Case matching and syncretism in ATB dependencies

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Abstract

In this paper, we propose a novel mechanism for ATB movement, which directly captures the intuition that one element originates in two positions. In particular, we claim that ATB movement involves an intersection operation. As well as the one-to-many relation between fillers and gaps in ATB, this approach can also provide a natural account of why syncretism can repair putative violations of case matching violations in ATB.

1. Introduction

This paper addresses a widely discussed instance of the 'repair effect' of syncretism with violations of the case matching requirement in so-called Across-The-Board (ATB) constructions such as (1); see e.g. Ross (1967), Williams (1978), and de Vries (to appear) for an overview.

(1) a. What does [John like ___] and [Mary hate ___] ?
     b. The man who [John saw ___] and [Bill hit ___]

In languages with rich case morphology such as Polish, ATB constructions are subject to a case matching requirement, that is, ATB movement is only possible if the case assigned at each extraction site is the same:

(2) a. *Czego   Jan nienawidzi ___GEN a   Maria lubi ___ACC?
         what.GEN Jan hates   and Maria likes
     b. *Co   Jan nienawidzi ___GEN a   Maria lubi ___ACC?
         what.ACC Jan hates   and Maria likes
         'What does Jan hate and Maria like?'   (Citko 2005: 487)

(3) Kogo   Janek widział ___ACC a   Maria lubiła ___ACC ?
     who.ACC John saw   and Mary liked
     'Who did John see and Mary like?'   (Borsley 1983: 170)

However, as noted by Borsley (1983), Dyła (1984), Franks (1995), Bondaruk (2003) and Citko (2005, 2011), this case matching requirement can be circumvented if the extracted item is syncretic, i.e. has the same morphological form for the cases in question. Whereas the equivalent of 'what' in Polish has different forms in genitive and accusative (2), 'who' is syncretic for genitive and accusative, and subsequently, ATB movement is possible despite the presence of a case mismatch (4).

(4) Kogo   Janek lubi ___ACC a   Jerzy   nienawidzi ___GEN ?
     who.ACC/GEN John likes   and George hates
     'Who does John like and George hate?'   (Borsley 1983: 170)

Taken at face value, this 'repair by syncretism' seems to pose a challenge to a postsyntactic view of morphology such as Distributed Morphology (DM) (Halle & Marantz 1993, Harley & Noyer 2003, Embick & Noyer 2007), since it seems that a syntactic operation such as ATB movement can be licensed by morpho-phonological form. However, if syntax operates on abstract feature bundles with no morphological reality, as DM assumes, then it is difficult to reconcile this view with the observation that the case matching appears to be sensitive to the form of the elements in question. While some authors have attempted to maintain a DM view in the face of these facts by appealing to underspecification (e.g. Citko 2005, Asarina 2011), we will show that none of these approaches is entirely satisfactory (see section 3.1.4).

In this paper, we argue that the ameliorating effect of syncretism on case matching violations in ATB dependencies can be made to follow naturally under the view that ATB movement and syncretism have a common denominator, namely *intersection of feature sets*. The central characteristic of ATB is a one-to-many relation between fillers and gaps. From a derivational perspective, we capture the fact that two items seem to 'become one' by assuming that ATB movement involves movement of two items in parallel to an external workspace, where they are intersected to create a new item bearing the shared features of the movees. We argue that this view of ATB movement, and indeed the idea that movement in general (i.e. Internal Merge) must first proceed via an external workspace, has some independent motivation. More importantly,

under this view of ATB movement, the syncretism facts come for free if we assume that syncretic forms result from an underspecified exponent realizing a feature shared by both elements. For example, if a language has a syncretism between nominative and accusative, this can be captured by assuming that the syncretic form only realizes a feature such as [−OBL(IQUE)] that is present in both the specification of nominative and accusative. Under an intersection approach to ATB, the result of intersecting the feature sets of two DPs, each bearing nominative and accusative, would result in a new item bearing [−OBL], that is, the feature realized as the syncretic form. If two cases are non-syncretic, then their feature sets do not overlap. Intersection of case features thus results in the empty set, and therefore a crash in the derivation. In this way, the ameliorating effect of syncretism on case mismatches follows independently from the mechanism of ATB movement and must not be independently stipulated. Since ATB movement involves intersection of feature sets, the only way for DPs bearing different cases to successfully undergo ATB movement is if they happen to have a case feature in common that is also realized by a syncretic exponent.

The following paper is structured as follows. Section 2 discusses the data surrounding 'repair by syncretism' in more detail and discusses the problems surrounding two previous DM-based approaches to this problem by Citko (2005) and Asarina (2011). Section 3 provides the analysis of ATB based on intersection. In particular, section 3.1 discusses previous approaches to ATB movement, section 3.2 lays out a novel approach to ATB utilizing intersection of feature sets, section 3.3 shows how this approach can derive the syncretism facts in Polish and section 3.4 discusses some implications of the present approach for the analysis of Right Node Raising. Finally, section 4 concludes the paper.

2.   Syncretism and syntax

There are a number of cases in which syncretism has been reported to have the mysterious effect of repairing violations of syntactic constraints. There are a number of examples in which syncretism has an ameliorating effect on what would otherwise be violations of strict constraints on agreement as well as case matching requirements. This section will discuss a few prominent examples from the literature, concluding with the focus of this paper: syncretism with case matching in ATB constructions.

2.1. Agreement in Icelandic DAT-NOM constructions

The first case of syncretism repair with agreement is in Icelandic DAT-NOM constructions. Icelandic is known to have quirky subjects in the dative, and these have been shown to behave like genuine subjects with regard to a number of diagnostics (Andrews 1976, Zaenen et al. 1985, Jónsson 1996, Boeckx 2000). However, in Icelandic agreement targets the nominative DP rather than the dative subject (5). Furthermore, if there is only a dative subject, as in passives of verbs assigning inherent dative, then agreement is default (3SG) (6).

(5)   Henni   likuðu   hestarnir.
       her.DAT liked.3PL horses.NOM.PL
       'She liked the horses.'   (Holmberg & Hróardóttir 2003)

(6)   Stelpunum   var   hjálpað.
       girl.DAT.PL was.3SG helped
       'The girls were helped.'   (Sigurðsson 1992)

However, there is a particular restriction on DAT-NOM constructions, namely that agreement with a non 3rd person nominative DP is ungrammatical (e.g. Sigurðsson 1991, 1996, Schütze 2003, Sigurðsson & Holmberg 2008).

(7)   a.   *Henni   líkuðum   við.
              her.DAT liked.1PL us.1PL.NOM
              'She liked us.'
       b.   *Henni   líkaðir   þú.
              her.DAT liked.2SG you.2SG.NOM
              'She liked you.'   (Sigurðsson 1996)

(8)   *Person Restriction (Sigurðsson & Holmberg 2008: 254)*
       In DAT-NOM constructions, *only 3ʳᵈ person* NOM may control agreement.

However, Schütze (2003: 300) discusses an interesting exception to this restriction. As reported by Sigurðsson (1996), if the agreement form in question shows syncretism with the default form (3SG), then it is exceptionally possible to have agreement with a non-3rd person nominative in the DAT-NOM construction. For example, the verb *leiðast* ('to find boring') shows syncretism between first, second and third person singular. As a result, it is possible to have a 2SG nominative with this verb due to the syncretism in the singular (9a). However,

since the 1PL form does not show syncretism with the default, 1PL nominatives are not possible (9b).

(9) a. Henni leiddist   þú.
     her.DAT bored.2PL/3SG you.2SG.NOM
     'She found you boring.'   (Sigurðsson 1996)
  b. *Henni leiddumst / leiddist við.
     her.DAT bored.1PL bored.3SG us.1PL.NOM
     'She found us boring.'

Thus, it seems that the Person Restriction banning agreement with non-3rd person nominatives, whatever form this constraint may take, can be circumvented only if the agreeing form of the verb (first or second person) is syncretic with the default third person singular form.

2.2. Matching effects with conjunct agreement in Hindi

The second case of 'repair by syncretism' from the domain of agreement comes from examples of so-called 'closest conjunct agreement' (see Bošković 2009, Bhatt & Walkow 2013, Marušič et al. 2015 and Murphy & Puškar 2016 for recent approaches and critical discussion). Consider the following examples taken from Bhatt & Walkow (2013: 962f.).

(10) Rina-ne *gaa-yii* ek ghazal aur ek nazam *thii*.
    Rina-ERG sing-PFV.F a ghazal.F and a nazam.F be.PST.F.SG
    'Rina has sung a ghazal and a nazam.'

In (10), the verb and the auxiliary agree in gender and number with the conjuncts in question. Bhatt & Walkow (2013) show that there is what they call a 'matching requirement' with this particular agreement configuration, that is, the features on both conjuncts must match:[1]

(11) *Rina-ne *gaa{-yaa/-yii}* ek gaanaa aur ek nazam thii.
    Rina-ERG sing-PFV.SG.M/-PFV.F a song.M and a nazam.F be.PST.F.SG
    'Rina has sung a ghazal and a nazam.'

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[1]However, Bhatt & Walkow also show that medial conjuncts in coordinations of more than two DPs do not matter for this matching requirement. In general, medial conjuncts seem to be inaccessible as they cannot be targeted for agreement in South Slavic, for example (see Marušič et al. 2015, Murphy & Puškar 2016).

In (11), the first conjunct is masculine, whereas the second is feminine and, as a result, this violates the matching requirement and no agreement form is possible. Furthermore, if conjuncts share the same gender but differ in number, the matching requirement is also violated and ungrammaticality results:

(12)   Rina-ne gaa-ye   do gaane   aur ek giit
       Rina-ERG sing-PFV.M.PL two song.M.PL and a   giit.M.SG
       *{??the   / *thaa}.*
          be.PST.M.PL   be.PST.M.SG
       'Rina has sung a ghazal and a nazam.'

Similar to Icelandic, this restriction does not hold if the relevant agreement markers are syncretic. As Bhatt & Walkow show, the feminine agreement forms for participal agreement are syncretic for singular and plural:

(13)   *Agreement markers in Hindi (Bhatt & Walkow 2013: 954)*

	Past		Present		Participal	
	SG	PL	SG	PL	SG	PL
M	tha-a	thee	hai	hã	-yaa	-ye
F	th-ii	th-ī	hai	hã	-yii	-yii

Subsequently, the illicit number mismatch we saw in (12) does not arise if both conjuncts are feminine, due to the syncretism between singular and plural:

(14)   Rina-ne *gaa-yii*   kai   nazmẽ   aur ek ghazal thii
       Rina-ERG sing-PFV.F many song.F.PL and a   ghazal.F be.PST.F.SG
       'Rina has sung a ghazal and a nazam.'

Furthermore, as can be seen in the paradigm in (13), there is a syncretism between masculine and feminine in the present singular, but not in the past singular forms. Bhatt & Walkow (2013: 965f.) show that in 'Right-Node-Raising' constructions such as (15), where the same matching requirements apply, mismatching gender on the subjects in each conjunct is only tolerated if the form is the syncretic present masculine singular.

(15)   a. ??Ram   aalsii aur Sitaa   karmaṭh   *thii*
            Ram.M.SG lazy   and Sita.F.SG hardworking be.PST.F.SG
            'Ram was lazy and Sita was hardworking.'

b. Ram   aalsii aur Sitaa   karmaṭh   *hai*
    Ram.M.SG lazy and Sita.F.SG hardworking be.PRES.M/F.SG
    'Ram is lazy and Sita is hardworking.'

