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Multiple agree with clitics: person complementarity vs. omnivorous number

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Abstract This paper capitalizes on the difference between person complementarity (e.g. PCC effects) and omnivorous number (e.g. the fact that a single plural marker can be used to cross-reference more than one plural argument) by proposing that the same syntactic mechanism of Multiple Agree is responsible for both. The widely divergent surface difference results from the fact that person features are fully binary, whereas number features are syntactically privative. Additionally, arguments drawn from a variety of verbal cross-referencing morphemes implicating phi-interactions between subject and object support the claim that these elements are clitics, necessitating a principled morphosyntactic difference between clitics and other DPs undergoing object shift, and revisitation of the clitic-affix distinction.

Keywords Multiple agree · Omnivorous number · Person complementarity · Syntactic rebracketing · Clitic/affix distinction · Tense-invariance

1 Multiple-argument exponence

While the focus of much research on agreement has focused on object agreement by participles and subject agreement by tense (e.g. Kayne 1989; Chomsky 2000), in more recent years there has been increasing attention on the syntactic mechanisms responsible for patterns of *multiple-argument exponence*, in which the features of both subject and object (or object and indirect object) are exponed on a single prosodic word—either as distinct agreement morphemes, as pronominal clitics corresponding to each argument, or as a portmanteau morpheme incorporating the features of both.

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It is quite often the case that multiple-argument exponence displays restrictions on the full realization of all combinations of arguments. For example, the Person-Case Constraint (PCC), well known from French and Catalan (Perlmutter 1971; Bonet 1991), disallows combinations of pronominal clitics that expone a first person object in combination with a third person indirect object. A wide variety of theories have been developed to account for such effects, ranging from ones in which this combination is ruled out by principles of syntactic agreement to ones in which the combination reflects a surface morphological ban on particular morpheme sequences.

Béjar and Rezac (2009) present a thoroughly developed proposal of interactions in multiple-argument exponence that relate to person hierarchy and person complementarity effects, through a model of derivational syntax called *Cyclic Agree*. In this influential model, developed based on the *Probe-Goal* (*Agree*) framework of Chomsky (2000), person complementarity effects are the result of a single *probe* that first searches downward in the syntactic tree, and then, under certain circumstances, upward. According to these authors' general proposal, successful downward agreement with a *goal* can bleed the occurrence of upward agreement, so that as a result, a first person direct object will completely *value* the features of a probe that is situated between the IO and DO, rendering it inactive for upward agreement with a third-person indirect object (as in French) or third-person subject (as in Nishnaabemwin (Valentine 2001), described by Béjar and Rezac (2009)).

At the core of such models is the notion that first-person agreement is more specific than third-person agreement: according to the feature-geometric hierarchy of Harley and Ritter (2002), for example, first-person features asymmetrically entail third-person features; alternatively, according to the marked-features calculus of Nevins (2007), first-person features bear a marked value for the feature [±participant], and probes may be specified to preferentially value themselves with marked features.

Cyclic agree models thus successfully capture *person complementarity* effects in languages such as Nishnaabemwin, in which, among other facts, the presence of a first-person object is complementary with a higher third-person agreement. This, by hypothesis, is because for the probe in question, all of its features have been valued in the case of an all-entailing first-person object, and hence have been "used up" by the time the subject is reached. The central claim of Cyclic Agree is that phi-featural interactions between subject and object are the result of the derivational nature of syntax: probing down for a lower argument necessarily occurs before probing up for a higher argument. When the object is third-person, however, the probe remains unsatisfied (not completely valued), and hence may probe upwards, establishing successful agreement with a first-person subject. The asymmetry between $1 > 3$ (a licit combination of first person subject (or indirect object) and a third person object) and $*3 > 1$ (an illicit combination of third person subject (or indirect object) and first person object) is thus the result, in the Cyclic Agree system, of preferential agreement with the lower argument over the higher argument, when the probe is situated exactly between the two (e.g. v between Subject and Object, or *Appl* between IO and DO).

