnish quantifier *muutama* ‘a couple of’ displays the same pattern. In example (59a), the subject is in the nominative case, but in (59b), the moved NP is in the partitive. ²¹

(59) Finnish

- a. *Muutama lapsi lähti kotiin.*
 few.NOM child.NOM left home.to
 ‘A couple of children left for home.’
- b. *Lapsia lähti muutama kotiin.*
 child.PL.PAR left few.NOM home.to
 ‘Some children left for home.’
- c. **[Muutama lapsia] lähti kotiin.*
 few.NOM child.PL.PAR left home.to

In contrast, Estonian numeral *üks* ‘one’, with otherwise similar properties, does not permit the partitive split (60a-b). However, examples such as (60c), where the NP is in the singular and in the same case as the numeral, are marginally possible.

(60) Estonian

- a. *Ostsin ühe raamatu.*
 bought.1SG one.SG.GEN book.SG.GEN
 ‘I bought one book.’
- b. **?Raamatuid ostsin (ainult) ühe ____.*
 book.PL.PAR bought.1SG (only) one.SG.GEN
 ‘I bought (only) one book.’
- c. *(?)Raamatu ostsin (ainult) ühe ____.*
 book.SG.GEN bought.1SG (only) one.SG.GEN
 I bought (only) one book.’

Example (60c) thus seems to form a special case. However, since the numeral *üks* ‘one’ behaves like an adjective with regard to the case and number inflection, it may be proposed that Estonian numeral *üks* has an adjectival status. In Estonian, the adjective can be split, as in (61). Comparable example (62) from Finnish is impossible or very poetic.

(61) Estonian

- Püksid ostsin punased ____.*
 trousers.PL.NOM bought.1SG red.PL.NOM
 ‘I bought red trousers.’

²¹ In example (59b), the word order where the quantifier is later in the sentence is preferred to the word order where it would occupy the subject position. This might be due to the fact that the quantifier is in this context focused and focused phrases are not typically moved to the subject position (see Holmberg and Nikanne 2002). Therefore, the partitive NP moves to the subject position alone.

(62) Finnish

*?Housut ostin punaiset ____.
trousers.PL.ACC bought.1SG red.ACC.PL

It thus seems that the behavior of the numeral ‘one’ pairs up with adjectives in Estonian, but with numerals in Finnish.

Second class of morphological mismatches is formed by the plural forms of Finnish numerals. In example (63a), both the numeral and its complement are in the plural accusative form (which looks like the plural nominative). In the split construction (63b), the NP is nevertheless in the partitive. This produces a case mismatch, illustrated in (63c).²²

(63) Finnish

- a. *Olen kadottanut kahdet sukat.*
be.PRES.1SG lost two.PL.ACC sock.PL.ACC
‘I have lost two pairs of socks.’
- b. *Sukkia olen kadottanut kahdet ____.*
sock.PL.PAR be.PRES.1SG lost two.PL.ACC
‘I have lost two pairs of socks.’
- c. **Olen kadottanut kahdet sukia.*
be.PRES.1SG lost two.PL.ACC sock.PL.PAR

Again, Estonian behaves differently. Although numerals inflect in the plural, as in (64a), they disallow the partitive split (64b).

(64) Estonian

- a. *Ostin kolmed kõrvarõngad / püksid.*
bought.1SG three.PL.NOM earring.PL.NOM / trousers.PL.NOM
‘I bought three sets of earrings / pairs of trousers.’
- b. **Kõrvarõngaid / pükse ostsin kolmed.*
earring.PL.PAR / trouser.PL.PAR bought.1SG three.PL.NOM

In Estonian, the morphological mismatches are therefore restricted to the singular changing to plural when the noun phrase moves out of the scope of the numeral higher than one.

5.1.2 Demonstrative pronouns, determiners and pronouns in the partitive split

Another difference between partitive split and the numeral noun construction concerns the structure of the partitive noun phrase. In the partitive split, the partitive noun phrase may contain overt determiners or demonstrative pronouns or be replaced by a pronoun, as in (65a). In the numeral-noun construction, this is not possible (65b).²³ Example (65c) shows

²² The example in (63) is constructed for a noun that appears naturally in plural, as ‘the pair of socks’. However, similar examples are available, for instance, for the NP *kahdet kirjat*, which means ‘two sets of books’.

²³ The example in (65b) improves when the demonstrative is prosodically emphasised. However, we propose that the prosodic emphasis indicates contrastive focus that is associated with movement of the NP to the right edge of the clause.

that in this form, the numeral and the demonstrative pronoun do not form a constituent: they do not move as a whole.²⁴

(65) Finnish

- a. *Näitä Pekka osti viisi* ____.
 these.PAR Pekka.NOM bought five.NOM
 ‘Pekka bought five of these.’
- b. *?*Pekka osti viisi näitä*.
 Pekka.NOM bought five.NOM these.PAR
- c. *?*Viisi näitä*] *Pekka osti* ____.
 five.NOM these.PAR Pekka.NOM bought

Example (66a) illustrates that the partitive NP can contain a determiner/demonstrative, but this is not possible in the numeral-noun construction (66b).