2.3.   Case matching in free relatives

As well as agreement, matching effects for case have also been widely discussed in the literature. For example, free relatives in German have been shown to exhibit a case matching requirement with both the verb in the free relative and the host clause, see e.g. Gross & van Riemsdijk (1981), van Riemsdijk (2006) and Himmelreich (this volume). For example, in (16a) the wh-phrase in the free relative clause is unambiguously nominative. Since both the free relative and the host clause contain forms of the copula *sein*, which requires nominative, no problem arises. However, if the verb in the free relative assigns accusative as in (16b), then a mismatch arises between the verb *schaffen*, which requires accusative, and the copula in the matrix clause, which requires a subject bearing nominative case.

(16) a. [$_{CP}$ Wer   nicht stark   ist$_{NOM}$] muss klug   sein$_{NOM}$
              who.NOM not   strong is   must smart be
          'If you're not strong, you have to be smart.'
      b. *[$_{CP}$ Wer   / wen   Gott schwach geschaffen$_{ACC}$ hat] muss
              who.NOM   who.ACC God weak   created   has must
          klug   sein$_{NOM}$
          smart be
          'If God made you weak, you have to be smart.'

                                                      (van Riemsdijk 2006: 342)

However, this requirement can be overridden by syncretism in the paradigm. Whereas the animate wh-phrases in German show case distinctions, the inanimate *was* ('what') is syncretic for nominative, accusative and dative. As a result, case mismatches are tolerated in free relatives.

(17) a. [$_{CP}$ Was   du gekocht$_{ACC}$ hast] ist$_{NOM}$ schimmlig
              what.NOM/ACC you cooked   have is   mouldy
          'What you cooked is mouldy.'

                                                      (van Riemsdijk 2006: 353)

The following minimal pair from Schütze (2003: 300) is also illustrative:

(18) a. *Ich zerstöre$_{ACC}$ [$_{CP}$ wer   / wen   mich   ärgert$_{NOM}$]
            I destroy   who.NOM who.ACC me.ACC annoys
            'I destroy who(ever) annoys me.'
      b. Ich zerstöre$_{ACC}$ [$_{CP}$ was   mich   ärgert$_{NOM}$]
            I destroy   what.NOM/ACC me.ACC annoys
            'I destroy what(ever) annoys me.'

Thus, it seems that conflicting case requirements imposed on elements in one-to-many relations such as free relatives (the same holds for ellipsis and ATB below) can be satisfied only if the cases in question are syncretic.

2.4. Case matching in sluicing

A further example of 'repair by syncretism' with case matching comes from the domain of ellipsis. In sluicing, there is a general case matching requirement between the antecedent and the remnant. In an example such as (19), *somebody* is the antecedent and *who* is the remnant.

(19)   Somebody just arrived, but I don't know who ⟨just arrived⟩

In languages with somewhat richer case morphology, the case on the 'sluiced' wh-phrase has to match the antecedent. The classic example from German is given in (20).

(20)   Er will   jemand-em   schmeicheln$_{DAT}$, aber wir wissen$_{ACC}$ nicht
         he wants somebody-DAT flatter   but we know   not
         wem$_1$ / *wen$_1$ ⟨ er t$_1$ schmeicheln$_{DAT}$ will   ⟩
         who.DAT   who.ACC he   flatter   wants
         'He wants to flatter somebody but we don't know who.'   (Ross 1969)

The fact that there is a case matching requirement with the case assigned by the verb in the antecedent clause provides strong evidence for fully-fledged elided syntactic structure in the ellipsis site (Merchant 2001). Furthermore, it is known that languages such as German which do not allow preposition stranding in ordinary wh-questions, also do not allow it in sluicing. However, van Craenenbroeck (2012) shows that, in certain cases, it is marginally possible

to omit a preposition under sluicing as in (21) (see Rodrigues et al. 2009, Nykiel 2012, Philippova 2014, for example).

(21) Rudolf wartet auf einige   Freunde,   aber ich weiß nicht ?(auf)
      Rudolf waits on some.ACC friends.ACC but I   know not   on
      welche
      which.ACC
      'Rudolf is waiting for some friends, but I don't know which (ones).'
                                                          (van Craenenbroeck 2012)

Interestingly, there are other examples, in which the preposition is completely impossible. For example in (22), omission of the genitive-assigning preposition *statt* is impossible, in stark contrast to (21).

(22) Rudolf ist statt   einig-er   Freunde aufgetreten, aber ich weiß
      Rudolf is instead.of some-GEN friends performed   but I   know
      nicht *(statt)   welch-er
      not   instead.of which-GEN
      'Rudolf performed instead of some friends, but I don't know which.'
                                                          (van Craenenbroeck 2012)

An interesting account of these facts suggested by van Craenenbroeck (2012) rests on the assumption that sluices with omitted prepositions do not involve an isomorphic ellipsis site, but rather a cleft such as 'who ⟨it is⟩' (see e.g. Szczegielniak 2008, Rodrigues et al. 2009, Nykiel 2012, and van Craenenbroeck 2010 and Barros et al. 2014 for general discussion). Since the pivot of a cleft has to bear nominative, there are conflicting requirements imposed on the case of the sluice: On the one hand it has to match the case assigned by the antecedent, on the other, it has to be nominative in order to be compatible with the cleft in the ellipsis site (but cf. Elliott & Murphy 2016). The reason why (21) is possible, and (22) is not, can be attributed to the fact that *welche* is syncretic for both the cases assigned in the antecedent clause (accusative) and in the cleft in the ellipsis site (nominative), whereas the genitive form is not. The effect of syncretism in licensing preposition omission can also be seen with *was* in (23), which is syncretic for nominative and accusative as was already shown in the free relative examples (17) and (18b).

(23)   Rudolf hat mich an etwas   erinnert, aber ich weiß nicht
        Rudolf has me   on something reminded but I   know not
        mehr   ?(an) was
        anymore   on what.NOM/ACC
        'Rudolf reminded me of something, but I don't recall what.'

Further examples of the kind from Greek, Russian and Zurich German are discussed by van Craenenbroeck (2012: 11ff.).

2.5.   Case matching in ATB movement

We now turn to case matching effects with ATB movement, which will be the focus of the remainder of this paper. As was already briefly mentioned in section 1, in languages with rich case morphology, ATB constructions are characterized by an asymmetric dependency between one filler and two gaps. There are various restrictions on what kind of gaps are possible in these constructions (see section 3.1), one of the more interesting ones being case matching. In languages with rich case morphology, the case assigned by the verb to each of the 'gaps' has to match. For example in Polish, the verbs *widzieć* 'see' and *lubić* 'like' both assign accusative and ATB movement is licensed (24).

(24)   *Kogo*   Janek widział ⎯⎯_ACC a   Maria lubiła ⎯⎯_ACC ?
        who.ACC John saw   and Mary liked
        'Who did John see and Mary like?'   (Borsley 1983: 170)

However, if the cases assigned by the verbs differ, for example with *lubić* 'like' (accusative) and *nienawidzić* 'hate' (genitive), then it is not possible for a single wh-phrase to fulfil the contradictory case matching requirements of each verb simultaneously.

(25)   a.   *Czego*   Jan nienawidzi ⎯⎯_GEN a   Maria lubi ⎯⎯_ACC?
            what.GEN Jan hates   and Maria likes
      b.   *Co*   Jan nienawidzi ⎯⎯_GEN a   Maria lubi ⎯⎯_ACC?
            what.ACC Jan hates   and Maria likes
            'What does Jan hate and Maria like?'   (Citko 2005: 487)

An interesting exception to this, discussed by Borsley (1983), Dyła (1984), Franks (1995), Bondaruk (2003) and Citko (2005), is if the forms of two cases happen to be syncretic. For example, in the inanimate wh-series, the accusative

and genitive forms of 'what' are not syncretic (*co* vs. *czego*). However, this is the case for genitive and accusative forms of 'who' (*kogo*). What we then observe is that violations of the otherwise strict case matching requirement in ATB constructions can be repaired by syncretism:

(26) *Kogo*   Janek lubi ＿＿$_{ACC}$ a Jerzy nienawidzi ＿＿$_{GEN}$?
      who.ACC/GEN John likes   and George hates
      'Who does John like and George hate?'   (Borsley 1983: 170)

Furthermore, we find this effect in languages other than Polish. For example, in German it is also not possible to have ATB movement from positions with mismatching cases (accusative vs. dative):

(27) **Wen*   / *wem*   hat der Hans (in der Stadt) ＿＿$_{ACC}$ getroffen und
      who.ACC   who.DAT has the Hans in the city   met   and
      (mit ihren Einkäufen) ＿＿$_{DAT}$ geholfen?
       with their shopping   helped
      'Who did Hans meet (in the city) and help (with their shopping)?'

However, as with Polish, this effect is ameliorated if the forms are syncretic:[2]

(28) *Was*   *für Frauen*   hat der Hans (in der Stadt)
      what.ACC/DAT for women.ACC/DAT has the Hans in the city
      ＿＿$_{ACC}$ getroffen und (mit ihren Einkäufen) ＿＿$_{DAT}$ geholfen?
            met   and with their shopping   helped
      'What women did Hans meet and help (with their shopping)?'
                                                        (Hartmann et al. 2016)

Furthermore, this effect is by no means restricted to ATB wh-questions. There are examples of syncretism repair with ATB relativization. In (29) and (30), the Polish relative pronoun *której* is syncretic for genitive and dative and is thus licensed in relative clauses with mismatching verbs.

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[2]However, note that Hartmann et al. (2016) show experimental evidence that case mismatches under ATB topicalization in German do not seem to be repaired by syncretism (but cf. (36) below). Nevertheless, they concede that ATB wh-movement examples such as (28) seem perfectly acceptable, in contrast to the sentences they tested.

(29)   Dziewczyna, *której*   Janek nigdy przedtem nie widział
     girl   who.GEN/DAT John never before   NEG saw

     ——GEN a   dzisiaj pożyczył ——DAT pieniędzy
          and today lent   money

     'The girl who John had never seen before and today lent some money'

                            (*Polish*; Dyła 1984: 704)

(30)   Dziewczyna, *której*   ——DAT było zimno i   z   powodu
     girl   who.GEN/DAT   was cold   and from reason

     tego   ——GEN nie było na zajęciach
     this.GEN   not was at class

     'The girl who was cold and therefore not in class'

                            (*Polish*; Franks 1995: 64)

However, since there is no syncretism between accusative and genitive, a mismatch between the two cases is ungrammatical:

(31)   *Dziewczyna, *którą*   Janek lubi ——ACC a   Jerzy   nienawidzi
     girl   who.ACC John likes   and George hates

     ——GEN
     'The girl who John likes and George hates'   (*Polish*; Dyła 1984: 703)

In addition, Franks (1995) discusses case mismatches in relative clauses in Russian. In (32), the relative pronoun *kotoroj* is syncretic for instrumental and dative, meaning that case matching is satisfied.