Surprising as it may seem, the same complementarity effects have been derived in a quite different way—one which is downwards for *both* arguments, as opposed to downwards for the first and upwards for the second—in the *Multiple Agree* approach to person complementarity effects of Nevins (2007). In this model, the probe is situated *above* both goals, and establishes a simultaneous Agree relationship with both

of them, subject however to a condition of Continuity of Agreement-Path—called the Contiguous Agree constraint—which requires that valuation of the probe with a certain feature not involve skipping of any of the arguments along its path.

(1) *Contiguous Agree*: For a relativization R of a feature F on a Probe P, and $x \in \text{Domain}(R(F))$, $\neg\exists y$, such that $y > x$ and $P > y$ and $y\neg \in \text{Domain}(R(F))$ "There can be no interveners between P and x that are not in the domain of relativization that includes x".

Thus, a probe required to agree with marked [+participant] will successfully satisfy Contiguous Agree in 1 > 3 (a licit combination of first person subject (or indirect object) and a third person object) but not in *3 > 1 contexts because the [−participant] 3rd person interrupts the continuous span of Agree. By contrast, two [+participant] features (e.g. 1 > 2 or 2 > 1) will satisfy Contiguous Agree in either configuration, because the path of Agree does not skip a [+participant] argument in either case. In short, Multiple Agree derives person complementarity effects (such as *3 > 1) through the locality-based mechanism of intervention.

Summarizing, we have two distinct models accounting for the same types of data. One the one hand, there is Cyclic Agree, with two distinct, ordered applications of Agree, in which successful downward agreement bleeds a later potential operation of upward agreement. On the other hand, there is Multiple Agree, in which there is no notion of bleeding (because there is only one step). The essential difference in these models is not the directionality of agreement; rather it is that in Cyclic Agree, a probe is "used up" after one valuation, whereas in Multiple Agree, there can be as many valuations as possible, as long as conditions on continuity within the domain of agreement are met. Stated in the most general terms, Multiple Agree rules out *3 > 1 in terms of Intervention, whereas Cyclic Agree rules out *3 > 1 in terms of derivational timing. The question arises as to how well these two theories, both of which can explain person-complementarity, can extend to explanation of other related empirical phenomena.

The main focus of the current paper is the differences between person-complementarity effects, of the type described above, and what happens with number (e.g. plural) realization in multiple argument exponence. As it turns out, the patterning of number agreement with a single probe and multiple arguments is not at all like that of person. One strikingly recurrent pattern within the domain of number agreement across languages is the phenomenon of *omnivorous* number agreement: verbal markers of plurality that show up when *either* the subject or object is plural. An example is shown in (3) below from Georgian, which contrasts with (2) only in the presence of the plural marker *-t* following the verbal stem.

(2) g- xedav
2obj.- saw
'I saw you; he saw you.'

(3) g- xedav- t
2obj.- saw- pl
'I saw y'all; we saw y'all; he saw y'all; we saw you.'

While (2) is two-ways ambiguous (as the subject's person features are not expressed), (3) is four-ways ambiguous, as the source of plurality could be either or both of the [+participant] arguments. Such effects are clearly of interest to models of multiple-argument exponence because they raise the question of how such a plural marker can be valued if both of the arguments are plural. For example, in Cyclic Agree models, Person Complementarity arises as a consequence of the fact that once person-agreement is "used up" by the DO, it can no longer be valued by the Subject or IO. If Cyclic Agree were to be straightforwardly transferred to number agreement, we would expect "Number Case Constraint" effects, in which the presence of a plural DO rendered impossible the presence of a plural IO. Such effects do not seem to exist in natural language.

Thus, Cyclic Agree models may in fact undergenerate, disallowing cases of multiple-argument exponence when a single plurality marker can correspond to *both* the subject and object. While Béjar and Rezac (2009) allow for the insertion of an Added Probe in the case of two marked arguments, an Omnivorous Number pattern is precisely one in which a single morphological marker corresponds to both elements simultaneously. Therefore, while it is technically possible to posit an Added Probe in Cyclic Agree models for patterns such as (2), this Added Probe would differ from all other cases in Béjar and Rezac's (2009) careful delimitation of its usage, as there would be no morphological evidence whatsoever for its presence; quite the contrary.

