4

A morphosyntactic account of agreement in Mara

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4.1 The status of Agree studies

Our main claim is that the cyclic Agree mechanism in syntax, combined with specific post-syntactic morphology, should be able to account for the order of morphemes that we see in Mara. What is of interest and is challenging is the dis-harmonizing affix order, which we find much more in Mara than in the otherwise similar Kiranti languages of Nepal (and Sikkim). When the correlation between word order and the preference for prefixal and suffixal order of affixes breaks down, a dis-harmonizing affix order results in the appearance of prefixes for OV or suffixes for VO languages. Greenberg (1966) notes that the head order in a language relates not only to the order of adpostions (with respect to their nominal heads) but also to whether a language shows preference for prefixes (for VO languages) or suffixes (OV languages). Although this harmonizing tendency was not stated as a case of direct correlation in Greenberg, the correlation between head order prefix/suffix preference was implied and assumed by subsequent work in the typological and historical linguistics literature. However, this has been neither pointed out nor commented upon in the formal literature. Jacques (2013) looks at the reason for this kind of dis-harmonizing affix order in an SOV language diachronically, discards the two possible rationales for disharmonizing order, namely, cognitive and prosodic reasons, and conjectures the rise of prefixes in an SOV language as a language-internal development without the language needing to have gone through an earlier VO order. When it comes to syntactic analyses, we have not come across work which has looked at the prefixal position of inflectional affixes in an SOV language. For example, Despić, Hamilton, and Murray (2019), looking at Algonquian languages, concentrate on inner suffixes, while Giorgi (2019 [2017]) discusses a Sino-Tibetan language (Hayu)—working from published sources. Hayu is a language without prefixes, as are most of the Kiranti subgroups of Tibeto-Burman languages (TB) in Nepal.

This state of affairs has directly influenced the lack of formal analysis of agreement as such in these languages, making the study of agreement in general poorer for it. This skewed development of agreement studies, however, is not surprising

when we realize that a substantially higher number of world's languages (whether OV or VO) are 'strongly suffixing' than they are 'strongly prefixing': as many as 38% of the languages sampled by the World Atlas of Language Structures (WALS) database (Dryer and Haspelmath 2013) are strongly suffixing, as compared to only 6% which are strongly prefixing—a fact also corroborated as early as Sapir (1921). In addition, most of the syntactic analyses of multiple agreement have been conducted for languages with harmonizing rather than dis-harmonizing prefixing languages. Working out the prefixal argument affixes in a rigidly SOV languages is a challenge that we take up in this chapter.

There are bigger issues lurking behind this that we will not have space to devote to here[1] but that certainly impinge upon the current state of research in a formal discipline like syntax, which continues to emphasize and highlight research on single-argument agreement languages and (as we see here) on languages with majority harmonizing order of agreement affixes in case of multiple agreement languages as in Algonquian, Mayan, Oto-Manguean, and Niger-Congo (Bantu) languages (mostly prefixal order of affixes in VO order). In this context, presenting new formal research from the largely ignored Himalayan group of languages is perhaps a step towards a newer understanding of agreement phenomenon. Head-marking languages showing unilateral dependency may demand a treatment different from studies focusing only on dependent-marking languages—as noted as early as Nichols (1986), who also called this phenomenon not 'agreement' but 'cross-reference'.

4.2 A brief introduction to the problem

The relevant initial examples are given in (1):

(1) zaɲijɑ   ej-tʃə-m̩ɔu   [Mara]   1→2
     yesterday   1-2-see
     'I saw you yesterday.'

In these languages, object agreement comes to the fore more prominently in the specific phenomenon within agreement that highlights the role of person hierarchy in multiple agreement. That is, when the argument alignment is 2/3→1, meaning when the subject is either 2nd or 3rd person and the object is the 1st person, the order of agreement affixes changes from what is shown in (1) such that the object alone is prefixed—for example, as in (2), while the subject (2nd person in (2a)) is marked as a suffix by *tʃi*, the 3rd person, as before, is left unmarked (in (2b)):

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[1] See Bhattacharya (2018b; 2021) for a discussion on the wider issue.

(2) a. zaņija   ej-nə-m̥ɔu-tʃi   2→1 (Inverse)
         yesterday   1-INV-see-2
         'You saw me yesterday.'
     b. zaņija   ej-nə-m̥ɔu   3→1 (Inverse)
         yesterday   1-INV-see
         'S/He saw me yesterday.'

This is identified as the inverse order. That is, the template changes from Subj-Obj-V-T to Obj-(INV)-V-T-Subj. Although inverse is about displacement of the subject's PER feature, it is caused by the object's PER feature becoming more agent-like; (2b) clearly shows that when the subject argument is 3rd person, which is not marked, the only agreement morpheme appearing in the verb complex is of the object. Thus, both the examples in (2) show that when the person hierarchy is violated (when the non-agent trumps the agent), object agreement becomes more prominent.

Note that another layer of complication in these group of languages brings forth the importance of object agreement yet again. Although this aspect is well known from 'known' languages of the world (e.g. Hebrew), due to its appearance in multiple-agreement languages, matters tend to become more complicated in TB languages. In an unmarked order (1PL→2), as in (3), we see a split between the person and number feature of the argument which is marked plural (here, subject). But when both the arguments are plural, as in (3b,c), interestingly we see a suffixal placement of the object number affix. (3c) additionally shows that although the 3rd person is not marked (2b)), in case of plural, the 3rd person number (of the object) is marked:

(3) a. ej-mə-tʃə-m̥ɔu   1.PL→2
         1-PL-2-see
         'We saw you.'
     b. ej-mə-tʃə-m̥ɔu-ej   1.PL→2.PL
         1-PL-2-see-PL
         'We saw you (pl).'
     c. nə-mə-m̥ɔu-ej[2]   2.PL→3.PL
         2-PL-see-PL
         'You (pl) saw them.'

So, the template here is PER_{Subj}-NUM_{Subj}-PER_{Obj}-V-T-NUM_{Obj}. However, when person hierarchy is violated—i.e. in cases of 2/3→1—things get further complicated. The example in (4) is *one* of the possibilities of 2→1 (see (10) for the other), where we now see a standard inverse, i.e. a switch of the [PER] feature of the subject, and the rest of it is as in (3b,c); we note here again the importance of object agreement coming to the fore:[3]

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[3] Note also that an 'inverse within inverse' phenomenon with respect to the subject affixes, is observable in (10a') as well; we deal with this theoretically by proposing a specific morphological operation

(4) mənijə-m̥ɔu-ej-tʃi   2.PL→1.PL (Inverse)
     1.PL-see-PL-2
     'You (pl) saw us.'

Note that this kind of φ-feature switch is much more complicated than the cases showcased in either Béjar (2003) or Harbour (2008), and certainly cannot be handled by the system proposed in the latter, since the order of the object morphemes is not a typical case of 'flanking' predicted by that account.[4]

   The third language-specific feature displayed by this group of languages is in having a separate paradigm for negative sentences; in particular we notice inverse-like affix switch in case of person hierarchy in the context of negation, i.e. the order of affixes is Obj-V-T-Subj. In fact, in Mara, that is the primary way of expressing negation; though it does have a negative morpheme *vej*, it does not occur in 1PL→2/3 configurations, where a mere switch of the subject affix indicates negation (see (5)). The effect of person hierarchy is limited in such negative contexts (not shown here). Again, we note here that in line with inverse in the affirmative paradigm, object agreement comes to the fore:

(5) zaṉijɑ   tʃə-m̥ɔʊ-nə   1→2 (Negation)
     yesterday 2-see-1
     'I did not see you yesterday.'