(32)   devuška, *kotoroj*   ja byl uvlečën   ——INST i   daval
     girl   who.INST/DAT I was carried-away-with   and gave

     den'gi ——DAT
     money

     'The girl who I was carried away with and gave money to'

                          (*Russian*; Franks 1995: 63)

ATB topicalization also shows a case matching requirement that is obviated by syncretism. The third person masculine personal pronoun in Polish is syncretic for genitive and accusative (*jego*), whereas its feminine pendant is not (*ją* vs. *jej*). Consequently, only the former is possible in ATB topicalization structures with mismatched verbs.

(33) a. *Jego*   Janek lubi ___ACC a   Jerzy nienawidzi ___GEN
          him.ACC/GEN John likes   and George hates
          'Him, John likes and George hates.'

     b. *Ją   Janek lubi ___ACC a   Jerzy nienawidzi ___GEN
          her.ACC Janek likes   and George hates
          'Her, John likes and George hates.'

<div align="right">(*Polish*; Dyła 1984: 703)</div>

A similar effect is reported for German by te Velde (2005) (with an example that he attributes to van Oirsouw 1993) (34) and Blümel (2014) (35). The definite determiner in German is not syncretic for nominative and accusative (*dieser* vs. *diesen*) and is therefore impossible in ATB configurations. On the other hand, the form of the bare noun is invariant in all cases and therefore (34b) is reported to be grammatical by te Velde (2005).[3]

(34) a. *Dieser Käse   mag ich nicht ___ACC und ___NOM ist auch
          this.NOM cheese.NOM like I   not   is also
          nicht gut   für mich.
          not   good for me
          'I don't like this cheese and it isn't good for me.'

     b. *Käse*   mag ich nicht ___ACC und ___NOM ist auch
          cheese.NOM/ACC like I   not   is also
          nicht gut   für mich.
          not   good for me
          'I don't like cheese and it isn't good for me.'

<div align="right">(*German*; te Velde 2005: 229)</div>

(35) ?Bär-en   hat er ___ACC geliebt und ___DAT geholfen.
       bear-PL.ACC/DAT has he   loved   and   helped
       'He has loved and helped bears.'

<div align="right">(Blümel 2014: 30)</div>

A similar repair effect in German is also discussed by Ott (2012) for cases of so-called 'split topicalization' as in (36) (cf. Fanselow & Ćavar 2002). Whereas

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[3]This does not seem to be the case for all speakers, as noted by te Velde himself. One plausible reason for this is that the example in (34b) violates the parallelism constraint on ATB movement proposed by Franks (1993, 1995) stating that ATB movement must take place from somehow parallel structural positions (also see Kasai 2004, Citko 2006). Here, the movement originates from an object position and a subject position, see section 3.2.2 for further discussion.

the word for 'women' is syncretic in dative and accusative (*Frauen*), 'men' is not (*Männern* vs. *Männer*). Accordingly, only the syncretic form is possible in split topicalization (36).

(36)   a.   ?Frauen   vertraut er nur blonden   ——_DAT und küsst
             women.ACC/DAT trusts   he only blonde.DAT   and kisses
             er nur hübsche   ——_ACC
             he only pretty.ACC
             'As for women, he only trusts blonde ones and kisses pretty ones.'
       b.   *Männer(*-n)   hilft sie nur blonden   ——_DAT und küsst
             men.ACC(-DAT) helps she only blonde.DAT   and kisses
             sie nur hübsche   ——_ACC
             she only handsome.ACC
             'As for men, she only helps blonde ones and kisses handsome ones.'
                                                              (*German*; Ott 2012: 35)

2.6.   Interim summary

We have seen that a number of languages impose matching restrictions on items in certain constructions. In particular, there are case matching effects that arise with 'sharing constructions' in which there is a one-to-many relation between fillers and gaps. On an intuitive level, it seems that what look like *bona fide* syntactic constraints are sensitive to the morpho-phonological form of linguistic objects. Taken at face value, the existence of 'repair by syncretism' would seem to be incompatible with postsyntactic 'late insertion' approaches to morphology, e.g. Distributed Morphology (Halle & Marantz 1993, Harley & Noyer 2003, Embick & Noyer 2007, Nevins 2015). Proponents of this view assume that syntax operates on abstract feature bundles that do not contain any morpho-phonological information. Consequently, if matching violations can be overridden by paradigmatic identity of distinct cases, then this would seem to pose a serious challenge to this view. On the other hand, one could claim that the syncretism facts indicate that case matching should be a processing or PF constraint, rather than a syntactic one (cf. Smits 1991, Vicente 2015). However, implementing a matching restriction in this module of the grammar would entail PF (or the parser) having access to syntax-specific information about the case-assigning properties of individual verbs. This seems to be undesirable if we want to maintain a strictly modular view of grammar. As a result, we seem

to be faced with the problem of 'domain leakage', that is, whichever module of grammar case matching is implemented in, it will require access to information ordinarily reserved for a different module.

In what follows, we argue that this is not necessarily the case under the view that both the mechanism for ATB movement and the approach to syncretism share a common property; non-empty intersection of feature sets. In the following section, we propose a new approach to ATB that can explain the syncretism facts while still remaining compatible with a DM view of morphology.

3.   An intersection approach to ATB constructions

In this section, we present a new take on ATB constructions in which the one-to-many relation between fillers and gaps is derived by an intersection operation that creates a single item from those originating in the gaps. It will be shown how this can directly derive the link between syncretism and ATB movement under the assumption that syncretism is derived by means of underspecification. First, section 3.1 discusses the main approaches to ATB in the literature and how these struggle to capture 'repair by syncretism' in a satisfactory way. Section 3.2 will lay out some of the core assumptions required for the analysis to follow. The following section 3.3 illustrates how an intersection-based approach to ATB can explain why case matching violations can only be repaired by syncretic forms and section 3.4 discusses some implications for Right Node Raising.

3.1.   Previous approaches to ATB

A number of different theories of ATB movement have been proposed in the literature. Broadly speaking, they fall into one of two camps: Those that assume that there is 'extraction' from both conjuncts in parallel, what we might call 'symmetric approaches', and those that assume that genuine extraction only takes place from one conjunct and the other gap is not related to movement ('asymmetric approaches'). Asymmetric approaches derive the second gap in an ATB structure either via a parasitic gap, sideward movement or ellipsis. Each of these approaches will be discussed in turn, considering the extent to which they can account for the syncretism facts. Subsequently, we will do the same for symmetric approaches which either assume genuine movement from both conjuncts or a multidominant structure.

3.1.1.   Parasitic gaps

The first kind of asymmetric approach to ATB assumes that extraction only takes place from the first gap (e.g. Munn 1992, 1993, 1999, Franks 1995, Reich 2007), and the second gap contains a parasitic gap derived by empty operator movement (following the analysis of parasitic gaps in Chomsky 1981):

(37)   *Parasitic gap approach to ATB*
        What$_1$ does [$_{\&P}$ [$_{TP}$ John like t$_1$] and [$_{TP}$ Op$_2$ Mary hate t$_2$]] ?

Some motivation for this comes from the observation that certain reconstruction phenomena seem to behave asymmetrically, that is, they seem to only be able to reconstruct into the first conjunct.[4]

   In terms of deriving syncretism, one could appeal to the fact that it has sometimes been argued that parasitic gaps also exhibit case matching effects similar to what we find in ATB. For example, Bayer (1988) argues that parasitic gap constructions in German exhibit case matching (Huybregts & van Riemsdijk 1985, Kathol 2001, Himmelreich this volume). In (38), the parasitic gap is assigned dative by the verb *anbieten* 'offer', whereas the real gap is assigned genitive by *entsinnen* 'remember'. There seems to be the familiar case matching requirement (38) that is alleviated by syncretism (39).

(38)   *Dieses Polizisten   hätte   er sich [ohne   ____DAT schon
        this   policeman.GEN has.SUBJ he REFL without   already
        mal Geld   angeboten zu haben] niemals ____GEN entsinnen können
        once money offered   to have   never   remember can
        'He would have never been able to remember this policeman without
        having once offered money to (him).'

(39)   ?Der Polizei   hätte   er sich [ohne   ____DAT schon mal
        the police.DAT/GEN has.SUBJ he REFL without   already once
        Geld   angeboten zu haben] niemals ____GEN entsinnen können
        money offered   to have   never   remember can
        'He would have never been able to remember the police without having
        once offered money to (them).'   (Bayer 1988: 420)

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[4]However, this is only true for some diagnostics (Principle A, Principle C and Weak Crossover). Other diagnostics such as Strong Crossover, variable binding, idiom reconstruction and scope reconstruction behave symmetrically (see Citko 2005, Salzmann 2012*a*,*b* for discussion). This seems to indicate that diagnostics that seem to behave asymmetrically are probably sensitive to effects of linear proximity.

However, the idea that case matching in ATB is related to parasitic gaps is undermined by the fact that not all languages show case matching effects with parasitic gaps, as also discussed by Himmelreich (this volume). Bondaruk (1996, 2003) shows that Polish, the language with the most widely discussed examples of case matching in ATB, does in fact not seem to impose the same case matching requirement on parasitic gaps. In (40), the form *którą* is unambiguously accusative and not syncretic for genitive. Nevertheless, a mismatch between the real gap and the parasitic gap is tolerated, in contrast to ATB constructions.

(40)   Którą książkę   obejrzał   ___ACC [nie zabierając ___GEN]?
       which book.ACC looked.through   not taking
       'Which book did he look through without taking?'

<div align="right">(Bondaruk 2003: 230)</div>

If the explanation for case matching in ATB constructions came from the fact that ATB involves parasitic gaps, then this difference in Polish would be entirely unexpected. Furthermore, there are a number of other more fundamental asymmetries across languages between ATB and parasitic gaps, in particular the much more restricted nature of parasitic gaps cross-linguistically (see Salzmann 2012*a* for relevant discussion).

3.1.2.   Sideward movement

A closely-related approach involves the application of Nunes' (2001, 2004) *Sideward Movement* operation to ATB (Hornstein & Nunes 2002). In this approach, the filler in the ATB configuration undergoes 'interarboreal' movement (i.e. between workspaces; cf. Bobaljik & Brown 1997). In the derivation of ATB, the moved item originates in the second clause of the conjunction, which is built in its own workspace (41a). It then undergoes sideward movement to the workspace in which the first conjunct is built, where it is merged as the object of *like* (41b). At a later step, the *v*Ps form a conjunct (now in the same workspace) (41c). Finally, the wh-phrase in the first conjunct is extracted to SpecCP (41d).[5]

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[5]This approach is therefore not entirely asymmetric since, in a sense, extraction does take place from both conjuncts, but crucially movement to SpecCP proceeds only from the first conjunct and is therefore asymmetric.

(41)   *Sideward movement approach to ATB*

    a.   Workspace 1: [$_{vP}$ Mary [$_{VP}$ hate ⟨what⟩]]   ⇒

    b.   Workspace 2: [$_{VP}$ like what]   ⇒
    c.   [$_{\&P}$ [$_{vP}$ John [$_{VP}$ like what]] & [$_{vP}$ John [$_{VP}$ like ⟨what⟩]]]   ⇒
    d.   [$_{CP}$ what … [$_{vP}$ [$_{VP}$ like ⟨what⟩]] & [$_{vP}$ [$_{VP}$ hate ⟨what⟩]]]

This approach can neatly derive the fact that there is a gap in both conjuncts, however it does suffer from a number of technical issues regarding cyclicity and activity (see Salzmann 2012*a*: 401f. for critical discussion). More importantly for our present purposes, it is not clear that this approach can derive 'repair by syncretism' in any insightful way. Since there is only a single element to which case is assigned, we require that cases can be assigned multiple times to the same item, or 'stacked' (see e.g. McCreight 1988, Yoon 2004, Merchant 2006, Richards 2013, Pesetsky 2013, Assmann et al. 2014). The case matching requirement could be straightforwardly captured by stipulating that only identical cases can be stacked, but it is unclear how syncretism could be invoked as a repair without opening the door to pre-syntactic morphology (also see Salzmann 2012*a*: 431, fn.41 for discussion).