(66) Finnish

- a. *Niitä kirjoja Pekka osti viisi* ____.
 that/the.PL.PAR book.PL.PAR Pekka.NOM bought five.NOM
 ‘Pekka bought five of those/the books.’
- b. *?[*Viisi niitä kirjoja*] *hävisi lomalla*.
 five.NOM that/the.PL.PAR book.PL.PAR disappeared vacation.in
 Intended: ‘Five of those/the books were lost during the vacation.’

Let us consider the above example in more detail. First, the word order where the partitive DP follows the numeral appears to be grammatical in (67a), especially if the DP is prosodically emphasized. However, as can be seen in (67b), the DP cannot move as a whole, which suggests that the partitive DP does not form a constituent with the numeral. Instead, in sentences such as (67a), the partitive DP is no longer inside the same constituent as the numeral. We thus propose that the DP *näitä kirjoja* has been moved. Note that overt demonstratives cannot normally occur in the complement of the numeral in Finnish (67c).

(67) Finnish

- a. *Pekka osti viisi näitä kirjoja, eikä noita!*
 Pekka.NOM bought five.NOM these.PAR book.PL.PAR not those.PAR
 ‘Pekka bought five of these books, not those!’
- b. *?[*Viisi näitä kirjoja*] *Pekka osti* ____!
 five.NOM these.PAR book.PL.PAR Pekka.NOM bought
- c. *?*Pekka osti viisi tätä kirjaa*.
 Pekka.NOM bought five this.SG.PAR book.SG.PAR

²⁴ Another example is offered by the split adjective phrase below (Hakulinen and Karlsson 1979: 98–99). Comparatives seem to form a special class of adjectives that can be split. We will leave them aside here.

(i) Finnish

- Näitä on pienempiä-kin.*
 these.PAR be.PRES.3SG smaller.PL.PAR-too
 ‘There are smaller of these too.’

The comparison to Estonian provides similar results. Overt demonstratives and determiners are commonplace in partitive splits, but they cannot occur in the complement of the numeral in plural (68a). However, when the DP is in the singular, the construction is marginally acceptable (68c).

(68) Estonian

- a. *Neid raamatuid Peeter ostis viis.*
 these.PAR book.PL.PAR Peeter.NOM bought five.NOM
 ‘Of these books, Peeter bought five.’
- b. **Peeter ostis viis neid raamatuid.*
 Peeter.NOM bought five.NOM these.PAR book.PL.PAR
- c. ?*Peeter ostis viis seda raamatut.*
 Peeter.NOM bought five.NOM this.SG.PAR book.SG.PAR

In conclusion, the partitive split differs from the numeral-noun construction in several respects: both the number and the case of the NP may be different in the two constructions. In addition, while numeral-noun constructions involve only ‘plain’ NPs, the partitive split targets full DPs and pronouns. This suggests that the two constructions have different syntactic analyses.

5.2 The classifier analysis of the split noun phrase

In this section, we provide an analysis for the partitive split, which embraces the sub-extraction account and explains the mismatches discussed in the previous section. The analysis is based on the observation that in both languages, the partitive split may contain an optionally pronounced classifier element, such as the word *tükk*, ‘piece’ (for inanimates) in Estonian and the word *kappale*, ‘piece’ in Finnish (69a-b).

(69) a. Finnish

Kirjoja Pekka osti kolme (kappaletta).
 book.PL.PAR Pekka.NOM bought three.NOM piece.SG.PAR
 ‘Pekka bought three books.’

b. Estonian

Raamatuid Peeter ostis kolm (tükki).
 book.PL.PAR Peeter.NOM bought three.NOM piece.SG.PAR
 ‘Peeter bought three books.’

In Finnish, the classifier can be present also in a continuous NP, as in (70). This sentence has an artificial tone, but it is well-formed. Estonian shows a different pattern; we will consider Estonian data at the end of this section.

- (70) *Pekka osti [NP kolme kappaletta kirjoja].*
 Pekka.NOM bought three.NOM piece.SG.PAR book.PL.PAR
 ‘Pekka bought three books.’

According to Alho (1992: 7), the classifier *kappale*, ‘piece’ is used for counting individuals.²⁵ This proposal is motivated by the fact that the morphological mismatch is restricted to quantifying expressions that require a countable NP-complement. For example, while quantifiers such as *paljon* ‘much, a lot’ take uncountable NP-complements (71a), numerals take only countable complements (71b). In addition, while it is effortless to insert a partitive plural NP to the complement of the quantifier *paljon* (71c), this is not possible for numerals (71d) unless the classifier is present, as in (71e). It thus seems that the partitive plural NP is interpreted as uncountable (or similarly to mass nouns) and counting requires support from a classifier.