Obviously, accounting for *all* of these interesting phenomena is a challenge for any theory, the reason perhaps for the absence of any formal account of these well-hidden facts in these group of languages. What we try to capture in this chapter is the commonality of the switch involved in inverse and negation cases. We do this by making a distinction between the syntactic processes of Agree that impact the lining up of the affixes for the morphology component, so that appropriate exponences can be vocabularized.

4.3 Argument indexation in Mara

In this section, we lay out in more detail the data to be mostly accounted for. The Tibeto-Burman language family can be broadly divided into two groups with respect to the phenomenon of agreement. On one hand there are languages that exhibit a rich agreement paradigm, such as most of the languages under the Kiranti, Kuki-Chin (KC), and Qiangic subgroup of languages. On the other hand, there are languages which do not display any kind of argument marking on

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in section 4.5.1.2 and demonstrate its operation in the analysis presented in section 4.5.1.4 of the same data repeated in (29).

   [4] However, see section 4.5.1.2 for an analysis that does indeed make substantial use of the post-syntactic morphological operations proposed in Harbour (2008); we thank a reviewer for pushing us more towards Harbour (2008) in general.

the verbs; subgroups like Lolo-Burmese and Bodo-Garo, as well as some major languages in the KC subgroup, namely Meeiteilon and Naga languages, do not exhibit any argument marking (Bhattacharya 2017; 2018a; 2018b). This chapter capitalizes on the former type, with a special focus on KC languages as stated in the previous section. Apart from the southernmost part of the state of Mizoram in northeast India, Mara is also spoken in the adjoining border areas, i.e. the Chin state of Myanmar. The data comes from the fieldwork conducted in Aizawl, Mizoram, in 2021, and from the fieldwork conducted for Sharma (2017; 2018).

Mara, like other KC languages, exhibits a complex system of agreement known as 'multiple' agreement, by which we mean that agreement affixes controlled by both the subject and the object are marked on the verb. The situation in these languages therefore contrasts with the great majority of TB languages in the region, which do not show *any* agreement at all, and much of the rest of south Asia, which may show at most a single argument agreement. In some ways, therefore, these (sub)groups of languages show similar agreement patterns to those of Algonquian and Bantu languages. The controllers of various agreement slots cannot be merely categorized in terms of their respective grammatical roles. Rather, as stated in section 4.2, the argument affixes as well as their ordering in a verb complex are sensitive to the person hierarchies. Section 4.3.1 provides an overview of person agreement in these languages, and section 4.3.2 focuses on number agreement.

4.3.1 Person marking in Mara

The sentences in (6) show agreement marking in Mara (cf. (1a) for the same pattern as in (6a)); note that we only show a full sentence in (6a) with the optional pronominals, and only the verb forms in the rest to highlight the comparability within the paradigm. In sentences (6a–c), in the affirmative paradigm, the [PER] feature of the subject and object are marked prefixally when the configurations are 1/2→3 (direct order), whereas in (6d) (inverse order[5] as in (2a)) the prefixal agreement site is controlled by the object argument. Note that the 3rd person arguments are generally not marked in Mara (as in (6b) or in 3→1 as in (2b)), but it seems to be marked in case of a 3rd person subject in 3→2 as in (6c). Note also that arguments are represented only by their person features in these examples, and since the singular is not marked, the affixes here are not portmanteau. However, as we shall see shortly in (10a,b) in section 4.3.2, when we have a person-number split in these languages, some portmanteau forms are obtained.

[5] As noted in section 4.2, the hierarchy operative in Mara is 1>2/3 (direct), giving the inverse as 2/3>1. Note that although the order of affixes obtained in case of 3>2 (as in (6c)) is 3 preceding 2, it does not show the typical behaviour of inverse, namely, the displacement of the subject affix to the right periphery. However, we will take this into account when we discuss person hierarchy in these languages in section 4.4.3.

(6) a. (kej-tə)   (nənaɥ)   ej-tʃə-pəraj   1→2
         I-ERG   you   1-2-pull
         'I pull/ pulled you.'

     b. <u>nə</u>-pəraj   2→3
         2-pull
         'You pull/ pulled her/him.'

     c. ə-tʃə-pəraj   3→2 (Inverse)
         3-2-pull
         'He pull/pulled you.'

     d. <u>ej</u>-nə-pəraj-tʃi   2→1 (Inverse)
         1-INV-pull-2
         'You pull/pulled me.'

The template that seems to capture the pattern in (6) is PER_{SUB}-PER_{OBJ}-V-(T). Thus, in an affirmative declarative construction when the subject is 1st or 2nd person and the object is 2nd or 3rd person, as in sentences (6a,b), the template followed in the marking of [PER] feature is as shown, where the subject and object's [PER]-features are prefixed to the verb; 1st and 2nd person subjects are marked by *ej* and *nə* respectively and the 2nd person object is marked by *tʃə*. The [PER] of 3rd person object does not get marked, as in (6b).

However, when the configuration is such that the 2nd or 3rd person subject is acting upon 1st person object (2/3→1), which we already met in (2), (4), and (6d)—as an inverse alignment—we witness the switch in the marking of the subject, where, rather than being prefixed to the verb, it gets suffixed.[6] As pointed out, the template followed in the ordering of agreement affixes in inverse alignment is PER_{OBJ}-INV-V-(T)-PER_{SUB}. Further, when the configuration is inverse, an inverse marker *nə*[7] immediately precedes the verb.

However, the 3→2 configuration does not follow the inverse template for the ordering of agreement affixes; rather, it follows the direct template, hence no

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[6] When the subject affix is switched to the suffixal position, there is a change in the form of the affix as well. In (6d), when the 2nd person is suffixed to the verb, the form of the marker is *tʃi* rather than *nə* (the canonical 2ndperson subject marker). Note that Mara has two sets of argument indices for persons, as in the following table. Set A resembles the independent pronouns, whereas set B does not.

	Independent pronoun	Set A	Set B
1	*kej*	e	nə
2	*nənaɥ*	nə	tsə/tsi
3	*ənaɥ*	ə	–

Set A forms mark the subject in the affirmative paradigm and set B forms mark the subject in negative paradigm and object in both the paradigms.

[7] Note that the inverse marker *nə* is homophonous to the 2nd person subject marker *nə*. Delancey (2013) argues that it is likely that the occurrence of *nə* in inverse contexts had originated as a 2nd person object marker, which now has completely shifted its function as 1st person object marker. In this chapter, we have glossed *nə* as an inverse marker since it is limited to 2/3→1 configurations.

switch in marking as in (6c). The inverse template is limited only to the configurations where the object is 1st person, hence affirming the person hierarchy to be 1> 2/3.