3.1.3. *Ellipsis*

A different kind of asymmetric approach derives one of the ATB gaps via ellipsis (Ha 2008, Salzmann 2012*a,b*). In Ha's (2008) approach, it is the gap in the first conjunct that is derived by ellipsis (42a), whereas Salzmann (2012*a,b*) assumes that it is the second one (42b).

(42)   *Ellipsis approaches to ATB*

    a.   *RNR & ATB (Ha 2008)*
        What$_1$ does [$_{TP}$ John like$_{[E_{RNR}]}$ ⟨what⟩] and [$_{TP}$ Mary hate t$_1$] ?
    b.   *Derivational ellipsis (Salzmann 2012a)*
        What$_1$ does [$_{TP}$ John like t$_1$] and$_{[E_{ATB}]}$ [$_{TP}$ Mary hate ⟨what⟩] ?

Ha appeals to ellipsis approaches to Right Node Raising (cf. Hartmann 2000, but see section 3.4), whereas Salzmann follows Aelbrecht's (2011) Agree-based approach to ellipsis licensing. In essence, both approaches are similar in that they involve some special version of Merchant's (2001) [E]-feature (however,

only Salzmann (2012*a*) predicts asymmetric reconstruction in the first conjunct). The ellipsis analysis, as all asymmetric approaches, faces the challenge that ATB has been argued to require a 'single identity reading', which seems to implicate a movement gap in each conjunct (see e.g. Citko 2005: 489, but cf. Munn 1999, Salzmann 2012*a*: 402, fn.4). However, instead, we will focus on the question of 'repair by syncretism'. Salzmann (2012*a*: 431, fn.41) claims that 'once ellipsis is involved and if morphological mismatches are tolerated, one may expect case matches in ATB'. Indeed, one central characteristic of ellipsis is that it is known to tolerate form mismatches of various kinds (see e.g. Fiengo & May 1994, Merchant 2013). While morphological mismatches under ellipsis provide a potentially interesting account of exceptions to a case matching requirement in ATB, it seems that an ellipsis-based account predicts that there should not be a case matching requirement at all. Consider example (2a), repeated below.

(43) *Czego   Jan nienawidzi ⎯⎯$_{GEN}$ a   Maria lubi ⎯⎯$_{ACC}$?
      what.$_{GEN}$ Jan hates   and Maria likes
      'What does Jan hate and Maria like?'

If, in the ellipsis approach to ATB, mismatches in case are assumed to be possible, then it is unclear how one can rule out (43).[6]

(44)   Czego$_1$ [$_{TP}$ Jan nienawidzi t$_1$] a$_{[E_{ATB}]}$ [$_{TP}$ Maria lubi ⟨co⟩] ?

3.1.4. *Multidominance*

Now, we turn to the symmetric approaches that assume that each of the ATB gaps is directly related to the filler. One particular approach that has

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[6]Salzmann (2012*a*: 431, fn.41) conjectures that the empirical situation surrounding 'repair by syncretism' might be more complicated, citing some inconsistency in Citko's reported judgements. Nevertheless, the syncretism repair facts for Polish seem to be relatively robust going back to Borsley (1983). Furthermore, the supposedly controversial case (an accusative/dative mismatch), which we discuss as example (72), seems to conform to our expectations in being ungrammatical. In general, if it is the phonological form, rather than features, that actually matters for mismatches under ellipsis, it seems that the ellipsis approach would be better off claiming that no case mismatches are tolerated under ellipsis and then only phonologically matching forms (identical or syncretic cases) would be correctly predicted to be possible in ATB. On the other hand, this would imply pre-syntactic morphology for Salzmann's (2012*a*) syntactic implementation of ellipsis. For Ha (2008), the problem would be that RNR has been shown to feed ATB movement out of islands (Bachrach & Katzir 2009: 288f.) and should therefore probably also be situated in the syntax.

gained much traction in recent years is the multidominance approach to ATB (Citko 2005, 2011, Gračanin-Yüksek 2007, 2013, Bachrach & Katzir 2009). This approach assumes that the filler is related to each gap, however this is not derived by movement. Instead, a multidominant view of syntax is adopted in which an element can be in more than one position simultaneously. In an ATB construction, the wh-phrase is associated with both gaps and its derived position in SpecCP, however it is only pronounced in one of these positions (45).

(45)   *Multidominance approach to ATB*
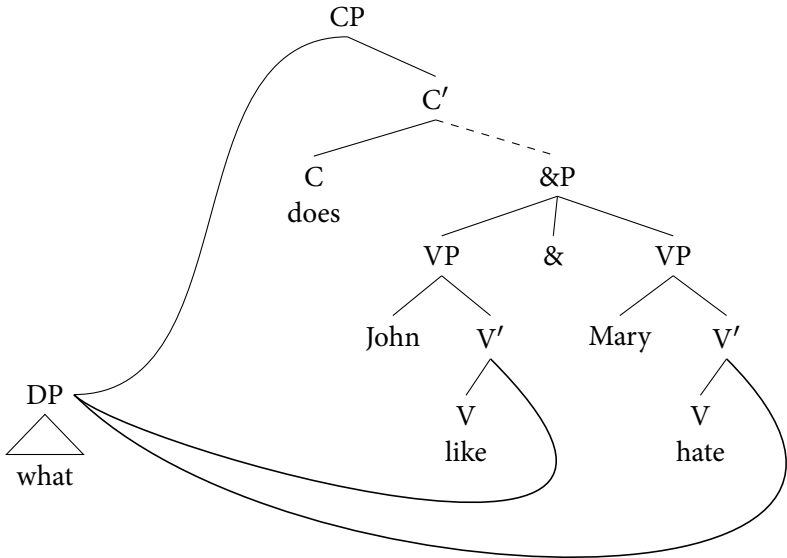
This approach has the direct advantage that it can derive 'single identity readings' of ATB, that is, it is only possible to give a single individual answer, rather than a pair-list answer, to an ATB question:

(46)   A: Who does John like and Mary hate?
    a.   B: Jane
    b.   #B: John, Bill and Mary, Jane

For other arguments in favour of a multidominance approach to ATB, see Citko (2005, 2011). However, a problematic data point that is not often discussed in conjunction with the multidominance approach is the fact that, in some

languages, ATB movement can have resumptive pronouns in the gaps. For example in Akan (Niger Congo: Ghana), Ā-movement of animate DPs triggers obligatory resumption, also in ATB wh-questions (Saah 1994, Korsah & Murphy 2016) (47).

(47)   [$_{CP}$ Hwáń$_1$ na [$_{TP}$ Kofi pɛ́ *nó$_1$*] nańsó [$_{TP}$ Ámmá tán *nó$_1$*] nó] ?
        who   FOC   Kofi like 3SG   but   Ama hate 3SG   CD
        'Who does Kofi like (him) but Ama hate (him)?'

                                                        (*Akan*; Sampson Korsah p.c.)

Furthermore, Salzmann (2012*b*) shows that it is possible to have resumptive pronouns in both gaps in ATB relativization in Zurich German (48).

(48)   de Lehrer$_1$, wo [$_{TP}$ de Hans von *em$_1$* schwärmt] und [$_{TP}$ d   Susi
        the teacher C   the Hans of   him is.excited   and   the Susi
        über *en$_1$* fluecht]
        about him swears
        'The teacher that Hans is excited about (him) and Susi hates swears about (him)'

                                                (*Zurich German*; Salzmann 2012*b*: 356)

These data are problematic for multidominance accounts of ATB since, as is clear in (45), they assume that the wh-phrase is syntactically present in both of the gaps. Whereas the multidominance account straightforwardly derives the fact that ATB movement leaves gaps, it does not seem to be possible to account for resumptive pronouns if the filler is also structurally present in its base positions.[7]

   Turning now to 'repair by syncretism', Citko (2005: 486ff.) explicitly addresses the question of how her multidominance approach can derive the fact that syncretism can repair case matching violations. Citko puts forward an explanation based on underspecification couched in the framework of

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[7]Martin Salzmann (p.c.) suggests that this might not necessarily be fatal for a 'big DP' approach to resumption, in which the DP starts out in the same phrase as the resumption pronoun and is extracted (e.g. [$_{DP}$ DP [$_{D'}$ D resumptive]]) (e.g. Boeckx 2003). If the ATB-moved item multiply dominated the specifier of both 'big DPs', then this might work. However, if one no longer has a movement approach, in which the resumptive pronoun is stranded, then it is unclear what the status of the 'big DP' is in such an analysis. A perennial problem is that these complex elements never occur overtly, so it is unclear what their motivation would be in a multidominance approach.

Distributed Morphology. She assumes that 'the lexicon contains a single *wh*-form, underspecified in such a way that it is compatible with both genitive and accusative' (Citko 2005: 487). Consider again example (4), repeated below, where syncretic forms license a mismatch in case.

(49)   Kogo   Janek lubi ——ACC a   Jerzy   nienawidzi ——GEN ?
       who.ACC/GEN John likes   and George hates
       'Who does John like and George hate?'   (Borsley 1983: 170)

Citko assumes that the wh-phrase is simultaneously present in the object position of both verbs (and also in SpecCP, of course). The element receives both case features assigned by the verbs in question (GEN and ACC) (50).

(50)   VP   VP

      V_{ACC}   V_{GEN}

            DP
      $\begin{bmatrix} \text{CASE: ACC, GEN} \\ \text{WH} \end{bmatrix}$
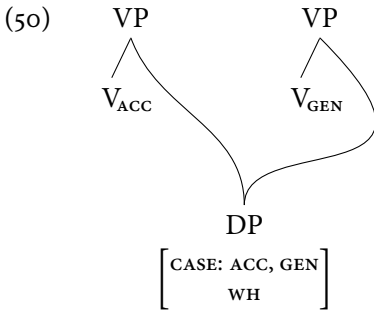
Citko (2005: 488) then states that 'the lexicon contains a single form that is compatible with both accusative and genitive case feature by virtue of underspecification' (*kogo*) and this can be inserted into the terminal. The ungrammaticality of case mismatches in the inanimate wh-series where there is no syncretism (2) (repeated below) is explained by the assumption that 'there is no single lexical item that can be inserted into this slot without a feature clash, […] the result is ungrammatical'.