(71) Finnish

- a. *paljon jauhoa*
a lot flour.SG.PAR
‘a lot of flour’
- b. **kolme jauhoa*
three flour.SG.PAR
- c. *paljon kirjoja*
a lot book.PL.PAR
‘a lot of books.’
- d. **kolme kirjoja*
three book.PL.PAR
- e. *kolme kappaletta kirjoja*
three piece.SG.PAR book.PL.PAR
‘three books’

Estonian displays a similar pattern, as can be seen in the following examples from Metslang (2013: 158). Mass nouns can appear in the singular in the complement of the quantifier *palju* (72a). However, a countable noun has to be in the plural (72b-c). Mass nouns cannot appear in the complement of the numeral (72d), and the same holds for plural countable nouns (72e).

(72) Estonian

- a. *palju liiva*
a lot sand.SG.PAR
‘a lot of sand’
- b. **palju poissi*
a lot boy.SG.PAR
- c. *palju poisse*
a lot boy.PL.PAR
‘a lot of boys’
- d. **kaks liiva*
two sand.SG.PAR

²⁵ In many languages, mass nouns require a support of a classifier or a measure phrase in order to be counted. However, in languages such as Mandarin, the classifier is also required for count nouns (see, e.g. Cheng and Sybesma 1999).

- e. **kaks poisse*
two sand.PL.PAR

The similarities between mass nouns and plural count nouns are pointed out by many authors (e.g. Quine 1960). We will not address the semantics of mass nouns and count nouns further in this paper, but merely point out that a related concept, *divisibility*, has been shown to have an effect on case marking in Finnish and Estonian existential clauses (for an overview, see Metslang 2013). Divisibility separates mass nouns and plural count nouns from singular count nouns and sets formed by individuals can be seen as being divisible in the same sense as mass nouns (Hakulinen et al. 2004: §555). A possible hypothesis is that a DP in the partitive plural does not enable counting directly, but requires a support of a classifier.

Consider Table 1, which summarises the properties of partitive splits in Finnish. The first row presents the characteristics of the reconstructing partitive split. Below the line are examples of elements that produce morphological mismatches.

The first column contains the quantifying expression and the next five columns the requirements that the quantifying expression normally poses to its complement. For example, the numeral *kaksi* ‘two’, takes only countable singular complements and assigns quantificational partitive case. With quantificational partitive case we refer to the case assignment that is described in Section 2.1, see examples (9) and (10). The characteristic property of this type of partitive case is that it is present only when the DP is assigned nominative or accusative/genitive object case.

The final two columns display the morphological mismatches in the partitive split. For example, with numeral *kaksi* ‘two’, the partitive split triggers a number mismatch. In contrast, with numeral *yksi* ‘one’, the partitive split displays both case and number mismatch, as we saw in the previous section (e.g. examples in (58)).

Quantifier	properties of the NP-complement					properties of the split NP	
	countable	uncountable	+sg	+pl	quantificational partitive case	case mismatch	number mismatch
paljon <i>much, a lot</i>	x	x	x	x			
kaksi <i>two</i>	x		x		x		x
monta <i>many</i>	x		x		x		x
yksi <i>one</i>	x		x			x	x
muutama <i>some+sg</i>	x		x			x	x
kahdet <i>two+pl</i>	x			x		x	
yhdet <i>one+pl</i>	x			x		x	
muutammat <i>some+pl</i>	x			x		x	

Table 1: Summary of the properties of the partitive split in Finnish

As can be seen in Table 1, the common denominator with the quantifying expressions that produce morphological mismatches is that they require a countable complement. In addition, none of the other factors correlate directly with the mismatches. This supports the hypothesis that the morphological mismatches are a side-effect of a presence of a silent classifier head that enables counting individuals.

The properties of Estonian partitive splits are summarised in Table 2.

Quantifier	properties of the NP-complement					properties of the split NP	
	countable	uncountable	+sg	+pl	quantificational partitive case	case mismatch	number mismatch
palju <i>much, many</i>	x	x	x	x			
kaks <i>two</i>	x		x		x		x

Table 2: Summary of the properties of the partitive split in Estonian

Thus, although Estonian does not display similar variation as Finnish, the same generalization holds: among the quantifying expressions that enable partitive split, only numerals, which do not take uncountable complements, produce morphological mismatches.

We thus propose an analysis, where the partitive NP is first base-generated to the complement of the classifier, and later moved to the left periphery of the finite clause, as illustrated with Finnish examples below.