By contrast, the mechanism of Multiple Agree seems perfectly suited to such cases, as its guiding intuition is that a single probe, on T, is agreeing with both Subj and DO simultaneously, and as long as they both satisfy (1), no intervention problem will arise. One of the primary goals of this paper, therefore, is to demonstrate the derivation of Omnivorous Number effects within the Multiple Agree framework proposed in Nevins (2007), while maintaining the coverage of that model for Person-Complementarity Effects. The other side of the coin from the fact that there are no Number Case Constraints is the fact that there is no corresponding phenomenon of Omnivorous Person. In this paper, both sides of this coin will be derived within the same configuration and the same mechanism of Multiple Agree, relying on a difference between Person and Number.

Before proceeding with the details of the implementation, it is worth discussing in detail the various ways in which establishment and realization of agreement relations with number features are quite different from those with person features. In Sect. 2, I turn to a broad discussion of divergences between person agreement and number agreement in syntax, ultimately proposing that the primary difference can be boiled down to the fact that negative values of person are visible in the syntax (e.g. [−participant] for 3rd person), while negative values of number (e.g. the absence of [plural] for singular arguments) are not. In Sect. 3, I provide a broad typological overview of person complementarity and omnivorous number effects, which can coincide in one and the same language.

In Sect. 4, I turn to a more in-depth look at the syntactic configurations that facilitate Multiple Agree involving both Subject and Object. In Nevins (2007), I focused only on interaction between IO and DO in ditransitive constructions, in which both arguments were clearly within the domain of the same probe. However, I made the overly bold assertion that Subject–Object interactions were unexpected given that

Subject and Object sit on opposite sides of v, and thereby occupy distinct spell-out domains. While this fact seems to be generally correct, upon closer inspection it turns out that the configurations in which Subject and Object are both implicated in Multiple Agree involve cases in which the object is a pronominal clitic. I therefore turn to a demonstration of how clitic movement facilitates placing the pronominal object into the same Agree domain as the Subject, arguing that it results from Chomsky's (2001) proposal for Object Shift in Germanic. However, I argue, following Roberts (2010) that clitics are crucially different from shifted object DPs in that the former lack case. This section also contains a brief discussion of the fact that the relevant elements under analysis throughout the may not look like clitics according to some "classic" morphophonological diagnostics for clitics vs. inflection, and outlines a set of arguments demonstrating that those diagnostics are in need of revision, offering instead a new diagnostic for pronominal clitic vs. agreement—tense invariance.

Section 5 brings together the various strands developed in the paper: a privative representation for number, a syntax of cliticization, and Multiple Agree, and demonstrates how Omnivorous Number effects can be derived using the exact same Multiple Agree procedure that is already in place for PCC effects, even though the two phenomena look quite different. Section 6 concludes the paper, recapitulating its central proposal that both Person Complementarity (in which a single Agreement operation is quite restrictive in terms of the argument combinations it allows), and Omnivorous Number (in which a single Agreement operation is quite free in terms of the argument combinations it allows), result from the same syntactic configuration and same syntactic mechanism, and that their surface disparity is the effect of fundamentally different featural representations for person and number in the syntax.

2 Syntactic differences between person and number

Much converging evidence points to the fact that Person features are central to verbal agreement in a way that Number features are not. Vikner (1997) suggests that the crucial ingredient of "rich" agreement that enables pro-drop is full distinction of all persons. Indeed, Rodrigues (2004) shows that Brazilian Portuguese lost its pro-drop status when it lost a person distinction between 2nd and 3rd person, even while maintaining singular-plural distinctions. Finally, experimental evidence by Nevins et al. (2007) suggests that electrophysiological responses to agreement violations in Hindi are stronger when for Person than for Number.

Morphosyntactic differences between Person and Number agreement themselves are not hard to come by: Baker (2011) develops an extensive theory in which Person agreement obeys stricter restrictions than number agreement. One consequence of his theory is that adjectives should not show person agreement, due to their phrase structural properties. While Baker's framework predicts the existence of many configurations in which person agreement is blocked, but number agreement is allowed, it is crucial that no configurations will be found in which number agreement is blocked but person agreement is allowed. This asymmetry in agreement restrictions points to an asymmetric treatment of person features and number features, which I will expand on in this section.