(51)   a. *Czego   Jan nienawidzi ——GEN a   Maria lubi ——ACC?
               what.GEN Jan hates   and Maria likes
       b. *Co   Jan nienawidzi ——GEN a   Maria lubi ——ACC?
               what.ACC Jan hates   and Maria likes
               'What does Jan hate and Maria like?'   (Citko 2005: 487)

There are, however, a number of fundamental problems with Citko's analysis. First, Citko seems to assume privative case features (GEN, ACC). As is clear

from (50), the wh-phrase receives both ACC and GEN and bears [CASE:ACC,GEN] at the point at which Vocabulary Insertion takes place. In order for *kogo* to be inserted, the Vocabulary Item would have to bear either the features [CASE:ACC,GEN], [CASE:ACC] or [CASE:GEN]. The first option, which is actually not underspecification, would render it unfit for insertion into terminals with [CASE:ACC] and [CASE:GEN] specifications, that is, non-ATB environments where the wh-phrase is assigned only one case, following the Subset Principle (see (52) below). The second and third options would incorrectly restrict the distribution of *kogo* to either genitive or accusative contexts respectively, but do not capture the fact that the forms are syncretic.[8] Furthermore, regarding the illicit case mismatches without syncretism in (51), Citko attributes the ungrammaticality to the fact that 'there is no single lexical item that can be inserted into this slot without a feature clash' (2005: 488). However, this is not a standard approach in DM, where Vocabulary Insertion relies on underspecification and the Subset Principle to regulate competition between exponents (52).

(52) *Subset Principle (Halle 1997; our emphasis)*
      The phonological exponent of a Vocabulary Item is inserted into a morpheme in the terminal string if the item matches *all or a subset of the grammatical features specified in the terminal morpheme*. Insertion does not take place if the Vocabulary Item contains features not present in the morpheme. Where several Vocabulary Items meet the conditions for insertion, the item matching the greatest number of features specified in the terminal morpheme must be chosen.

Thus, if we have a terminal corresponding to an inanimate wh-phrase assigned both genitive and accusative, it is not true that we have a feature clash. Instead, the Subset Principle predicts that we should be able to insert either exponent since both fulfil the Subset Principle and are equally specific (53).[9]

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[8] One would be forced to have multiple entries for *kogo*, which would reduce the syncretism here to accidental homophony, see Asarina (2011).

[9] Furthermore, the way the analysis in Citko (2005) is presented seems to suggest that inanimate wh-phrases involve the absence of an [ANIMATE] feature. If this is the case, then the single Vocabulary Item for *kogo* 'who' would realize the features [CASE:ACC,GEN,WH] and constitute a subset of the terminal in (i). Furthermore, it would count as equally specific for insertion (since it also realizes three features of the terminal; [CASE:ACC, CASE:GEN, WH] and should therefore also be an option for insertion here; clearly an undesirable result.)

(53)
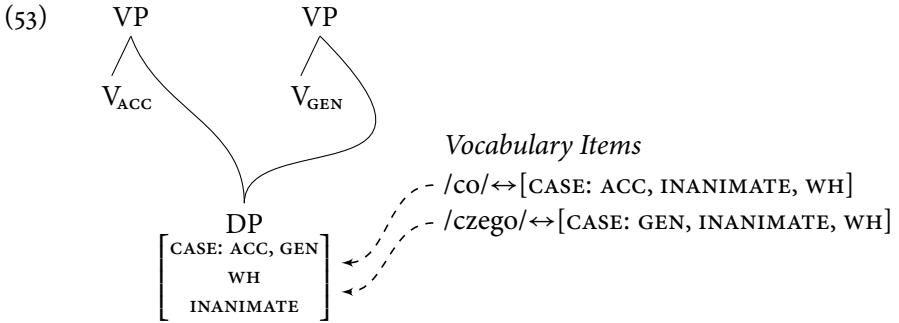
Consequently, we would expect that there should not be a case matching requirement to begin with.[10] In order for the derivation with the inanimate wh-phrase to actually crash, one would have to introduce an *ad hoc* condition on Vocabulary Insertion, which demands that features on the VI are not in conflict with features on the terminal (which only ever seems to be the case in ATB constructions). Insertion of either *co* or *czego* would be precluded by their respective case value of [ACC] or [GEN] conflicting with the additional case feature value on the terminal ([GEN] for *co* and [ACC] for *czego*). However, going down this route entails giving up the Subset Principle, one of the core assumptions of DM.[11] Thus, while Citko's vague proposal based on underspeci-

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[10] We could get around the first problem by decomposing the privative case features ACC and GEN into smaller features such as $[\pm\alpha]$ and $[\pm\beta]$ such that ACC:$[+\alpha,+\beta]$ and GEN:$[+\alpha,-\beta]$. By specifying *kogo* for $[+\alpha]$ only, it would be compatible with ACC:$[+\alpha,+\beta]$ and GEN$[+\alpha,-\beta]$, as well as a situation where a terminal bears both ACC and GEN, i.e. $[+\alpha,+\beta,+\alpha,-\beta]$. The second problem, however, remains. Even if we leave aside the conceptual question of how a terminal can bear $+\beta$ and $-\beta$ simultaneously, we would still expect that either /co/$\leftrightarrow[+\alpha,+\beta]$ or /czego/$\leftrightarrow[+\alpha,-\beta]$ could be inserted into a terminal with both genitive and accusative features $[+\alpha,+\beta,+\alpha,-\beta]$ in accordance with the Subset Principle (52).

[11] Alternatively, one could impose a ban against conflicting features on a terminal itself which could trigger a repair that deletes both conflicting features. This, however, seems implausible since deletion of only one of the conflicting features would be sufficient here. Thomas (2015) actually pursues this alternative strategy. She proposes a rule of *Case Unification* defined in (i).

(i)   *Case Unification*:
      Every DP can only have one case, i.e. bear maximally one specification of each case subfeature. If this number is exceeded, the subfeatures must be reduced by:
      a.   deleting all but one subfeature of a kind if they coincide in value or
      b.   deleting all subfeatures of a kind if instances with differing values are present.
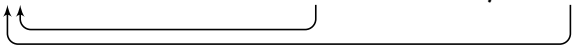
In (i) though, the different treatment of subfeatures with equal values as opposed to those with different values seems to be an *ad hoc* stipulation tailor-made for the problem at hand.

fication may sound plausible initially, it actually emerges as deeply problematic, if not untenable, when implemented explicitly.

3.1.5. *Parallel extraction*

The last approach is the most traditional one and assumes that we can simply extract from both conjuncts simultaneously (54) (e.g. Ross 1967, Williams 1978, Dyła 1984, Blümel 2013, 2014).

(54)   *Parallel extraction approach to ATB*
        What$_1$ does [$_{\&P}$ [$_{TP}$ John like t$_1$] and [$_{TP}$ Mary hate t$_1$]] ?

For reasons that are still poorly understood (but see section 3.2.2), this particular kind of extraction can circumvent the *Coordinate Structure Constraint*, stating that extraction from a single conjunct is not possible (Ross 1967, Grosu 1973). Furthermore, it is unclear how moving two items can result in a single filler (cf. Blümel 2013, Weisser 2015: 147). This has typically been handled by construction specific rules (Ross 1967, Williams 1978), however this is something that the analysis to follow will explain. Since this approach is also symmetric, it shares with multidominance analyses the virtue of being able to explain single identity readings in ATB constructions.

Regarding the question of 'repair by syncretism', current parallel extraction approaches have to more or less stipulate the case matching requirement in one way or another (e.g. Dyła 1984: 702). For example, Blümel (2014) simply states the matching requirement as part of a 'condition on chain formation' (55b):

(55)   A movement chain must
        a.   comprise non-distinct members (i.e. they must be featurally identical)
        b.   be headed by a syntactic object which receives an exponent compatible with all lower chain members.

                                                                    (Blümel 2014: 30)

Since chain formation is most plausibly syntactic in nature, Blümel's approach is clearly incompatible with a postsyntactic view of morphology (despite his claims to the contrary; Blümel 2014: 31). The new approach that we pursue is also a symmetric extraction approach. However, the crucial difference to existing

symmetric extraction approaches is that it can explain both the one-to-many relation between fillers and gaps and the syncretism repair property.

3.2.   Theoretical assumptions

In the following, we propose an account of ATB dependencies that utilizes an intersection of the ATB-moved elements to create a single filler. In order to derive this, we will introduce new assumptions, or make some already existing ideas more explicit. The motivation for each of these assumptions will be discussed in turn.

3.2.1.   *Movement via an external workspace*

The existence of complex specifiers necessitates more than one workspace in a syntactic derivation. In (56), the complex subject *the man with the hat* undergoes External Merge with v' as its specifier, however, this complex DP must have been built somewhere other than the current workspace, i.e. from another numeration, see e.g. Nunes & Uriagereka (2000: 22), Nunes (2004: 174), Putnam (2007: 99), Di Sciullo & Isac (2008: 287), and Collins & Stabler (2016: 47).

(56)
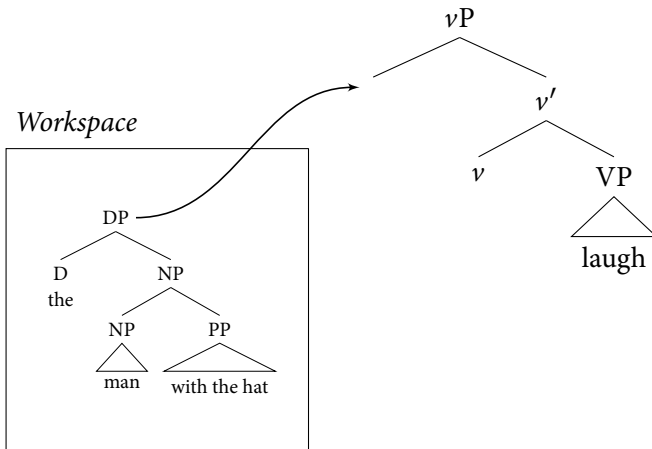
This existence of an additional workspace has been exploited by Nunes (2001, 2004) who assumes that it is possible for elements to undergo 'sideward' movement to another workspace of the local tree. Furthermore, there has been

an effort to dispense with a separate operation for movement, and instead view movement as a kind of Merge (e.g. Chomsky 1995, Starke 2001). In particular, movement is assumed to be a variant of External Merge, with the difference being whether the target of the operation is included in the same workspace (Collins & Stabler 2016: 48). Both operations have in common that they obey Chomsky's (1995) *Extension Condition*, stating that Merge must apply at the root node (i.e. extend the tree). We claim that one natural way to capture this is to actually decompose Internal Merge into two steps: Sideward Movement & External Merge. In the Copy of Theory of Movement, it seems that Internal Merge is already often (tacitly) assumed to consist of two steps: the first step creates a copy, and the second step involves External Merge of this copy at the root (this is made explicit in Putnam 2007, Stroik 2009 and Stroik & Putnam 2013: 22). One question that is not often explicitly addressed is where exactly this moving copy is generated and stored. It seems desirable to assume that External Merge always accesses an item in a separate workspace. Thus, we assume that all instances of Internal Merge proceed in a two-step fashion as in (57): 'sideward' movement to an external workspace (creating a copy) followed by External Merge at the root node.