- (73) a. *Pekka osti [kolme kappaletta [NP kirjoja]].*
 Pekka bought three.NOM piece.SG.PAR book.PL.PAR
 ‘Pekka bought three books.’
- b. *[NP Kirjoja] Pekka osti [kolme (kappaletta) ____].*
 book.PL.PAR Pekka bought three.NOM piece.SG.PAR
 ‘Pekka bought three books.’

This analysis solves the problems with morphological mismatches: the classifier selects a partitive plural NP in constructions such as (73a), and the NP retains its case and number when it is moved to the left periphery in (73b).

5.3 The classifier as a functional head

As we saw in the previous section, Finnish and Estonian partitive splits have language-specific properties. We will therefore investigate the analysis of Finnish first, and discuss Estonian at the end of the section.

We thus propose that Finnish has a classifier *kappale* ‘piece’. For example, the classifier may take pronouns and full DPs as complements, as in (74a-c). Example (74c) is from the Internet. In addition *kappale* has also other, lexical uses. As a noun head, it can mean ‘a piece of music’, ‘object’ (physics term), or ‘paragraph’. However, in the split NP, none of these meanings are available.

- (74) Finnish
- a. *Pekka hankki [kaksi kappaletta näitä sohvia].*
 Pekka got two.NOM piece.SG.PAR these.PAR couch.PL.PAR
 ‘Pekka got two of these couches.’
- b. *[Montako kappaletta näitä sohvia] hän haluaa ____?*
 how.many piece.SG.PAR these.PAR couch.PL.PAR s/he wants
 ‘How many of these couches does s/he want?’

- c. *Eli perjaatteessa tarvin* [*kaksi kappaletta niitä*
 so principle.in need.1SG two.NOM piece.SG.PAR those.PAR
ylihinnoiteltuja sieniä].
 over-priced.PL.PAR sponge.PL.PAR
 ‘So in principle, I need two of those over-priced sponges.’

The analysis as a functional head is motivated by the observation that the classifier does not permit adjectival modifiers when it occurs in the complement of a numeral (75a). Similarly, the construction does not permit splitting between the adjective and the noun (75b). Instead, the adjective has to move with the rest of the partitive NP, as in (75c).

(75) Finnish

- a. **Pekka näki* [*kolme suurta kappaletta kirjoja*].
 Pekka saw three.NOM big.SG.PAR piece.SG.PAR book.PL.PAR
- b. *?*Kirjoja Pekka näki* [*kolme suurta* ____].
 book.PL.PAR Pekka.NOM saw three.NOM big.SG.PAR
- c. [*NP Suuria kirjoja*] *Pekka näki* [*kolme* ____].
 big.PL.PAR book.PL.PAR Pekka.NOM saw three.NOM
 ‘Pekka saw three big books.’

Possessive modification provides similar results. In Finnish, the possessor can occur either below or above the numeral, as in (76a-b).²⁶ In the partitive split, the possessor moves with the partitive NP (76c)

- (76) a. *Pekka lainasi* [*kaksi Merjan levyä*].
 Pekka borrowed two.NOM Merja.GEN record.SG.PAR
 ‘Pekka borrowed two of Merja’s records’
- b. *Pekka lainasi* [*Merjan kaksi levyä*].
 Pekka borrowed Merja.GEN two.NOM record.SG.PAR
 ‘Pekka borrowed Merja’s two records.’
- c. [*Merjan levyjä*] *Pekka lainasi* [*kaksi* ____].
 Merja.GEN record.PL.PAR Pekka borrowed two.NOM
 ‘Pekka borrowed two of Merja’s records.’

However, the possessor cannot co-occur with the classifier *kappale* in a continuous NP (77a). If the partitive split is derived from (77), it should not be possible to strand the possessor. This prediction is borne out (b-c).

- (77) a. **Pekka lainasi kolme Merjan kappaletta levyjä*.
 Pekka.NOM borrowed three Merja.GEN piece.SG.PAR record.PL.PAR
- b. **Levyjä Pekka lainasi kaksi Merjan* ____.
 record.PL.PAR Pekka.NOM borrowed two.NOM Merja.GEN
- c. **Levyjä Pekka lainasi Merjan kaksi* ____.
 record.PL.PAR Pekka.NOM borrowed Merja.GEN two.NOM

²⁶ The two sentences differ in meaning; in example (a), Merja has more than two records, and in example (76b), Merja has only two records and Pekka borrowed both of them.

Finally, the classifier *kappale* should be kept separate from measure phrases which are required by mass nouns in order to be counted, for example *a glass of milk*. In Finnish and Estonian, measure phrases appear to be full noun phrases and enable different types of modifiers. However, it should be noted that in both languages, the measure phrases permit splitting, as can be seen in the following examples (e.g. Koptjevskaja-Tamm 2001; Seppänen 1983). The dislocation of the partitive NP in Finnish has been analysed as being an instance A'-movement by Brattico (2008: 145) and Huhmarniemi (2012).