Contrary to the affirmative paradigm, in the negative paradigm only the argument marking is sensitive to the person specifications; the ordering of agreement affixes is not. In the negative constructions, the subject is suffixed to the verb and the object is prefixed, as in (7). The template followed here is PER_{OBJ}-V-(T)-(NEG)-PER_{SUBJ}, i.e. the object becomes the controller of agreement here too:

(7)   a. tʃə-m̥ɔʊ-vej-na   1→2 (Negation)
           2-see-NEG-1
           'I didn't see you.'

       b. nə-m̥ɔʊ-vej-tʃi   2→1 (Negation)
           1-see-NEG-2
           'You didn't see me.'

       c. m̥ɔʊ-vej-tʃi   2→3 (Negation)
           see-NEG-2
           'You didn't see him.'

       d. tʃə-m̥ɔʊ-vej   3→2 (Negation)
           2-see-NEG
           'He didn't see you.'

Like affirmative inverse construction, we see the switch in the marking of subject to the suffixal position in the negative construction. This indexation switch of the subject from the canonical position (prefixal) to the non-canonical position (suffixal) is the primary way of signalling negation of the proposition in Mara, and in fact in 1PL→2/3 SG/PL the negative morpheme *vej* is completely barred, unlike in 2/3(Pl)→1.PL where it is obligatory. Unlike the affirmative paradigm, both the direct and inverse configuration follow the same template.

4.3.2 Number marking in Mara

Along with [PER], the [NUM] feature of arguments is also marked on the verb in the agreeing TB languages. In Mara, the verb complex has two slots for the number marking in the affirmative paradigm; one is prefixed, and is always controlled by the subject, and the other is suffixed, and is controlled either by the object in the affirmative direct constructions as in (8a,b) (as in (3b, c)), or by the subject in the affirmative/ negative inverse construction (see Table 4.1 for the full range of the data). The template followed in the direct alignment is: PERSUBJ-NUMSUBJ-PEROBJ-V(-T)-NUMOBJ. Mara has two NUM morphemes:

ma-/mə- and *-ej*. Note that even though the 3rd person object's [PER] does not get marked on the verb, the [NUM] feature gets marked, as in (8b).

(8)   a. ej-mə-tʃə-pərɑj-ej   1.PL→2.PL
           1-PL-2-pull-PL
           'We pull/ pulled you(pl).'

      b. nə-mə-pərɑj-ej   2.PL→3.PL
           2-PL-pull-PL
           'You(pl) pull/ pulled them.'

With the plural argument(s), a clear split between the [PER] and [NUM] is noticeable in the examples, where the features of the same argument are split across the verb complex, showing again that these are not portmanteau morphs except for 1.PL forms (see 10). In (8a), the [PER] of object is prefixed whereas its [NUM] feature is suffixed to the verb.

In the affirmative inverse construction, only a suffixal slot is available for number marking which is controlled by the subject if it is plural as in (9a,b).

(9)   a. ej-nə-pərɑj-ej-tʃi   2.PL→1 (Inverse)
           1-INV-pull-PL-2
           'You(pl) pulled me.'

      b. ej-nə-pərɑj-ej   3.PL→1 (Inverse)
           1-INV-pull-PL
           'They pulled me.'

In a case when both the arguments are plural in inverse constructions, the language shows optionality in the templates in the ordering of indices in the affirmative (though not consistently for 3rd person subject cases). Two possible templates for the ordering of indices in the 2/3→1PL configurations are shown in (10). Note that for 1st person plural object, a portmanteau morpheme *mənijə* gets prefixed to the verb, as in (10), hence no feature split in case of 1st plural object. The templates in use are $[PER.NUM]_{OBJ}$-$(PER_{SUB}$-$NUM_{SUB})$-V-$(NUM_{SUB}$-$PER_{SUB})$:

(10)   a. mənijə-nə-mə-pərɑj   2PL→1PL (Inverse)
            1.PL-2-PL-pull

      a'. mənijə-pərɑj-ej-tʃi
            1.PL-pull-PL-2
            'You(pl) pulled us.'

      b. mənijə-ə-mə-pərɑj   3PL→1PL (Inverse)
            1.PL-3-PL-pull

      b'. mənijə-pərɑj -ej[8]
            1.PL-pull-PL
            'They pulled us.'

Note that these are all inverse cases of 2/3→1, hence object agreement coming to the fore in all the cases as it controls the prefixal site consistently.

When it comes to the negative plural paradigm, like the affirmative inverse verb complex, only a suffixal slot is available for the number marking, as in (11).

(11) a. tʃə-pəraj-və-ej-na   1→2.PL (Negation)
          2-pull-NEG-PL-1
          'I did not pull you(pl).'

      b. mənijə-pəraj-ve-ej-tʃi   2.PL→1.PL (Negation)
          1.PL-pull-NEG-PL-2
          'You(pl) did not pull us.'[9]

Note that although these are cases of direct 1→2 in (11a) and inverse 2→1 in (11b) relations, the agreement affixes nonetheless align themselves in an inverse order (due to negation), thereby bringing object agreement to the fore again.

In the negative configurations, like 2→3 or 3→2 or 3→3, the NUM slot is controlled by either the subject or the object. Hence, the omnivorous number marking (Nevins 2011) as shown in (12); note that since the object's PER feature is being prefixed, we can consider this too as a case of the object 'brought to the fore'.

(12) a. (anaɰ-ṭə)   (nəmaɰ)   tʃə-pəraj-vej-ej   3→2.PL (inverse)
          s/he-ERG   you.PL   2-pull-NEG-PL
          'He didn't pull you(pl).'

      b. (amaɰ-ṭə)   (nənaɰ)   tʃə-pəraj-vej-ej   3.PL→2 (inverse)
          they-ERG   you.PL   2-pull-NEG-PL
          'They didn't pull you.'

      c. (amaɰ-ṭə)   (nəmaɰ)   tʃə-pəraj-vej-ej   3.PL→2.PL (inverse)
          they-ERG   you.PL   2-pull-NEG-PL
          'They didn't pull you(pl).'

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[2] Already we note the profusion of syncretic forms in Mara; e.g. /ej/ is 1st person subject, 2nd and 3rd object plural. On the other hand, the agreement affix for the 2nd person is /nə/ when it is a subject (in intransitives and direct contexts) and is the inverse marker as well as the 1st person marker in the negative constructions, but it is /tʃə/ when it is an object. There is further discussion on the nature of syncretism in Mara in section 4.4.2.

[8] Unlike in the singular inverse paradigm, the alternative structures a' and b' are conditioned. In particular, they come into play when the speaker has to negate a prior context. Therefore, even though the sentences are affirmative inverse, there is a negative connotation to them.

[9] Note however that when the subject is 1.PL in negative contexts, the NEG itself must remain covert and it blocks the object number to be exponed, implying a connection between negation incorporation into the portmanteaux morph *məpi* and the disappearance of the object number slot in the post-verbal position. However, we do not take this up for further analysis in this chapter.