As mentioned in Sect. 1, while many languages display Person-Case Constraints, which state that in ditransitives, if the object is [+participant], the indirect object cannot be [−participant], there have not been any reports of such effects with number.[1] A putative effect of a Number-Case Constraint would ban singular subjects when the object is plural, or singular indirect objects when the direct object is plural. It is a striking gap that no such effects obtain.

Conversely, there is no Omnivorous Person marking—e.g., a marker for 1st person that shows up on the verb in the same fixed position when *either* the subject or object is 1st person. One might imagine that the presence of a verb looking for [+participant] features could potentially be satisfied by an argument bearing such features anywhere in its search domain. However, the proposals of Nevins (2007) that (i) person features are always fully specified on syntactic arguments and (ii) Multiple Agree obeys the Contiguous Agree principle effectively rule out such a possibility. Given these two proposals, the existence of Person-Case Constraints and of Omnivorous Number Effects and the concomitant absence of Number-Case Constraints and of Omnivorous Person Effects could in principle be due either to relaxation of full specification of phi-features on syntactic arguments or to a radically relaxed version of locality for number, but not person. In what follows, I will argue that it is the former that distinguishes person and number: person values are always fully specified in the syntax using binary features [±participant] and [±author], but number features are privative, meaning that [plural] is syntactically specified but that singular arguments are not.

The generalized version of this claim is that unmarked values of number, e.g. [singular], are never syntactically active and never referred to in the syntax. A number of typological and experimental investigations seem to bear out this conclusion, as I will argue below.

We can imagine what a putative number case constraint would look like. Person-Case constraints involve an DO argument whose person specification "outranks" that of the IO, and as a result, such a combination of arguments in ditransitives is impossible. A putative number case constraint would therefore be a prohibition against ditransitives with a plural DO and a singular IO, i.e. banning the equivalent of *I gave her the books*. The literature on Person-Case constraints is vast (see (Haspelmath 2004) for a typological overview), and there are no outstanding reports of Number-Case Constraints. This gap is notable, as the machinery for capturing Person-Case Constraints, either of Béjar and Rezac (2009) or Nevins (2007), would allow them to occur if singular features exist in the syntax. The conclusion, therefore, must be that the feature [singular] does not occur in the syntax, and therefore cannot intervene in multiple agree configurations.

Similarly, while a number of languages employ an "inverse" construction depending on the combination of persons, no languages employ a syntagmatic inverse construction depending on the number specifications of the arguments. While a full theory of inverse constructions is not within the scope of this paper, it should be clear

[1] Nevins and Savescu (2010) present a reanalysis of a small corner of Romanian that appears to exhibit such effects, demonstrating that they merit treatment in terms of syncretism and animacy.

that if inverse marking depends on inspecting the featural specifications of both arguments, and if singular number *has* no featural specification, then inverse marking will never be required for such cases.[2]

One of the areas in which plural agreement patterns quite differently from person agreement is in the elicitation of "attraction effects" (see den Dikken (2001) for a theoretical overview, and Bock and Middleton (2011) for a recent discussion in terms of experimental models). Attraction effects, found in casual speech and in experimental studies of elicited production, occur when a verb shows plural agreement due to the presence of a plural feature within a DP modifier, e.g. within a prepositional phrase in *The **key** to the cabinets **are** missing*. Since the work of Eberhard (1997), the existence of attraction effects has been related to the marked status of plural compared to singular, and the fact that models of feature-tracking can be "tricked" by finding instances of [plural]. Arguably, if [singular] is simply not present in the syntax, the absence of reverse attraction effects (e.g. **The **keys** to the cabinet **is** missing*) can be explained in terms of the absence of a triggering feature. Arguably, attraction effects involve looking within the whole subject DP: if any plural feature is found within the subject DP, the probability of plural attraction increases. In *The key to the cabinets are missing*, there is simply no number specification on the head DP.

While attraction effects involving *number* are easily observed in casual speech and written production, no extant reports of attraction effects involving person exist. These effects would look like **The story about me am interesting*. While such examples might be unexpected due to the non-nominative status of *me*, *cabinets* in the standard number attraction cases is also syntactically non-nominative; thus we might expect person attraction to be in principle possible. However, if third person features are always present in the syntax, then as soon as the head DP *the story* is encountered, [−participant] agreement will be registered, with no possibility of further attraction effects.