(78) Finnish

- a. *Pekka lapioi [yhden [kasan [DP hiekkaa]]]*.
 Pekka.NOM shoveled one.GEN pile.SG.ACC sand.SG.PAR
 'Pekka shoveled one pile of sand.'
- b. [_{DP} *Hiekkaa*] *Pekka lapioi* [_{DP} *yhden [kasan ____]*].
 sand.SG.PAR Pekka.NOM shoveled one.ACC pile.SG.ACC
 lit. 'Of sand, Pekka shoveled one pile.'

(79) Estonian

- a. *Peeter ostis [_{DP} ühe [koti [_{DP} kartuleid]]]*.
 Peeter.NOM bought one.GEN bag.SG.GEN potato.PL.PAR
 'Peeter bought one bag of potatoes.'
- b. [_{DP} *Kartuleid*] *Peeter ostis* [_{DP} *ühe [koti ____]*].
 potato.PL.PAR Peeter.NOM bought one.GEN bag.SG.GEN
 lit. 'Of potatoes, Peeter bought one bag.'

In conclusion, *kappale* does not take any modifiers, which points towards to an analysis where it is a functional head which occurs between the numeral and the partitive NP. Functional elements do not identify objects, but rather contribute to the interpretation of their complements. Another property of functional heads is that they are phonetically minimal, and this accounts for the fact that the classifier can be unpronounced when the NP is split. The remaining problem is, why the classifier has to be pronounced in a continuous NP but is optional in the partitive split.

Let us now move to the analysis of Estonian, which is not as straightforward as Finnish. Unlike in Finnish, the partitive split does not reconstruct in the presence of the classifier:

(80) Estonian

- a. *Raamatuid Peeter nägi kolm (tükkj)*.
 book.PL.PAR Peeter saw three.NOM piece.SG.PAR
 'Peeter saw three books.'
- b. **Peeter nägi kolm suurt tükkj raamatut / raamatuid*.
 Peeter saw three.NOM big piece.SG.PAR book.SG book.PL.PAR

Estonian *tükk* requires a singular mass noun as complement (81).

(81) Estonian

Peeter nägi kolm suurt tükki šokolaadi /
 Peeter saw three.NOM big.SG.PAR piece.SG.PAR chocolate.SG.PAR
juustu.
 cheese.SG.PAR
 ‘Peeter saw three big pieces of chocolate/cheese.’

The Estonian *tükk* thus behaves like a measure expression, similar to *liter*, *some* and *slice*. It can occur with abstract nouns (82a) and its meaning is not restricted to counting.

(82) Estonian

- a. *tükk aega*
 piece.SG.NOM time.SG.PAR
 lit. piece of time, interpretation: ‘quite a while’
- b. *palju tükke graniiti*
 many piece.PL.PAR granite.SG.PAR
 ‘many pieces of granite’

It thus seems that Estonian *tükk* ‘piece’ has different properties in the split construction than inside a continuous NP. In order to nevertheless apply the classifier analysis to Estonian, we would have to assume that the word *tükk* ‘piece’ is ambiguous. In a continuous NP, *tükk* ‘piece’ is a measure expression with its own selectional properties. However, in the split construction, *tükk* ‘piece’ is similar to Finnish *kappale* ‘piece’: a functional head that does not take any modifiers. A piece of evidence in support for this hypothesis is offered by example (83). Whereas in a continuous NP, *tükk* ‘piece’ may take a possessor (83a-b), this is not possible in the split noun phrase (c-d).

(83) Estonian

- a. *Peeter laenas Marise kaks tükki šokolaadi.*
 Peeter.NOM borrowed Maris.GEN two.NOM piece.SG.PAR chocolate.SG.PAR
 ‘Peeter borrowed two pieces of Mari’s chocolate.’
- b. *Peeter laenas kaks tükki Marise šokolaadi.*
 Peeter.NOM borrowed two.NOM piece.SG.PAR Maris.GEN chocolate.SG.PAR
 ‘Peeter borrowed two pieces of Mari’s chocolate.’
- c. **Plaat laenas Peeter Marise kaks.*
 record.PL.PAR borrowed Peeter.NOM Maris.GEN two.NOM
- d. **Plaat laenas Peeter kaks Marise.*
 record.PL.PAR borrowed Peeter.NOM two.NOM Mari.GEN

To summarise, although some characteristics of Estonian provide support for the classifier analysis, the evidence is not conclusive.

5.4 Morphological repair

This section investigates an alternative analysis for the partitive split, referred to as *morphological repair*. This analysis accounts for the number mismatches and may therefore be a possible alternative for the analysis of Estonian partitive split. However, this alternative is

not an attractive solution for Finnish due to the fact that the morphological repair would need to account for both case and number changes.

Fanselow and Cavar (2002) discuss morphological mismatches in different languages and present the following example from German, which displays a similar phenomenon we have observed in Finnish and Estonian. In example (84a) from Fanselow and Cavar (2002), the left part bears plural marking, although in the continuous DP (84c), the noun is in the singular.