Table 4.1 Verb complex in Mara in affirmative and negative

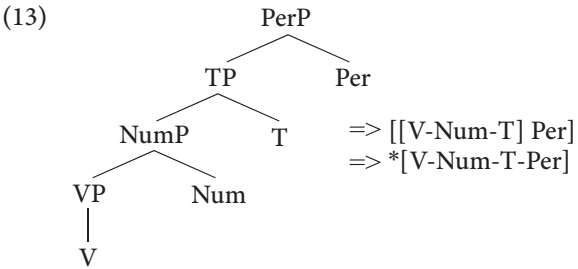| Obj\Subj	1 SG	1PL	2SG	2PL	3SG	3PL
1SG			ej-tsa-V 1-2-V tsa-V-va-na 2-V-NEG-1	ej-tsa-V-ej 1-2-V-PL tsa-V-ve-ej-na 2-V-NEG-PL-1	ej-V 1-V V-va-na V-NEG-1	ej-V-ej 1-V-PL V-vej-ej-na V-NEG-PL-1
1PL			ej-ma-tsa-V 1-PL-2-V tsa-V-mapi 2-V-1.PL	ej-ma-tsa-V-ej 1-PL-2-V-PL tsa-V-mapi 2-V-1.PL	ej-ma-V 1-PL-V V-mapi V-1.PL	ej-ma-V-ej 1-PL-V-PL V-mapi V-1.PL
2SG	ej-na-V-tsi 1-INV-V-2 na-V-va-tsi 1-V-NEG-2	manija-na-V / manija-V-tsi 1.PL-2-V/1.PL-V-2 manija-V-va-tsi 1.PL-V-NEG-2			na-V 2-V V-va-tsi V-NEG-2	na-V-ej 2-V-PL V-ve-ej-tsi V-NEG-PL-2
2PL	ej-na-V-ej-tsi 1-INV-V-PL-2 na-V-ve-ej-tsi 1-V-NEG-PL-2	manija-na-ma-V/ manija-V-ej-tsi 1.PL-2-PL-V// 1.PL-V-PL-2 manija-V-ve-ej-tsi 1.PL-V-NEG-PL-2			na-ma-V 2-PL-V V-ve-ej-tsi V-NEG-PL-2	na-ma-V(-ej) 2-PL-V(-PL) V-ve-ej-tsi V-NEG-PL-2
3SG	ej-na-V 1-INV-V na-V-vej 1-V-NEG	manija-(a-)V 1.PL-(3)-V manija-V-vej 1.PL-V-NEG	a-tsa-V 3-2-V tsa-V-vej 2-V-NEG	a-tsa-V-ej 3-2-V-PL tsa-V-ve-ej 2-V-NEG-PL	a-V 3-V	a-V(-ej) 3-V(-PL) V-vej-ej V-NEG-PL
3PL	ej-na-V-ej 1-INV-V-PL na-V-vej-ej 1-V-NEG-PL	manija-a-ma-V/ manija-V-ej 1.PL-3-PL-V// 1.PL-V-PL manija-V-ve-ej 1.PL-V-NEG-PL	a-ma-tsa-V 3-PL-2-V tsa-V-ve-ej 2-V-NEG-PL	a-ma-tsa-V(-ej) 3-PL-2-V(-PL) tsa-V-ve-ej 2-V-NEG-PL	a-ma-V 3-PL-V V-ve-ej V-NEG-PL	a-ma-V(-ej) 3-PL-V(-PL) V-ve-ej V-NEG-PL

4.3.3 Summary of the data

We note that Mara displays both the direct and the inverse patterns, and shows the inverse pattern in negative contexts, in addition to a rich array of φ-feature split across all constructions. Portmanteau morphemes are not the norm in Mara, but there are two portmanteau morphemes which are the fused forms for [PER] and [NUM] features of 1st person—*mənijə-* for 1st person plural object and -*məpi* for 1st person plural subject in the negative paradigm. By way of summarizing the data, we provide in (Table 4.1) a clear overview of agreement in all the possible person configurations in the language. The forms in the upper part of each cell show agreement in the affirmative paradigm, and the lower ones show agreement in the negative paradigm; the inverse block is shaded.

4.4 Types of formal approaches: The interface issue

The importance of the multiple agreement phenomenon in language groups such as Algonquian, Bantu, and (now) Tibeto-Burman in our understanding of the architecture of grammar cannot be overstated. This is because most of the effects of multiple agreement—like inverse order, or person-number split resulting in discontinuous morphology—compel us to look at the interaction of syntax and morphology; no wonder therefore that, when it comes to analysing these phenomena, there have been different types of accounts—most commonly purely syntactic, purely morphological, or hybrid. In fact, the issue of the lack of formal studies on the disharmonizing order of prefixal morphology in head-final languages raised in (section 4.1) seems to stem from insisting on a purely syntactic or typological account of agreement in these languages.

4.4.1 Syntactic approaches

The purely syntactic accounts posit syntactic projections for different φ-features as functional categories (PersP, NumP, etc.) projected along the main spine of the clause (e.g. Shlonsky 1989; Nevins 2002); for projecting features of more than one argument (as in the case of multiple agreement languages) or multiple exponence (multiple realization of a single feature), other proposals on the same line suggest newer projections either on the clausal spine or at the V-head level (Fassi Fehri 2000; Bruening 2017). Keeping to a simple representation as in Shlonsky (1989), but for a head-final language as shown in (13), we would force a derivation resulting in an unintuitive order of heads as morphemes:

(13)

```
                         PerP
                       /      \
                    TP          Per
                  /    \
              NumP       T      => [[V-Num-T] Per]
             /    \             => *[V-Num-T-Per]
          VP        Num
          |
          V
```

However, such a partial raising of the V (only up to T and not all the way up to Per, the latter deriving the suffixal order), followed by Per lowering to T, would apparently derive the prefixal order in Afro-Asiatic languages (Martinović 2019). Thus, apart from deriving the wrong order of affixes in head-final languages, without making any additional assumptions, the head-movements are not independently motivated.

Harley (2011) offers a syntacticocentric approach to morphology, and derives affix orders in Cupeño and Navajo by adopting the syntax of head movement, morpheme-specific prefix/suffix specification, and merger under adjacency (Bobaljik 1994)—the last being a post-syntactic operation applying to adjacent terminal nodes. However, the main weakness of such a theory is the assumption (based on Halle and Marantz 1993) that the prefixal or suffixal nature of the individual morphemes are specified in the vocabulary. Therefore, like mixed headedness in syntax, morphology may also have mixed systems. This weakness apart, there is no role played by Agree in the syntax in this system. Thus, if the φ-features have internal structure and are hierarchically ordered, with or without feature geometry—as in Harley and Ritter (2002) and Harbour (2008), respectively—there is no way for morphological merger to take place for both person and number since, although they are adjacent, they are under the same mother node *v*. Most of the cases in Mara, therefore, will not be accountable through merger under adjacency.

4.4.2 Morphological approaches

Purely morphological approaches (Noyer 1992; Halle 1997) have templatic, paradigmatic (see Table 4.2 and (14)) view of morpheme clusters, and work with the technology of splitting a single syntactic node bearing φ-features and linearly deploying the exponences in the post-syntactic component. However, these accounts suffer from the same problem, as noted in section 4.4.1: letting the affixal character of morphemes be stipulated in the vocabulary. Trommer (2010) makes use of a paradigmatic approach to morphological exponence (Stump 2001), where cells of a paradigm are defined as sets of fully specified feature structures. The

paradigm cells are realized through a generic algorithm where a phonological operation applies to an underspecified feature structure which has been obtained through application of generalization rules for the language. However, the languages that he deals with (Ainu, Karuk, Limbu, and Kulung) either have simpler syncretic forms or are only partly accounted for, unlike the case of Mara, where syncretic forms are too many and feature structures specifying the agreement morphemes become unwieldy.