(57)   Who did John see?
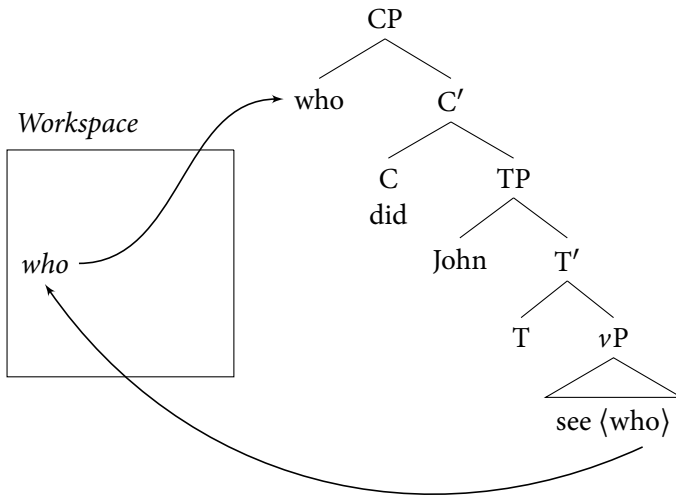
3.2.2.   *Parallel movement*

Another assumption we make is that ATB involves parallel movement, that is, simultaneous movement from two distinct positions to a single landing site.[12] It has been long noted that ATB must take place from 'parallel positions' (Williams 1978, Franks 1993, 1995, Kasai 2004, Citko 2006). For example, ATB extraction from a subject and object position is not possible:

(58)   *I know a man who [Bill saw t_1] and [t_2 likes Mary].

<div align="right">(Williams 1978: 34)</div>

Furthermore, Franks (1993, 1995) discusses ungrammatical examples of ATB movement from Russian, in which the case matching requirement is met, but the extraction is from different structural positions, and therefore illict. Given the Strict Cycle Condition (SSC) (Chomsky 1973), we can derive the parallelism requirement by assuming that ATB involves simultaneous movement to an external workspace as in (59).

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[12]Note that the idea of parallel movement chains already exists in the literature, but in fact in the opposite sense. Chomsky (2008) proposes that it is possible for a wh-phrase to move in parallel to SpecTP and SpecCP (also see Bošković 2012). This idea is motivated by the fact that traces of wh-movement in Icelandic trigger defective intervention (i) in a way that A-movement does not (ii) (Holmberg & Hróardóttir 2003).

(i)   *Hvaða manni*$_1$ veist þú að   virðist/*virðast t_1 [$_{TP}$ hestarnir   vera seinir]
       which man.DAT know you that seem.3SG/*seem.3PL   horses.NOM be   slow
       'To which man do you know that the horses seem to be slow?'

(ii)   *Mér*$_1$ virðast t_1 [$_{TP}$ hestarnir   vera seinir]
       me.DAT seem.3PL   horses.NOM be   slow
       'It seems to me that the horses are slow.'

The assumption is that the wh-phrase moves in parallel to SpecTP and SpecCP and its initial trace therefore counts as an A/$\overline{\text{A}}$-trace and can trigger intervention. Crucially, this approach to parallel chains has one element moving to two positions simultaneously, rather than two elements undergoing movement to a single position.

(59)
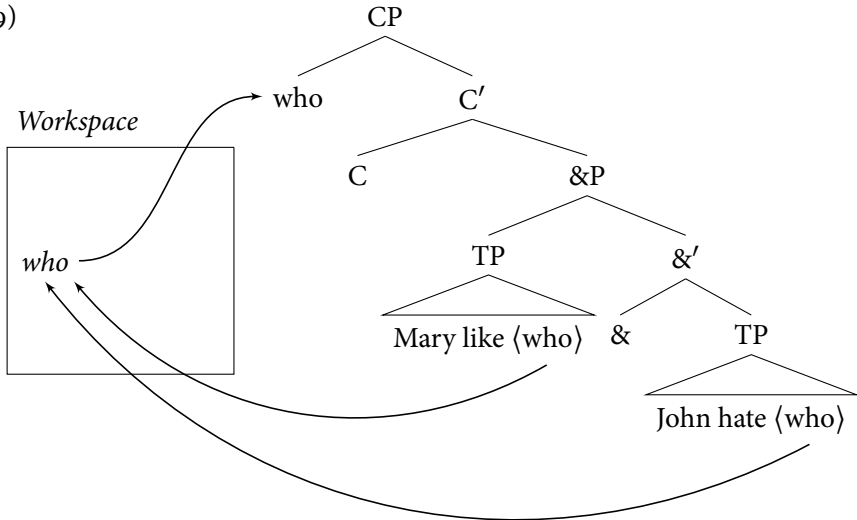
For reasons that will be made clear in the following section, parallel movement to an external workspace results in a single item, which is subsequently remerged into the structure. Assuming that the SSC holds across conjuncts (i.e. they are built in parallel), extraction from the same position (i.e. subject or object) will be possible, whereas extraction from different positions will result in a SSC violation.[13]

Parallel movement would therefore seem to be restricted to coordinate structures.[14] One possible reason for this could be that it is a Last Resort option to circumvent the Coordinate Structure Constraint (CSC, Ross 1967) that militates against extraction from a single conjunct. If we take a representational

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[13] In (59), movement takes place relatively late, however it is conceivable that this sideward movement takes place at a much earlier point of the derivation (e.g. *v*P) for reasons of phasehood and/or cyclicity.

[14] While ATB movement is overwhelmingly found in coordinate structures, Vicente (2015, to appear) claims that there are case of ATB extraction outside of coordination. He offers some examples, whose status seems unclear. The following example from Munn (1999) is illustrative.

(i)   Who did you send pictures of ___ to ___ ?

First, it is unclear whether these are parasitic gaps (but Vicente argues against this position due to the apparent availability of sloppy readings) and second, it is unclear to which extent these kinds of examples reflect a productive ATB strategy outside of coordinate structures. The examples in question do not seem particularly well-formed to us and overwhelmingly favour strict, single identity readings.

view of the CSC as in (60) (see Mayr & Schmitt 2013: 41, Weisser 2015: 197f., but cf. Kato 2005), then no extraction can take place from a single conjunct at any point of the derivation. Crucially, by moving in parallel we avoid both of the configurations banned by (60):

(60)   *Coordinate Structure Constraint (Weisser 2015: 197)*
        In a structure $[_{\&P}\ A\ [_{\&'}\ B\ ]]$, movement (out) of either A or B is prohibited:
        $*[\ \alpha \ldots\ [_{\&P}\ [_A\ t_\alpha\ ]\ \&\ [_B\ \beta\ ]]]$
        $*[\ \beta \ldots\ [_{\&P}\ [_A\ \alpha\ ]\ \&\ [_B\ t_\beta\ ]]]$

Furthermore, this general approach can help to make sense of an interesting restriction on ATB movement reported by Kasai (2004), Citko (2005, 2011). In multiple wh-fronting languages such as Polish, it is not possible to combine ATB extraction and multiple wh-fronting:

(61)   a. *$Kogo_1$ $kogo_2$ $[_{TP}$ Jan lubi t_1] a $[_{TP}$ Maria kocha t_2] ?
            who.ACC who.ACC   Jan likes   and   Maria loves
            'Who does Jan like and Maria love?'
        b. *$Kogo_1$ $komu_2$ $[_{TP}$ Jan lubi t_1] a $[_{TP}$ Maria się
            who.ACC who.DAT   Jan likes   and   Maria REFL
            przygląda t_2] ?
            looks.at
            'Who does Jan like and Maria look at?'   (Citko 2005: 492)

As Citko argues, this follows under a multidominance approach. Under a movement-based approach, these examples serve to show us that parallel extraction (somehow resulting in a single filler) is the only way to leave a coordination structure since multiple ATB wh-fronting entails two separate extraction operations that each violation the CSC as defined in (60). Revealingly, multiple wh-fronting is possible only if each filler corresponds to two gaps:

(62) Co_1 $komu_2$ $[_{TP}$ Jan kupił $t_1\ t_2$] a $[_{TP}$ Piotr wysłał $t_1\ t_2$] ?
        who.ACC who.DAT   Jan bought   and   Peter sent
        'What did Jan buy for whom and Peter send to whom?'

   (Citko 2011: 57)

As a result, even in languages with the option of multiple wh-fronting, extraction from a coordinate structure must involve parallel movement. How exactly this parallel movement results in a single filler is discussed in the following section.

3.2.3.   *Feature set intersection*

In the previous section, we established our assumption that ATB movement proceeds in parallel to an external workspace, however, how does ATB extraction result in a single filler if two elements are moved simultaneously? We suggest that parallel movement to an external workspace results in set intersection of the feature sets of the moving elements. Recall that parallel sideward movement is viewed as a Last Resort solution to circumvent the CSC and is therefore not the norm. We assume that the external workspace has a restriction that it can hold a single moving item. As a result of this restriction, something must happen if two items move in parallel. It seems we have two options: (i) intersection of feature sets, (ii) unification of feature sets. The latter option would run into the same problems shown for Citko's DM approach in section 3.1.4, since the wh-phrase would bear both case values in a unification approach (also see footnote 19). Thus, we assume that if more than a single item is moved (via the external workspace), intersection of the feature sets of these items must take place. In a simple example of ATB movement in (63), both wh-phrases (with matching feature sets) are intersected in the external workspace, resulting in a single wh-phrase bearing the same features as the two moved items. This single element then re-enters the structure at the the landing site for ATB movement.

(63)
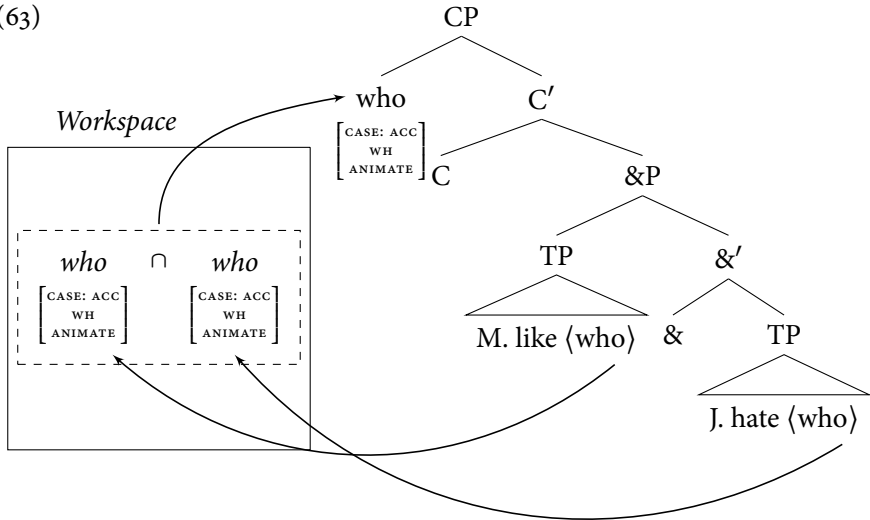
In this way, we can derive the asymmetric relation between fillers and gaps that is a hallmark of ATB dependencies. Furthermore, if the feature sets of the items do not intersect for a particular feature, for example animacy features with *who* ([+anim]) and *what* ([−anim]), then the value of that feature will be empty and thus result in a crash (given *Full Interpretation*; Chomsky 1995). Example (63) is a somewhat trivial case, in which both of the intersected items have exactly the same features. However, as we show in the next section, this intersection operation has interesting, welcome consequences when cases do not match, but are syncretic.[15]

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[15]One might also wonder how it is possible to intersect complex wh-phrases such as *which book*. One option is that the wh-determiner and NP are intersected separately, but this may not even be necessary if we view complex DPs from a set-theoretic perspective (e.g. Chomsky 2013). For example, a complex wh-phrase is a set containing two elements: a set containing the features of the determiner and another set containing the features of the NP (i).