- (84) German
- a. *Zeitungen lese ich nur eine.*
newspapers read I only one
'I only read one newspaper.'
 - b. **Ich lese nur eine Zeitungen*
 - c. *Ich lese nur eine Zeitung.*
'I read only one newspaper.'

Fanselow and Cavar (2002) propose that since a singular countable noun cannot typically appear alone in a sentence in German, the split of a singular NP in (84c) would lead to ungrammaticality in the surface structure. This problem is solved by changing the singular number to plural post-syntactically.

Let us apply the repair strategy to Estonian and Finnish data. Under this analysis, the NP is first in the singular (85a), then moves to the left periphery, and receives plural inflection due to a post-syntactic repair rule, as in (85b).

- (85) a. *Peeter ostis [DP kolm [NP raamatut]].*
Peeter.NOM bought three.NOM book.SG.PAR
'Peeter bought three books.'
- b. *[NP Raamatuid] Peeter ostis [DP kolm ____].*
book.PL.PAR Peeter bought three.NOM
'Peeter bought three books.'

The repair strategy can be motivated analogously to the German example (84) above. In Finnish and Estonian, singular countable nouns do not generally appear in the partitive in any other than the complement position. For example, the singular count noun cannot appear in the partitive case in the subject position (86a), although the plural form is possible (86b).²⁷

²⁷ Nevertheless, A'-movement can target a full DPs in this form, as in the following examples (i.a-b). However, in the split construction, the moving element would be the complement of the numeral, which is not a DP, but an NP. This NP is moved out of the scope of the numeral, to the left periphery of the finite clause. In this position, the repair strategy assigns plural inflection to the NP.

- (i) a. *Pekka katseli valokuvaa.*
Pekka.NOM watched photo.SG.PAR
'Pekka was looking at a photo.'
- b. *Valokuvaa Pekka katseli ____.*
photo.SG.PAR Pekka.NOM watched
'Pekka was looking at a photo.'

- (86) a. **Lasta leikkii kadulla.*
 child.SG.PAR play.3SG street.at
 b. *Lapsia leikkii kadulla.*
 child.PL.PAR play.3SG street.at
 ‘Children are playing in the street.’

Assuming a repair strategy, the constituent is thus changed to plural in (86b). However, as noted by Fanselow (2012), the repair strategy is not a feasible alternative for all languages with morphological mismatches. Note that demonstrative pronouns do not pose a problem for the repair account in Estonian, because the demonstrative is marginally possible in the complement of the numeral, see examples in (87) repeated from (68). The constituent also moves as a whole, as in (87d).²⁸

- (87) a. *Neid raamatuid Peeter ostis viis.*
 these.PAR book.PL.PAR Peeter.NOM bought five.NOM
 ‘Of these books, Peeter bought five.’
 b. **Peeter ostis viis neid raamatuid.*
 Peeter.NOM bought five.NOM these.PAR book.PL.PAR
 c. ?*Peeter ostis viis seda raamatut.*
 Peeter.NOM bought five.NOM this.SG.PAR book.SG.PAR
 ‘Peeter bought five books of this type.’
 d. [*Viis seda raamatut*] *ostis Peeter.*
 five.NOM this.SG.PAR book.SG.PAR bought Peeter.NOM

In Finnish, the comparable example to (87c) would be ungrammatical, see example (67) above.²⁹

6 Conclusions

This paper addressed discontinuous noun phrases in Finnish and Estonian. It was proposed that both languages have at least three types of split noun phrases. While the general properties of the split noun phrases are similar in Finnish and Estonian, a more detailed examination reveals intricate differences between the languages.

The focus of this paper was on the partitive split and in particular, the morphological mismatch between the continuous NP and the split construction. It was argued that the partitive split is derived by sub-extraction of the NP, where the two parts are originally inside the same DP. The movement of the partitive NP was shown to have the general properties of A'-movement in both languages.

Two alternative analyses were examined: First, an account in terms of a classifier head which facilitates the selectional requirements of the quantifier/numeral and accounts for the morphological mismatch. The presence of the classifier was motivated by the observation

²⁸ In sentences (87c-d), the DP *seda raamatut* ‘this book’ appears to be coerced into type/kind reading, e.g. five books of this type/kind.

²⁹ The insertion of a determiner has been proposed for e.g. German as part of the repair strategy (Fanselow and Cavar 2002).

that morphological mismatches occur only with quantifying expressions that cannot take an uncountable NP-complements. Second, we investigated a morphological repair account, where the partitive NP receives morphological features only after movement.

The main advantage of the classifier analysis is that it deploys grammatical mechanisms that are already well-known and present in related constructions. In addition, the morphological mismatch is only apparent because the partitive NP is in the same form in the continuous NP and in the split construction. Finally, it provides a testable hypothesis for the analysis of split noun phrases in other languages with morphological mismatches.