Consider in this connection just the 1st person affixes in Table 4.2.

Table 4.2 1st person affixes in direct and inverse orders

		Subject (Direct)		Object (Inverse)	
		2/3 (Object)		2/3 (Subject)	
1		Sg/Pl	Neg	Sg/Pl	Neg
	Sg	ej-	-nə/-na	ej-	-nə
	Pl		-məpi	mənjiə-	

Here, in this highly reduced format, two cells show syncretism of /nə/ (representing both 2nd sg/pl object and 1st sg/pl object) and two other cells show syncretism of /ej/ (representing both 1st sg/pl subject and 1st sg object); however, when we consider all the tokens in the full table (see Table 4.1 and note 2), many more instances of syncretism can be found. Following Trommer (2010), /nə/ as an agreement morpheme listed in vocabulary will be as follows:

(14) [ERG+2][ABS+3]
  [ERG+2] [ABS+1-PL+INV]
  [ERG+3] [ABS+1-PL+INV]
/nə/ – [ERG+1 + NEG-PL] [ABS+2]
  [ERG+1 + NEG-PL] [ABS+3]
  [ERG+2] [ABS+1-PL+NEG]
  [ERG+3] [ABS+1-PL+NEG]

Thus, a generalization/ impoverishment rule for deletion of this morpheme will be unduly context-specific, and accounting for the paradigmatic cells will be that much more complicated. Therefore, we do not find this approach fruitful to pursue further.

Instead, in line with many recent analyses of similar data (e.g. Harbour 2008; Campbell 2012; Oxford 2019), we will adopt a hybrid approach for the analysis of the data in Mara. We lay out the basic assumptions of our proposal in section 4.5, but first we discuss briefly a couple of typological properties of multiple agreement languages that impact how the syntactic operations are set up to operate.

4.4.3 Portmanteau morphs and prominence hierarchy

Here we briefly discuss a couple of concepts that are relevant for multiple agreement languages in general, and for the analysis that we present in section 4.5. Both the phenomena of portmanteau forms and of person or number hierarchy (PNH) impact our understanding of multiple agreement in general—and the syntax of cyclic Agree, in particular—for Mara.

We claim that the morphological form of portmanteau is only a reflex of definite syntactic processes, especially, with regard to the current formalisms of Agree. Recall that when distinct features of a single argument are expressed by different morphemes, we get a discontinuous pattern of morphological exponence, which has been termed 'discontinuous exponence' in Campbell (2012: 19). Campbell also reports that the most common type of discontinuous agreement exponence is across person-number features—a pattern that we encountered in Mara (section 4.3). Although Multiple Agree and Cyclic Agree are both significant developments of Agree, they are not easily attestable morphologically in languages. And here lies the significance of portmanteau morphs: portmanteau forms are clear evidence of a concretized versions of the syntactic process of multiple agree. Unlike in Algonquian, there are only two portmanteau agreement affixes in Mara, *mənijə* '1.PL' in (10b,c), *məpi* '1.PL' in 1.PL→2/3 negations cases (see appropriate cells in Table 4.2).

Prominence scales have played an important role in agreement since Silverstein (1976); PNH especially has attracted significant attention in agreement studies in general. However, the role of person-number scales needs to be understood in more specific terms for languages showing multiple argument agreement patterns. Although formal analyses of Sino-Tibetan languages making use of any prominence scale are rare, there exist studies in the descriptive/ functional literature (e.g. LaPolla 1992; DeLancey 2010); Dasgupta (1971)[10] is one such study where the application of person scale can be seen to be operative in Nocte, a northern Naga language, spoken in the northeastern state of Nagaland in India:

(15)   a. he(i)tho-ang
           teach-1sg
           '(I will) teach (him).'
       b. he(i)tho-h-ang
           teach-INV-1sg
           '(He will) teach (me).'

Since the person hierarchy is 1>2>3, the higher-ranked argument is marked whether it is the subject or the object.

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[10] Data from Dasgupta (1971) quoted in Siewierska (2013) as well as mentioned in passing in Giorgi (2019 [2017]).

We consider an argument to be marked on the predicate if it is either represented by a single affix (if portmanteau) or two, if person and number are split in the prefixal position since it is the default controller of agreement slot in Kuki-Chin languages. We can see the hierarchy in operation in the following examples (repeated from (6b,d)):

(16) a. n̪ə-pərɑj
          2-pull
          'You pull/ pulled her/him.'

      b. e̠j-nə-pərɑj-tʃi
          1-INV-pull-2
          'You pull/pulled me.'

In (16a) the hierarchy is operative by default, since the 3rd person marker is not marked. In the inverse construction (16b) (2→1), although 1 is the value of the [PER] feature of the object, it is counted as fully marked since it appears prefixally, and the [PER] value of the subject is not counted; thus, this alignment seems to follow the person hierarchy of 1>2>3. However, 3>2 order of arguments seems to be an exception in this regard (see example (6c)), where although the order of agreement affixes is 3 preceding 2, both are marked prefixally and it therefore does not show the typical diagnostic of an inverse order in the language (whereby subject affix is displaced to the right periphery). Based on this, we consider the prominence hierarchy in Mara to be 1>2/3.

Given the presence of omnivorous number agreement in these languages, we extend a pl>sg as a number scale for Mara. Omnivorous agreement (Nevins 2011) is a phenomenon when a single number slot is marked independent of the grammatical relation of the argument controlling agreement. We encountered this phenomenon in the data in section 4.3.2, the following is one such example (repeated from (12a,b) for Mara) where the single [NUM] slot is filled by [pl] wherever it appears (either with the object or the subject, respectively, in (17):

(17) a. (ɑnɑɯ-t̪ə)   (nəmɑɯ)   tʃə-pərɑj-vej-ej
          s/he-ERG   you.Pl   2-pull-NEG-PL
          'He didn't pull you(pl).'

      b. (ɑmɑɯ-t̪ə)   (nənɑɯ)   tʃə-pərɑj-vej-ej
          they-ERG   you.Pl   2-pull-NEG-PL
          'They didn't pull you.'

We will see in the analysis section how the PNH crucially impinges upon the derivation of some of the orders (for example, 1.PL→2/3.PL; 2/3→1.PL; 2/3.PL→1.PL; 3.PL→2/3.PL), though not all of them will be computed.

4.5 Analysis

The guiding principle for the analysis we present is that the dis-harmonizing order of affixes can be given a formal account only if we are ready to give up the idea that all morpheme orders have to be derived syntactically. In fact, the best way forward in dealing with a mixed system of affixes, whereby a language shows both prefixal and suffixal order of affixes, is to relegate some of tasks of deriving morpheme orders to morphology, working in tandem with syntax. In the next three subsections we outline the basic assumptions made and operations employed in the syntactic and morphological components for computing the various orders of agreement affixes in Mara, and the specific processes involved that highlight the interaction between the two modules. In the final subsection (4.5.1.4), we provide schematic derivations of key agreement patterns in Mara.