Number marking appears to occasionally have some "expressive" functions in which it can reinforce the notion of the subject noun phrase as a collective or distributive group, as extensively discussed in the work of Reid (2011). Reid shows that [plural] features can be added or subtracted according to stylistic and semantic factors, such as in *My family have been prominent, well-to-do people in this Middle Western city for three generations*, where the verb has been "enriched" with the [plural] feature despite a singular subject noun phrase. Arguably, this sort of mechanism is allowed precisely because there is no "overwriting" of a singular feature. The [plural] feature may be added or subtracted without the need to manipulate or specify singular in the syntax.

A striking limit on such expressive uses of agreement, however, concerns the impossibility of manipulating person features. Constructions such as **Your family am only one person*, uttered by one member of a two-person family, should be perfectly possible within the limits of pragmatic context and expressive use of agreement, but

[2]Similarly, it may be relevant that, since global case splits (in the sense of Silverstein 1976) may be seen as the dependent-marking equivalent of inverse-marking on heads, it is notable that many such case splits depend entirely on person, animacy, and specificity, with some limited interaction with number (where [plural] groups elements as higher on the hierarchies), and that crucially, that no case splits depend on number alone. I thank an anonymous reviewer for the observation.

seems to be limited by the possibilities afforded within syntactic feature manipulation. (Cases of "unagreement" in Spanish, impossible with pronominal subjects, may be the closest thing, but these involve a host of restrictions discussed in Rivero 2008.) In particular, if third person features are always present in the syntax, then enriching the verb agreement recorded by third-person *your family* would require more than simply inserting [+author]; it would involve also deleting and/or overwriting [−participant]. Apparently, expressive uses of agreement do not enjoy this sort of formal power.

The range of asymmetries between person and number considered above have never been brought together in one place, to my knowledge. I believe that they make the case for the fact that number agreement is much less constrained than person agreement, as the former has no hierarchical restrictions in ditransitive constructions, can be easily over-tracked in attraction effects, and can be manipulated for expressive purposes. I propose that this greater flexibility of number agreement is due to the fact that it is a privative-zero opposition, as opposed to person, which is built on equipollent oppositions.

The distinction between privative oppositions and equipollent oppositions was developed by Trubetzkoy (1969) for phonology, and it is useful before proceeding to briefly illustrate how this apparently small difference in formal notation has great consequences for activity in processes. In phonological theory, for example, it has been argued that as there is no activity of [−nasal] (Steriade 1995), this feature should be represented simply as presence or absence of [nasal].[3] On the other hand, as there is clear activity of both [−back] and [+back] in languages with vowel harmony, both values of this feature should be represented. We argue for a parallel conclusion in morphosyntax: [plural] is a privative opposition, where the unmarked value is not represented and hence cannot be referred to, or interfere in processes, whereas unmarked [−participant] is present in the syntax. Research in phonological theory has uncovered evidence for some features being binary, while others are unary. I believe that the evidence amassed in this section points to the same conclusion for the syntax of person vs. number.

On the other side of phonology-phonetics interface, certain unary specifications must be converted into articulatory instructions. Although phonological typology finds no evidence for the activity of [−nasal], for example, non-nasal sounds must at some point in their articulation include the detail that airflow should not freely pass through the nasal cavity. A *phonetic* transduction of non-nasal sounds to the instruction for non-nasality, therefore, does not preclude the conclusion that no feature like [−nasal] exists. Similarly, the *syntactic* absence of a feature such as [−plural] does not preclude the transduction of its equivalent in another module. Purely morphological well-formedness may in fact require reference to singular number, as found for example in the noun class system of Kiowa (Harbour 2007). Like the fact that phonetic non-nasality does not preempt unary phonological [nasal] features, post-syntactic morphological structure that requires singular does not preempt unary syntactic [plural] features. Trommer (2010) defines the notion of 'epenthetic' morphosyntactic features, which "are inserted by postsyntactic operations, but are predictable from

[3] See also Halle (1995) for a discussion of Major Place features as unary.

strictly syntactic features and structural syntactic context". Such post-syntactic features (including inflectional class, which is arguably inserted post-syntactically; Halle and Marantz 1994) are necessary for Vocabulary Insertion, but not for anything within the syntax, and are thus transduced via redundancy rules that insert epenthetic features. The precise formulation of the mapping from strictly syntactic privative number representations to postsyntactic binary representations works as in (4).