It was shown that the classifier analysis accounts for the Finnish partitive splits, although the exact conditions for the pronunciation of the classifier were left open. However, the classifier analysis cannot be adopted as such to Estonian, and the morphological repair account was introduced as an alternative.

References

- Alho, Irja H. (1992). "Distinguishing kind and set in Finnish". *Studies in the Linguistic Sciences* 22.1, 1–16.
- Arnhold, Anja (2009). "Prosody of discontinuous noun phrases in Finnish". In: *Nordic Prosody: Proceedings of the Xth Conference*. Ed. by Martti Vainio, Reijo Aulanko, and Olli Aaltonen. Frankfurt am Main: Peter Lang, 37–48.
- Brattico, Pauli (2008). "Kayne's model of case and Finnish nominal phrases". *Nordic Journal of Linguistics* 31.2, 135–160.
- Brattico, Pauli (2010). "One-part and two-part models of nominal case: evidence from case distribution". *Journal of Linguistics* 46.1, 47–81.
- Brattico, Pauli (2016). "Finnish null subjects and their morphosyntax". *Manuscript*.
- Cheng, L. and R. Sybesma (1999). "Bare and not-so-bare nouns and the structure of NP". *Linguistic Inquiry* 30, 509–542.
- Chomsky, Noam (1981). *Lectures in government and binding: the Pisa lectures*. Dordrecht: Foris.
- Chomsky, Noam (1995). *The Minimalist Program*. Cambridge, MA: MIT Press.
- Danon, Gabi (2012). "Two structures for numeral-noun constructions". *Lingua* 122, 1282–1307.
- Erelt, M., R. Kasik, H. Metslang, H. Rajandi, K. Ross, H. Saari, K. Tael, and S. Vare (1993). *Eesti keele grammatika II [The grammar of the Estonian language]*. Tallinn: Eesti Teaduste Akadeemia Eesti Keele Instituut.
- Erelt, Mati (2009). "Typological overview of Estonian syntax". In: *STUF, Language Typology and Universals*. Vol. 62. 1/2. Akademie Verlag, 6–28.
- Erelt, Mati, Helle Metslang, and Helen Plado (2016). "Alus". In: *Eesti keele lauseõpetus [The syntax of modern Estonian]*. Ed. by Mati Erelt and Helle Metslang. preprint June 2016. Tartu: Tartu Ülikooli kirjastus.
- Fanselow, Gisbert (1988). "Aufspaltung von NPn und das Problem der 'freien' Wortstellung". *Linguistische Berichte* 114, 91–113.

- Fanselow, Gisbert (2012). "Morphological mismatches in discontinuous noun phrases". In: *Interfaces of morphology. A Festschrift for Susan Olsen*. Ed. by Holden Härtl. *Studia grammatica* 74. Berlin, Boston: De Gruyter, 11–25.
- Fanselow, Gisbert and Damir Cavar (2002). "Distributed deletion". In: *Theoretical approaches to universals*. Ed. by Artemis Alexiadou. Amsterdam: John Benjamins, 65–107.
- Gröndahl, Tommi (2015). "Määräisyys funktionaalisenä pääsanana suomen kielen nomini-lausekkeessa". MA thesis. University of Helsinki.
- Hakulinen, Auli and Fred Karlsson (1979). *Nykysuomen lauseoppi*. Helsinki: Finnish Literature Society.
- Hakulinen, Auli, Maria Vilkkuna, Riitta Korhonen, Vesa Koivisto, Tarja Riitta Heinonen, and Irja Alho (2004). *Iso suomen kielioppi*. Helsinki: Finnish Literature Society.
- Henk, Paula (2010). *Information Structure of Estonian – Compared to Finnish and Hungarian*. Bachelor's thesis. PICS Publications of the Institute of Cognitive Science. Osnabrück, Germany.
- Hiitema, Katrin and Kersti Börjars (2003). "The emergence of a definite article in Estonian". In: *Generative Approaches to Finnic and Saami Linguistics*. Ed. by Diane Nelson and Satu Manninen. Stanford: CSLI Publications.
- Holmberg, Anders and Urpo Nikanne (2002). "Expletives, subjects and topics in Finnish". In: *Subjects, Expletives, and the EPP*. Ed. by Peter Svenonius. Oxford: Oxford University Press, 71–106.
- Huang, Cheng-Teh James (1982). "Move wh in a language without wh movement". *Linguistic Review* 1, 369–416.
- Huhmarniemi, Saara (2012). *Finnish A'-movement: Edges and Islands*. Institute of Behavioural Sciences, Studies in Cognitive Science 2. Helsinki: University of Helsinki. URL: <http://urn.fi/URN:ISBN:978-952-10-7712-8>.
- Ionin, Tania and Ora Matushansky (2006). "The composition of complex cardinals". *Journal of Semantics* 23.4, 315–360.
- Juvonen, Päivi (2000). "Grammaticalizing the Definite Article. A study of definite adnominal determiners in a genre of spoken Finnish". PhD thesis. Stockholm University.
- Kaiser, Elsi (2002). "The syntax-pragmatics interface and Finnish ditransitive verbs". In: *Proceedings of the 9th Annual Conference of the Student Organization of Linguistics in Europe (ConSOLE IX)*. Ed. by M. van Koppen, E. Thrift, E. J. van der Torre, and M. Zimmermann. Lund.
- Koptjevskaja-Tamm, Maria (2001). "'a piece of the cake' and 'a cup of tea': partitive and pseudo-partitive nominal constructions in the circum-baltic languages." In: *The Circum-Baltic languages: Typology and contact*. Ed. by Östen Dahl and Maria Koptjevskaja-Tamm. Vol. 2, 523–568.
- Laury, Ritva (1991). "On the development of the definite article se in spoken Finnish". In: *The SKY Yearbook*, 93–121.
- Laury, Ritva (1997). *Demonstratives in interaction: the emergence of a definite article in Finnish*. Amsterdam: John Benjamins.
- Metslang, Helena (2013). "Grammatical relations in Estonian: subject, object and beyond". PhD thesis. University of Tartu.