4.5.1 The division of labour between syntax and morphology

As pointed out at the end of section 4.4.2, we adopt a hybrid account (in other words, a morphosyntactic account) to derive the different orders of agreement affixes in Mara. Although syntactically φ-features are bundled in a single terminal (e.g. T or v), they are fully or partially separated post-syntactically—that is, an operation transforming a hierarchical order to a linear order of morphemes takes place in the morphology component. We claim that the division of labour between the two components is crucial for deriving both the prefixal and suffixal orders of the agreement affixes in languages with multiple agreement in general, and in Mara in particular. In the following subsections we discuss each in turn and their interaction as two different modules.

4.5.1.1 The syntactic component
In common with any approach, we assume the universal generalization that syntax creates hierarchies and derives argument structure-related placement of arguments besides determining the hierarchical relations between different functional heads (e.g. Neg>T/Asp>v>V in Mara). More specifically for our purpose, syntax also decides on the correct location and nature of grammatical and morphological feature structures—especially the φ -structures—onto which exponents are inserted in the morphology component. The ordering and the adjacency relation that syntax derives is respected in the morphology module. For example, the couple of morphological operations that we propose in section 4.5.1.2—sub-φ-structure vocabularization and Flipping—respect the order of relevant affixes derived in syntax through a purely syntactic mechanism like standard Agree.

First, though, let us recall that the so-called state of the art in agreement studies in the 2000s is marked by subverting the flat structure of agreement features

bundled up as one φ-feature to a hierarchical feature set, a move perhaps initiated in Noyer (1992) and continued through Harley and Ritter (2002) to Anagnostopoulou (2003) to develop a rich φ-set of features where person, number, and gender are features that can initiate Agree on their own (see further on this in section 4.5.1.2). Two major developments that took place soon after the formalism of Agree was proposed in Chomsky (2000) are multiple Agree (MA) (Nevins 2007; 2011a) and Cyclic Agree (CA) (Béjar and Řezáč 2009). In MA, a single probe is able to Agree simultaneously with multiple goals, whereby the uninterpretable features of the probe are valued by multiple goals at the same time. In case of CA, on the other hand, Agree proceeds bottom-up in cycles. Both MA and CA have been successfully applied to multiple agreement as well (see Bhattacharya 2016; 2018c for some eastern Indo-Aryan and Munda languages, respectively, and by Despić, Hamilton, and Murray (henceforth, DHM) (2019) for an Algonquin language Cheyenne, albeit as a mixed approach also making use of MA).

For the analysis proposed here, we make use of CA but not MA. Although bottom-up, CA often only involves v as a probe; in this analysis, however, both v and T are crucially made use of as probe heads in deriving various orders. In fact, as we will see in section 4.5.1.4, for deriving most of the inverse (and the negative cases) and direct orders, the probing must be transferred from v to T, albeit with differences in terms of the trigger for the switch as well as types of morphological operations they engender, in each case. However, since probing is passed on from v to T, even when only v probes both the arguments in the true CA style (in the affirmative 1→2 and 3→2 cases only), we assume that the relevant Agree cycles operate in a bottom-up fashion. Thus, the proposed cyclicity mechanism is mostly of a 'weak' cyclic nature, unlike in Béjar and Řezáč (2009: 48), where a v Probe not only has the internal argument as a Goal but may also includes the [Spec, vP] position within its domain when the external argument is merged.

4.5.1.2 The morphology component

Once the syntactic component generates a particular Spell-Out structure, different exponents are inserted into the relevant structures and their placements derived as per the morphological operations in the post-syntactic morphology component. We assume that the syntactic derivation operating in phases generates the Spell-Out structures at each phase on which the morphology incrementally operates, and at the end of the derivation, linearizes all the Spell-Out structures and vocabularizes them simultaneously. For the morphology to be able to account for especially the discontinuous φ-features, the φ-features are assumed to have internal structure of the following form—this is based on Harbour (2008) and Campbell (2012), rather than on the more familiar feature geometry structure proposed by e.g. Harley and Ritter (2002).

(18)   φ (Label)
        |
        π: PER value
        |
        ω: NUM value

Thus, the Probes *v* and T are structured as in (18), which seem to be able to take care of the person hierarchy effects in the language adequately. Instead, if we adopt a feature geometry option like van der Wal's (2015) big DP structure, as in (19), any Probe targeting such a goal will only be able to the access the outer layer of the DP, and as a consequence will pick up the PER value *fused* with the NUM value since the latter is only valued inside the DP. Although this will also result in the required number of values accrued at the Probe head, there will be no way to sequence them in morphology, as they cannot be decomposed. Such a system will therefore be good enough only for generating the portmanteau affixes, generously distributed in other languages with multiple agreement but not in the Kuki-Chin (or Kiranti) languages. However, if three different goals are differentially accessed in terms of φ-features, they can be sequenced either in syntax or morphology; but since in our system different φ-features of a Probe/ Goal are valued/ accessed independently, this type of feature geometry structure is not suitable for our system.

(19)   PerP
                      ╱   ╲
                  DP   [PER]
              ╱   ╲   [uNum:_]
          NumP   D
        ╱   ╲
      NP   [Num]

One of the operations that take place in morphology that we adopt from Harbour (2008), but modify for our purpose, is the multiple sub-φ-structure vocabularization of person-left-number-right (PLNR) placement respecting dominance/ linear precedence order established in the syntax. In (20), suppose the *v*P/VP has been spelled out/transferred by syntax to the sensory–motor interface with its φ-features fully valued, as shown. When subparts of the φ-structure in (20a) can be exponed independently, let us say, by *-tsə* and *-ej*, respectively for π and ω, we would get a representation like (20b), which is then linearized in a discontinuous fashion as shown:

(20) PLNR
a. $-\varphi_2-$V-$v-$ b. *-tsə* $-$V-$v-$
| |
[π: 2]   *-ej*
|
[ω: PL]

However, as stated above, the relativized version of the PLNR we employ for Mara is as follows:

(21) Relativized PLNR
The φ-structure nearest to the stem gets linearized through PLNR, but the ones further from the stem do not participate in PLNR.

Thus, we never get what Harbour calls 'flanking' in this language. However, if a certain φ-structure can be found an exponence without its subparts being vocab-ularized, it will not be able to undergo PLNR. Note that Harbour's PLNR cannot derive the unique orders obtained in Mara—namely, the person and number features undergoing a word-level mini-inversion while they together undergo a bigger, clausal-level inversion.

Thus, apart from a Harbour-style PLNR, albeit with a restriction on its range of application, we also propose a novel technology in the morphological component that crucially derives for us one unique morpheme order in Mara that is not found in any languages accounted for by Harbour (2008), Campbell (2012), or Oxford (2019) account for. We propose that the kind of 'double inversion' noticed in 2nd plural subjects in Mara (see the cells corresponding to 2.PL→1(PL)/ 3.PL[NEG] in Table 4.2) is accounted for by the novel mechanism of FLIPPING:

(22) FLIPPING
Flipping of a structure like [α-β] across a head H results in the mirror structure [β-α] on the other side of the H axis:
... α-β-...-H ⇒ ...-H-β-α ...