(i)   *which book* = $\{\{\text{D, ACC}, \phi\}_{which}, \{\text{D, ACC}, \phi\}_{book}\}$

Thus it should be possible to intersect these complex objects directly, without first decomposing them:

(ii) $\{\{\text{D}, \beta, \alpha, \phi\}_{which}, \{\text{D}, \beta, \alpha, \phi\}_{book}\} \cap \{\{\text{D}, \alpha, \gamma, \phi\}_{which}, \{\text{D}, \alpha, \gamma, \phi\}_{book}\}$
$= \{\{\text{D}, \alpha, \phi\}_{which}, \{\text{D}, \alpha, \phi\}_{book}\}$

3.3.   Deriving ATB with syncretic forms

This section will illustrate how 'repair by syncretism' follows naturally in an intersection approach to ATB movement on the basis of the examples from Polish. To begin with, we decompose standard case features in Polish into the smaller binary subfeatures [±subj(ect)], [±gov(erned)], and [±obl(ique)] (Jakobson 1962, Bierwisch 1967, Wiese 1999, Alexiadou & Müller 2008) in (64).[16]

(64)   *Polish case decomposition and wh-phrases*

Case	Decomposition	wh_{anim}	wh_{inan}
NOM	[+subj −gov −obl]	*kto*	*co*
ACC	[−subj +gov −obl]	***kogo***	*co*
GEN	[+subj +gov +obl]	***kogo***	*czego*
DAT	[−subj −gov −obl]	*komu*	*czemu*
INS	[+subj −gov +obl]	***kim***	***czym***
LOC	[−subj −gov +obl]	***kim***	***czym***

Syncretism can then be captured by assuming that syncretic forms are underspecified and realize a feature that is present in both contexts.[17] In other words, syncretic forms must have at least one feature in common (the one that the syncretic form realizes), i.e. their contexts' feature sets must overlap. For example, one can see in (64) that animate wh-phrases in the genitive and the accusative share the feature [+gov]. Thus, the exponent *kogo* can be underspecified for only [+gov, +anim] and will therefore be inserted in both accusative and genitive animate contexts. We assume the following Vocabulary Items for Polish wh-phrases:

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[16] Note that the features we use are arbitrary. However, for convenience, we adopt the conventional labels ±*subject*, ±*governed* and ±*oblique* without attributing these any semantic relevance. They could easily be replaced by ±α, ±β, ±γ.

[17] An alternative approach is to use postsyntactic rules (e.g. impoverishment rules) to derive syncretism (see Himmelreich this volume), however, we find this approach somewhat more *ad hoc* and are unsure of how it is compatible with 'repair' effects of syncretism.

(65)   *VIs for Polish wh-phrases*

<div align="center">Animate series</div>

DAT	/komu/	↔ [−subj −gov −obl +anim]
NOM	/kto/	↔ [+subj −gov −obl +anim]
INS,LOC	/kim/	↔ [−gov +obl +anim]
ACC,GEN	/kogo/	↔ [+gov +anim]

<div align="center">Inanimate series</div>

DAT	/czemu/	↔ [−subj −gov −obl −anim]
GEN	/czego/	↔ [+subj +gov +obl −anim]
INS,LOC	/czym/	↔ [−gov +obl −anim]
NOM,ACC	/co/	↔ [−obl −anim]

Although ATB is independently assumed to involve intersection in order to derive the one-to-many relation we observe between fillers and gaps, we also see that this will derive the case matching data, in particular, repair by syncretism in the following way: If we try to ATB-move two wh-phrases with mismatching cases, those with an overlapping feature will result in a successful intersection and – provided that there is a suitably underspecified VI – will be realized by that VI. We will show this in detail in the following sections.

3.3.1.   ATB with matching cases (no syncretism)

An example of an ATB dependency with matching cases is given in (66) where both verbs assign accusative case to an animate wh-phrase.

(66)   Co   Janek widział ___ACC a   Maria lubiła ___ACC ?
         what.ACC John saw   and Mary liked
         'What did John see and Mary like?'

As we saw in previous sections, both wh-phrases move in parallel via the external workspace. Given the assumption this workspace can only hold one item, both items undergo feature set intersection. Since in this case both items have exactly the same case features the newly formed item is identical to each of the two moving items, that is, it bears a fully specified accusative case. This new item is then merged from the external workspace into SpecCP.

(67)

CP
- wh $\begin{bmatrix} -\text{subj} \\ +\text{gov} \\ -\text{obl} \\ -\text{anim} \end{bmatrix}$
- C′
  - C
  - &P
    - TP
      - … wh$^{\text{ACC}}$ $\begin{bmatrix} -\text{subj} \\ +\text{gov} \\ -\text{obl} \\ -\text{anim} \end{bmatrix}$ …
    - &′
      - &
      - TP
        - … wh$^{\text{ACC}}$ $\begin{bmatrix} -\text{subj} \\ +\text{gov} \\ -\text{obl} \\ -\text{anim} \end{bmatrix}$ …

Workspace

wh $\begin{bmatrix} -\text{subj} \\ +\text{gov} \\ -\text{obl} \\ -\text{anim} \end{bmatrix}$ ∩ wh $\begin{bmatrix} -\text{subj} \\ +\text{gov} \\ -\text{obl} \\ -\text{anim} \end{bmatrix}$
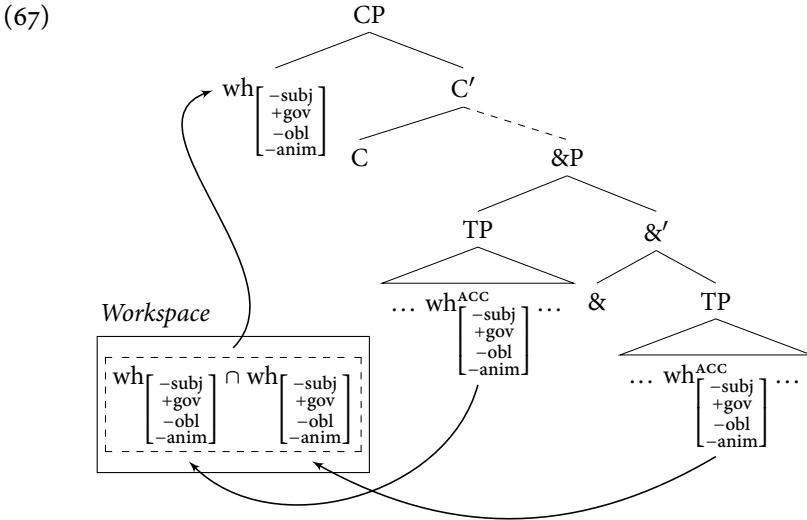
At Spell-Out, only one of the four wh-vocabulary items from the inanimate series (68), namely *co*, is specified for a subset of the wh-phrase's morphosyntactic features and therefore available for insertion. All other VIs are specified for at least one feature-value that is not part of the terminal. Hence, the accusative marker *co* is inserted as expected in accordance with the Subset Principle.

(68)   *Vocabulary insertion*:
/czemu/ ↔ [−subj −gov −obl −anim] ⊄ {−subj +gov −obl −anim}
/czego/ ↔ [+subj +gov +obl −anim] ⊄ {−subj +gov −obl −anim}
/czym/ ↔ [−gov +obl −anim] ⊄ {−subj +gov −obl −anim}
/co/ ↔ [−obl −anim] ⊆ {−subj +gov −obl −anim}

3.3.2.   *ATB with mismatching cases (no syncretism)*

Now consider an example like (69) where one verb assigns genitive and the other accusative. Because the wh-phrases for both cases are not syncretic, the resulting sentences are ungrammatical.

(69)   a.   *Czego   Jan nienawidzi ___GEN a   Maria lubi ___ACC?
             what.GEN Jan hates   and Maria likes

b. *Co   Jan nienawidzi ___GEN a   Maria lubi ___ACC?
   what.ACC Jan hates   and Maria likes
   'What does Jan hate and Maria like?'   (Citko 2005: 487)

Again, as this is ATB movement, both wh-phrases move in parallel into the external workspace where they are intersected. In contrast to the above example with matching cases, there is a case mismatch between the moving items. The resulting single wh-phrase is thus specified for only those features which are present on both movees. These are features that accusative and genitive have in common plus the animacy (and wh) feature which are the same on both items. Since both cases differ in their value for [±subj] and [±obl] but have the same [+gov] value the newly formed wh-phrase only bears the latter together with the [−anim] feature (70).

(70)
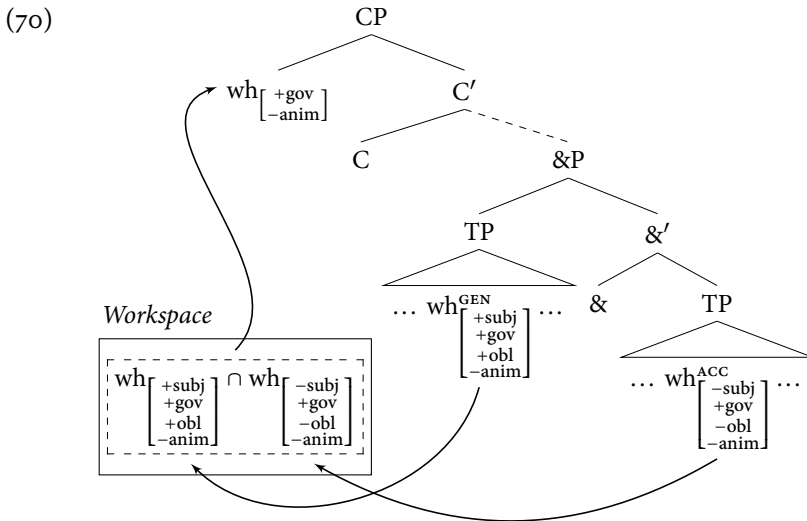
When vocabulary insertion takes place, none of the vocabulary items of the inanimate series fulfils the Subset Principle. All of them are specified for features like [±subj] or [±obl] which are not present on the terminal. Hence, none of them can be inserted. For reasons of recoverability, however, a wh-phrase cannot remain unrealized at PF and the failure of vocabulary insertion results in a crash of the derivation which explains why (69) is ungrammatical.

(71)   *Vocabulary insertion*:
/czemu/ ↔ [−subj −gov −obl −anim] ∉ {+gov −anim}
/czego/ ↔ [+subj +gov +obl −anim] ∉ {+gov −anim}
/czym/↔ [−gov +obl −anim] ∉ {+gov −anim}
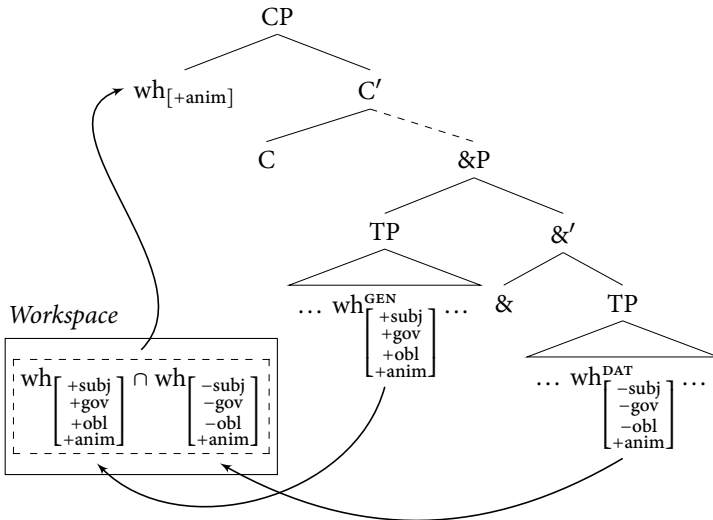/co/ ↔ [−obl −anim] ∉ {+gov −anim}

3.3.3. ATB with mismatching cases (empty intersection)

In addition, there is another way in which a case mismatch can lead to a crash and, thus, ungrammaticality. Consider a case mismatch like (72) where one verb *nienawidzić* 'hate' assigns genitive and the other verb *ufać* 'trust' assigns dative.