- Metslang, Helle (2016). “Kvantorifraas [quantifier phrase]”. In: *Eesti keele lauseõpetus [The syntax of modern Estonian]*. Ed. by Mati Ereht and Helle Metslang. preprint June 2016. Tartu: Tartu Ülikooli kirjastus.
- Miljan, Merilin and Ronnie Cann (2013). “Rethinking case marking and case alternation in Estonian”. *Nordic Journal of Linguistics* 36.3, 333–379.
- Nelson, Diane and Ida Toivonen (2003). “Counting and the grammar: case and numerals in Inari Saami”. In: *Generative Approaches to Finnic and Saami Linguistics*. Ed. by Diane Nelson and Satu Manninen. Stanford, CA.: CSLI Publications, 321–340.
- Norris, Mark (2014). “A theory of nominal concord”. PhD thesis. Santa Cruz: University of California.
- Ott, Dennis (2011). “Local instability: The syntax of split topics.” PhD thesis. Harvard University.
- Pajusalu, Renate (1997). “Is there an article in (spoken) Estonian?” In: *Estonian: Typological Studies II*. Tartu: Tartu University Press.
- Pajusalu, Renate (2000). “Indefinite determiners üks and mingi in Estonian”. In: *Estonian: Typological Studies IV*. Ed. by Mati Ereht. Tartu: Tartu University Press.
- Quine, Willard van Orman (1960). *Word and object*. Cambridge, MA: MIT Press.
- Ross, John Robert (1967). “Constraints on variables in syntax”. PhD thesis. MIT.
- Seppänen, Aimo (1983). “Finnish “kaksi poikaa””. *Studia Linguistica* 37.2, 161–174.
- Spoelman, Marianne (2013). “Prior linguistic knowledge matters: The use of the partitive case in Finnish learner language”. PhD thesis. Oulu: University of Oulu.
- Tael, Kaja (1990). *An approach to word order problems in Estonian*.
- Trosterud, Trond (1993). “Anaphors and binding domains in Finnish”. In: *Case and other functional categories in Finnish syntax*. Ed. by Anders Holmberg and Urpo Nikanne. New York: Mouton de Gruyter, 225–243.
- Vainikka, Anne (1989). “Deriving Syntactic Representations in Finnish”. PhD thesis. University of Massachusetts Amherst.
- Vainikka, Anne and Pauli Brattico (2009). “The Finnish Accusative: Long Distance Case Assignment by phi-Agreement”. Manuscript submitted for publication.
- Vilkuna, Maria (1989). *Free word order in Finnish: its syntax and discourse functions*. Helsinki: Finnish Literature Society.
- Vilkuna, Maria (1995). “Discourse configurability in Finnish”. In: *Discourse Configurational Languages*. Ed. by Katalin É. Kiss. Oxford/New York: Oxford University Press, 244–268.
- Vilkuna, Maria (1996). *Suomen lauseopin perusteet*. Kotimaisten kielten tutkimuskeskuksen julkaisu 90. Helsinki: Edita.
- Vilkuna, Maria (1998). “Word order in European Uralic”. In: *Constituent Order in the Languages of Europe*. Ed. by Anna Siewierska. Berlin, New York: Mouton de Gruyter, 173–234.
- van Riemsdijk, Henk (1989). “Movement and regeneration”. In: *Dialect variation and the theory of grammar*. Ed. by Paola Benincà. Dordrecht: Foris, 105–136.

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