Flipping is triggered by the presence of INV (inversion) produced in the syntax as a result of an exhaustive completion of the *v*-Agree cycle, which in turn is depen-dent on the satisfaction of the person–number hierarchy operating in the language (see further in this section 4.5.1.3). Thus, inversion is never just inversion but is inversion (inverting to the 'other' side) plus Flipping (changing the order of the elements undergoing inversion). By the syntactic operations assumed in the previous section, Flipping is a post-syntactic operation that operates on the Spell-Out structure of the T-Agree cycle. Note that since Flipping in (22) is proposed as a kind of mirror inversion—i.e. a type of internal inversion taking place while a unit is undergoing axial inversion—an equivalent cannot be implemented (or imagined) in syntax; thus, it cannot be like VP-raising or VP topicalization which

effectively turns an SOV order into an OVS order. In Mara, Flipping is restricted to 2PL subject DPs.

4.5.1.3 Modular interaction

These two components, syntax and morphology, also work with each other in the inverse cases, where we show that it is syntax that introduces a (c)overt inverse head INV that has a pronounced effect in the morphology, namely, of inverting with Flipping. Thus, this is a clear case where the two components perfectly work in tandem.

Adopting a morphosyntactic approach to multiple agreement therefore affords us an account of the suffixal, discontinuous orders derived from the prefixal order of affixes that result from left adjunction of relevant heads in syntax. Thus, mixed headedness in morphology becomes a property of the post-syntactic operations outlined in section 4.5.1.2. The dis-harmonizing order discussed in section 4.1 falls out as the property of probing from v/T heads and getting the φ-features internal to the Probe heads valued that morphology then works further with. Thus, only a morphosyntactic approach can provide us with an explanation of the kind of 'unexpected' orders seen in Mara.

Consequently, we will claim that the inverse order is a result of Flipping and/or PLNR, whereas direct orders are derived through an application of bottom-up v-to-T Agree and PLNR, if needed. It will turn out that whatever is prefixal is a result of bottom-up cyclic Agree, and whatever is suffixal is a result of Flipping and/or PLNR. The syntax part of the analysis is driven by a difference between the T and v Probes which are differentiated on the basis of the following:

(23)   T-Probe becomes operative when v-probing either exhausts if and only iff results in INV or does not exhaust but fails to meet PNH—no INV is introduced in the latter case.

This difference between the T and the v Probes, coupled with the post-syntactic operations of PLNR and Flipping, is able to differentiate between direct and inverse orders we observe in a multiple agreement language like Mara. Also, interestingly, the negation facts simply fall out of the mechanism already set up, with the simple assumption that negation behaves like the inverse by generating a covert INV in syntax.[11]

The moment of handover of probing from v to T is determined by the person hierarchy operating in the language (see section 4.4.3). Thus, the initial Probe v is considered to have probed exhaustively—and passed on probing to T—if and only

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[11] Since negation triggers a marked alteration in the proposition through the application of a NEG operator, a language may view an alteration in the argument structure similarly; we can imagine this to be a strategy to view a change in the argument alignment as a 'negation' of the default order of participants in the event. However, much more work is needed to formalize this as a justifiable linguistic strategy.

if it has probed the highest-ranked element in the person hierarchy, namely, 1—
that is, the inverse cases with 1st person as the object. We also assume that INV is
introduced as a result of exhaustive probing in the first Agree (or if NEG is present
in the derivation). However, probing is also transferred when *v*-probing fails to
meet the PNH and probing remains inexhaustive (and therefore INV cannot be
introduced).

INV indicates a process in syntax to morphology where the φ-values obtained in
syntax are inverted and flipped to the other side of the verbal axis in morphology.
The conditions for the introduction of INV in syntax are as follows:

(24)   a. Introduce INV when *v* undergoes exhaustive Agree; INV maybe
            spelled-out.
       b. Introduce covert INV whenever NEG is present in the functional
            spine; INV is never spelled-out.

For the analysis that we present, we consider that in the morphology compo-
nent exponence of the portmanteau form determined by both the person and
number hierarchies (PNH) is ranked higher than PLNR vocabularization. The
assumptions regarding PLNR are as follows:

(25)   a. If there is 1.PL as input to morphology which meets the condition
            for an application of PLNR, an appropriate portmanteau form
            (*mənjiə* or *məpi* for negation) is exponed rather than the φ-structure
            undergoing PLNR.
       b. PNH ensures that the 1.PL portmanteau form shifts to the agreement
            controlling slot in morphology.

In the following section, we present schematic derivations of four key agreement
patterns in Mara using the principles introduced in section 4.5.1.2:

  (i)   PLNR and its condition for application or failure (relativized PLNR) ((20)
        and (21))
 (ii)   Flipping applying to 2PL subjects (see (22))
(iii)   PNH and its connection with INV (in (23))
 (iv)   INV introduction criteria (in (24))
  (v)   Portmanteau exponence and PLNR competition criterion (as in (25))

4.5.1.4 Schematic computations of key agreement patterns in Mara
For a demonstration of the system outlined in the previous two sections, we will
mainly take up two sample derivations and extend it further to other sets of data
presented in section 4.3. From what we have observed in the data, the person-
number split of various subtypes stands out as indicative of an effect amenable to
a structural analysis; the derivations that we focus on here therefore are cases of
person-number split in direct and inverse ordering.

The person-number split example that we will take up is repeated from (8a) of Mara:

(26)   ej-mə-tʃə-pərɑj-ej   1.PL→2.PL (direct)
        1-PL-2-pull-PL
        'We pull/ pulled you(pl).'

The template for (26) is given in (27):

(27)   1PL→2PL
        PER$_{SUBJ}$—NUM$_{SUBJ}$—PER$_{OBJ}$—V—NUM$_{OBJ}$ (Direct)

Recall that the person hierarchy in Mara is 1>2/3; by the criterion of omnivorous number agreement (see data in (12)), the number hierarchy can be assumed to PL>SG (section 4.4.3). The example in (26) respects both hierarchies, since the value that matter are counted, i.e. person and number featuress of the subject are fully prefixal for this template is [1PL]. Note further that the object person-number split is manifested interestingly across the verb stem: the object person feature is a prefix, whereas the number feature is a suffix.

For this derivation, the schematic representation in the following derives the direct order:

(28)   1.PL→2.PL (Direct)
        a. v probes the object bottom-up in the first cycle but does not exhaust as PNH for highest-ranked argument is not met, probing then transfers to T (as per (23))

        b.   SPELL-OUT$_I$:   2–V^{12} Morphology: PLNR (as per (20))
                               | ⇒2–V– PL$_O$
                               PL$_O$

        c.   T now probes the subject DP (and v head-moves to T) in the second cycle

        d.   SPELL-OUT$_{II}$:   1–...–T   Morphology: PLNR fails (as per (21))
                                  |
                                  PL$_S$ ⇒1–PL$_S$–2–V–T– PL$_O$
                                                            ⇒ ej-mə-tʃə-pərɑj-ej

As is clear from the derivation in (28), although the goals are accessed consecutively in a bottom-up fashion (T after v), the φ -features within a goal are accessed simultaneously (π and ω feature values). Furthermore, it is also clear from the derivation in (28) that as a result of PLNR at step (28b), the object person-number split agreement affixes manifest themselves on both sides of the verb stem.