(72)   a.   *Kogo   Jan nienawidzi ____GEN a   Maria ufa   ____DAT?
          who.ACC/GEN Jan hates   and Maria trusts
          'Who does Jan hate and Maria trust?'
      b.   *Komu   Jan nienawidzi ____GEN a   Maria ufa   ____DAT?
          who.DAT Jan hates   and Maria trusts
          'Who does Jan hate and Maria trust?'   (Joanna Zaleska, p.c.)

As in the examples discussed above, both wh-phrases move to the external workspace in parallel and a new single wh-phrase is created by intersecting both of them. However, since genitive and dative have different values for all three case features, the new item that is merged in SpecCP only bears an animacy feature but remains unspecified for case (73).

(73)

CP

wh$_{[+\text{anim}]}$ C′

C   &P

TP   &′

Workspace

… wh$^{\text{GEN}}\begin{bmatrix}+\text{subj}\\+\text{gov}\\+\text{obl}\\+\text{anim}\end{bmatrix}$ …   &   TP

$\text{wh}\begin{bmatrix}+\text{subj}\\+\text{gov}\\+\text{obl}\\+\text{anim}\end{bmatrix} \cap \text{wh}\begin{bmatrix}-\text{subj}\\-\text{gov}\\-\text{obl}\\+\text{anim}\end{bmatrix}$

… wh$^{\text{DAT}}\begin{bmatrix}-\text{subj}\\-\text{gov}\\-\text{obl}\\+\text{anim}\end{bmatrix}$ …

In other words, the newly formed wh-phrase is unvalued for case. Since there is no other case-assigner in the structure who at this point has not already assigned its case the item remains case-less until spell-out. A DP that does not have case, however, is in conflict with the Case Filter (or whatever ensures that DPs have case, e.g. *Full Interpretation*; Chomsky 1995). The derivation therefore crashes at the interface to PF.

3.3.4. *ATB with mismatching cases (with syncretism)*

The interesting case now concerns ATB movement with mismatching cases that happen to be realized by the same (syncretic) form. Consider the, by now familar, case in (74).

(74)   Kogo   Janek lubi __ACC a   Jerzy   nienawidzi __GEN ?
       who.ACC/GEN John likes   and George hates
       'Who does John like and George hate?'   (Borsley 1983: 170)

As usual, ATB movement proceeds via parallel movement to an external workspace where both wh-phrases are intersected to create a new single wh-phrase. Again, like in (70), accusative and genitive only have one feature-value in common which is [+gov], while they differ in the values for the other two

case features [±subj] and [±obl]. The new wh-phrase is thus specified for [+gov] and, in contrast to (70), importantly also for [+anim] instead of [−anim].

(75)
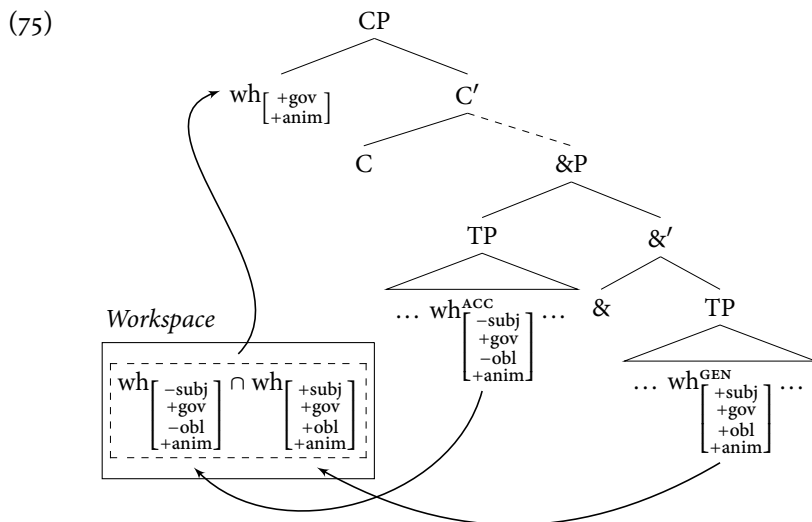
In contrast to the inanimate series, the animate series of Polish wh-vocabulary items contains a VI that is syncretic for accusative and genitive. *Kogo* is underspecified for [±subj] and [±obl] in exactly the same way that the wh-terminal in SpecCP is. It therefore fulfils the Subset Principle and can be inserted. Since ATB and syncretism employ the same underlying mechanism, i.e. intersection of feature sets, a syncretic vocabulary item can repair a case mismatch in an ATB dependency.

(76)   *Vocabulary insertion*:
       /komu/ ↔ [−subj −gov −obl +anim] $\not\subseteq$ {+gov +anim}
       /kto/ ↔ [+subj −gov −obl +anim] $\not\subseteq$ {+gov +anim}
       /kim/↔ [−gov +obl +anim] $\not\subseteq$ {+gov +anim}
       /kogo/ ↔ [+gov +anim] $\subseteq$ {+gov +anim}

3.4. Implications for Right Node Raising

The current approach to ATB dependencies also has potentially interesting implications for the debate about the proper analysis of Right Node Raising (RNR) (Bošković 2004, Abels 2004, Bachrach & Katzir 2009, Barros & Vicente

2011, Larson 2012). Right Node Raising (77) is a notoriously heterogeneous phenomenon and it is unclear what its correct treatment is. There are essentially three main contenders (i) ATB movement (e.g. Postal 1974, Sabbagh 2007), (ii) phonological ellipsis (e.g. Wilder 1997, Hartmann 2000) and (iii) multidominance (e.g. McCawley 1982, Gračanin-Yüksek 2013). Of these approaches, the general consensus seems to be that the evidence against an ATB movement account of RNR is pretty damning (e.g. Abels 2004, Bachrach & Katzir 2009, Larson 2011, Barros & Vicente 2011).[18] For example, RNR has been shown to display insensitivity to other processes that ordinarily constrain rightward movement, e.g. the *Right Roof Constraint* (Ross 1967). Consequently, the present debate focuses on whether the ellipsis or multidominance approach is correct, or even both (Barros & Vicente 2011).

However, there is a potentially new argument in favour of movement, based on what has been shown here. If the current approach is correct that 'repair by syncretism' effects that arise in 'sharing constructions' such as ATB wh-movement cannot be adequately captured by ellipsis or multidominance (cf. sections 3.1.3 and 3.1.4), then finding such effects with RNR would constitute an argument in favour of a movement-based approach. Asarina (2011) reports exactly this kind of data for RNR in Russian (77).[19]

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[18] However, see Sabbagh (2007) for some scope data that seem to support a movement-based account. Furthermore, Bachrach & Katzir (2009) make the interesting observation that RNR can feed, i.e. license, ATB movement out of islands. Although they have a rather involved account of this fact based on multidominance and 'delayed Spellout', the most natural explanation of these facts would be that RNR is syntactic movement that can therefore interact with other kinds of extraction.

[19] Asarina's (2011) approach to dealing with conflicting case values on a single terminal differs from Citko's (2005). When an element with a given feature matrix is assigned a second, different value for the already valued case feature, the whole feature matrix is duplicated to accommodate that value. The element then has two feature matrices that differ only in the value for the case feature. As long as both matrices can be spelled out by the same morphological rule (i.e. one that does not make reference to the distinct feature and is thus underspecified), the result is grammatical.

However, even though the rule should actually be able to spell out both feature matrices only one exponent exists on the surface. In effect, this ties insertion of a VI into a terminal's feature matrix to a potential insertion of the same VI in the other feature matrix on the terminal even though that second insertion never actually happens. Roughly paraphrased: A VI may be inserted into a terminal with two feature matrices as long as it remains unclear which of the two it actually realizes. Thus, this leads back to the additional ban against a feature clash for vocabulary insertion: A VI may only be inserted into a terminal if it is not in conflict with any features on that terminal (even if they are in a different feature matrix). Another potential

(77) *On ne ostavil ____ACC , tak kak emu nadoela ____NOM ,
      he not kept   as   him sick.of
      tarelk-a/-u   s   chürnoj kaëmkoj.
      plate-NOM/-ACC with black   border
      'He didn't keep, as he was sick of, the plate with the black border.'

(78) On ne ostavil ____ACC , tak kak emu nadoela ____NOM ,
      he not kept   as   him sick.of
      bljudc-e   s   chürnoj kaëmkoj.
      saucer-ACC/NOM with black   border
      'He didn't keep, as he was sick of, the saucer with the black border.'

In (77), 'plate' is not syncretic in the nominative and accusative cases (*tarelka* vs. *tarelku*) and therefore the mismatch is ungrammatical. However with 'saucer', the form *bljudce* is syncretic for both cases and this licenses a mismatch. This kind argument has not yet featured particularly in the debate on RNR, however it seems that the relevant ability of the theories at hand to capture 'repair by syncretism' effects should have a bearing on the question of its correct treatment.

4. Conclusion

In this paper, we have shown how one can derive the fact that case matching requirements imposed on ATB constructions by a number of languages can be circumvented by syncretism. On the face of it, these data seem to be incompatible with a postsyntactic view of morphology since morphological form seems to play a role in licensing ATB movement. Whereas existing approaches are forced to simply state 'repair by syncretism' as a fact, or their proposal turns out to be flawed, we have shown that an intersection-based approach to ATB can derive the syncretism facts in an elegant way. In this approach, intersection is the operation independently required to derive the one-to-many 'sharing' characteristic of ATB, since it is otherwise puzzling why movement of two items results in a single filler. Once intersection is established as the core mechanism for deriving ATB, the syncretism facts follow naturally (given an underspecification approach to syncretism), rather than having to be

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problem is that if syntactic objects are understood as being just bundles of features duplicating an element's feature matrix is the same as duplicating the actual element itself.

stated additionally. In particular, we have shown how the present approach can derive the classic facts of syncretism repair with case matching violations in Polish. Of course, any extension to other languages with similar effects, such as German or Russian, may entail a different case decomposition (as the syncretism will most likely differ), however the basic mechanism will remain the same.

Furthermore, we have argued that only a movement-based account with intersection can adequately derive the ameliorating effect of syncretism. The most (if not only) worked-out approach in multidominance theories, Citko (2005), is beset with a number of technical problems that become apparent once one tries to implement the proposal in a more explicit way. We have argued that this has potentially interesting consequences for the debate about the correct analysis of RNR. Multidominance is often invoked as the most likely explanation for this phenomenon, however the existence of syncretism repair facts in these constructions (e.g. in Russian) would seem to undermine this, given the present inadequacy of multidominance approaches in deriving this. Of course, one could enrich these theories with further operations (e.g. intersection for conflicting feature sets), but this lacks the elegance of an approach such as the present one, in which the motivation for intersection is independent of syncretism.

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