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[12] We will represent the V-v complex simply as V for ease of exposition.

Let us now look at the inverse order; we take up the example in (10a') (repeated as (29)), which is the alternative order, for a specific reason:

(29) mənijə-pərɑj-ej-tʃi   2.PL→1.PL (inverse)
      1.PL-pull-PL-2
      'You(pl) pulled us.'

We picked this example specifically to be able to show a number of typical/ atypical facts about the agreement affixes, as listed in the following:

   a. In the inverse configuration in Mara, the default order for the affixes is reversed and the subject affixes are now suffixes, whereas the object ones are prefixes.
   b. The object agreement features, which are prefixal, appear as a portmanteau prefix, as *mənjiə* is '1.PL', which is also considered as a portmanteau form in Arden (2010).
   c. There is a switch in person-number affixes for the subject argument in inverse in Mara as the final order is: NUM_{SUBJ}–PER_{SUBJ}.

As far as point (c) is concerned, we think that this has not been noticed in the literature—certainly not in the syntactic literature as there is not much syntactic literature as such of these languages, but also not in the diachronic literature, as far as we can tell. As will become clear immediately, we derive this unique order by applying Flipping as set up in (22).

The inverse template is represented as follows:

(30) 2PL→1PL
      $[\text{PER+NUM}]_{\text{OBJ}}$ – V – NUM_{SUBJ} – PER_{SUBJ} (Inverse)

Here too, this alignment of affixes respects the prominence hierarchies as the portmanteau morph that is fully prefixal has the combined person-number value of [1.PL]. The derivation proceeds as follows:

(31) 2PL→1PL (Inverse)
      a. *v* probes and exhausts and introduces INV (as per (23) and (24a))

      b. SPELL-OUT$_\text{I}$: 1–V   Morphology: PLNR fails (as per (25a))
                               | ⇒1.PL–V
                             PL$_\text{O}$

      c. T now probes the subject DP (and *v* head-moves to T) in the second cycle (as per (23))

d. SPELL-OUT$_{II}$:   2–…–T   Morphology: PLNR fails (as per (21))
| (i)   ⇒ 2-PL–1.PL–V–T
PL$_S$ Flipping (as per (22))
                          (ii)   ⇒ 1.PL–V–T–PL–2
                                          ⇒ mənijiə-pərɑj-ej-tʃi

The default order as in (10a) is derived by applying (25b) after step (d.i) in (31).

Comparing the two derivations, we see that there are similarities between the derivations in terms of the Agree head being *v* and T, as well as in terms of the sequence of their application: both are undergoing two cycles of Agree, operating in a bottom-up manner and generating two Spell-Out forms. The basic differences between the direct and the inverse seems to be in PLNR applying or not after the first Spell-Out and Flipping taking place in case of the inverse order.

Finally, we are left with an analysis of the negative paradigm. We have stated (see (24b)) that in the negative paradigm, the NEG activates inverse syntax, although there is no real inversion. This implies a bottom-up, *v*-to-T-Agree (see derivation (33)) resulting in an inverse-like configuration. Let us consider the direct orders 1→2PL and 1PL→2 in the negative paradigm.

(32)   tʃə-pərɑj-və-ej-na
        2-pull-NEG-PL-1
        'I did not pull you(pl).'

(33)   1→2PL (Negation)
        a. *v* probes but does not exhaust in the first cycle and introduces
           INV (as per (24b))

        b. SPELL-OUT$_I$:   2–V–NEG   Morphology: PLNR (as per (19))
                            | ⇒2–V–NEG–PL$_O$
                            PL$_O$

        c. T now probes the subject DP (and *v* head-moves to T) in the second
           cycle (due to INV)

        d. SPELL-OUT$_{II}$:   1–…–T   Morphology: Inversion and vacuous
                                                        Flipping
                                                        (as per (22))
                                                        ⇒ 2–V–T–NEG–PL$_O$-1
                                                        ⇒ tʃə-pərɑj-və-ej-na

Note that the derivation of the negative sentence falls out as a consequence of the system already set up for deriving affirmative direct and inverse order in the language; that is, no new machinery is required to account for the negative sentences.

Let us now look at the other order, as in the following example:

(34)   tʃə-pəraj-məpi
        2-pull-1.PL(NEG)
        'We did not pull you.'

As pointed out earlier, IPL→2/3(.PL) constructions cannot have an overt NEG affix. The reason for this is that the portmanteau morph now is 1.PL.NEG since it is only in 1st person plural subjects in the negative cases that *məpi* is obtained. Our analysis of these constructions is able to account for this phenomenon adequately, as shown in the following:

(35)   1PL→2 (Negation)
        a. *v* probes but does not exhausts in the first cycle and introduces INV (as per (24b))

        b. SPELL-OUT$_I$:   2–V–NEG   Morphology: no operation
                                                ⇒2–V–NEG

        c. T now probes the subject DP (and *v* head-moves to T) in the second cycle (due to INV)

        d. SPELL-OUT$_{II}$:   1–…–T   Morphology: PLNR fails (as per (21))
                                 | Inversion and Flipping (as per (22))
                                 PL$_S$ ⇒ 2–V–T–NEG–PL$_S$-1[13]
                                                          ⇒ tʃə-pəraj-məpi

Other cases too are accounted for by the machinery already set up, requiring no further addition to the formalism. However, in inverse (and negation) cases with 3rd person subject, we need to factor in two minor phonological readjustment rules of simplification where the 3rd person affix -ə is deleted as a result of a boundary effect and two consecutive plural sequences [-*ej*+-*ej*] in 3.PL→1.PL/2.PL case is simplified to a single occurrence of the plural affix -*ej*.

4.6 Conclusions

The analysis presented in this chapter is couched within a morphosyntactic approach towards multiple agreement phenomena in Mara. A bottom-up (weak) cyclic Agree probing from *v*-to-T in syntax along with a couple of novel post-syntactic operations in morphology derive all the desired orders, out of which derivations of a select representative sample of four key orders are presented in section 4.5.1.4.

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[13] Note here that we are glossing over some details of the linear order of affixes, and considering both the orders NEG-1-PL and NEG-PL-1 as vocabularized by the portmanteau affix *məpi*.

In section 4.4, we show that both a purely syntactic and a purely morphological approach are problematic, as they either produce unwieldy morpheme orders or require complicated impoverishment rules, respectively. Instead, a hybrid approach is shown to be better in general, and for Mara in particular. We lay out the basic assumptions regarding both the components and how they interact in the system we set up in section 4.5 before proceeding to an analysis of the data. We propose a relativized version of Person-Left-Number-Right (PLNR) mechanism of vocabularization as in Harbour (2008), and the new post-syntactic operation of Flipping, since PLNR by itself cannot account for the unique orders with respect to object person and number in Mara. Flipping is a mechanism that does not mirror any possible syntactic operation and is therefore considered a quintessential morphological-only operation. We conclude the chapter by sketching out schematically four key agreement patterns in Mara which show computations of direct and inverse orders, person–number split, and agreement in negative sentences.

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