(4) Epenthetic feature redundancy rules at Spell-Out (applied disjunctively):
[plural] → [−singular]
[ ] → [+singular]

Summarizing this section, we have explored a number of distinct dimensions in which person and number differ, and argued that they can be made to follow from a difference in the featural representation of each: person is binarily represented throughout the syntax, whereas number is privatively represented in the syntax. We now turn to the central foci of this paper that can be derived from this distinction: person-complementarity vs. omnivorous number. While I will eventually propose an analysis in terms of cliticization and Multiple Agree, it is important to emphasize that the central insight offered here, that singular number is not represented in the syntax, could in principle be adopted and integrated into other models (such as extensions to the Cyclic Agree model discussed in Sect. 1).

3 Person-complementarity effects vs. omnivorous number effects

In this section we exemplify in more detail Subject–Object PCC effects (Sect. 3.1) and Omnivorous Number effects (Sect. 3.2).

3.1 Person complementarity

As Person-Case Constraints have been extensively discussed in the literature (Perlmutter 1971; Kayne 1975; Bonet 1995; Anagnostopoulou 2003; Béjar and Rezac 2003; Adger and Harbour 2007), we will review them rather briefly here. It is well known that certain combinations of clitics do not sit comfortably together. These co-occurrence restrictions can be categorized into two broad types. The first are Person-Case Constraint effects, which ban the presence of noncontrastive or nonmarked features dominating marked features (e.g. 3 > 2; 3 > 1; 2 > 1), which are arguably syntactic, and cast in terms of constraints on the operation Multiple Agree. The second are dissimilatory effects, which ban the co-occurrence of two [+participant] clitics or of two [−participant] clitics, which are arguably post-syntactic, specifically in terms of markedness constraints that ban adjacent identity (though see Walkow 2010 for an attempt to unify the PCC with dissimilatory 3–3 effects). Some examples of the latter effects are listed in (5) (the deletion analyses here follow Arregi and Nevins 2007; Nevins and Sandalo 2011):

(5) a. Kadiwéu: 1st person clitic deletes in presence of 2nd person object clitic
b. Georgian: 1st person agent clitic deletes in presence of 2nd person object clitic

c. Onandaga: 2nd person object clitic deletes in presence of 1st person agent clitic
d. Maruri Basque: 2nd person object clitic deletes in presence of 1st person agent clitic
e. Ondarru Basque: 1st person plural agent clitic deletes in presence of 2nd person object clitic

This division of labor between syntactic phi effects, such as PCC violations, and morphological phi effects, such as those in (5), follows Rezac (2011), whereby syntactic vs. post-syntactic effects can be diagnosed both in terms of their structural description and their structural change:

(6) Division of Labor:
a. Syntactic restrictions are hierarchical, and asymmetric. Based on principles of Multiple Agree. Repairs involve periphrasis.
b. Postsyntactic restrictions may be idiosyncratic and symmetric. Based on principles of syntagmatic markedness. Repairs involve deletion.

Our focus in the comparison between person and number will be on the former, as the latter, while illustrating the 'finickiness' of clitic combinations, are arguably not instructive as to the presence or absence of particular features in the syntax. However, we will return to the latter in Sect. 4, under a general discussion of person complementarity effects among clitics. All of these co-occurrence constraints are relativized in terms of locality and domain, and thus concern either indirect object and direct object of the same vP or subject and object of the same TP.

The PCC holding between Indirect Object and Direct Object has been described for a wide range of Romance languages, exemplified here by Catalan:

(7) *A en Josep, me li va recomenar la Mireia
to the Josep, 1.acc 3.dat has recommended the Mireia
'She (Mireia) recommended me to him (Josep).' (Catalan; Bonet 1991:178)

(8) *A en Josep, te li va recomenar la Mireia
to the Josep, 2.acc 3.dat has recommended the Mireia
'She (Mireia) recommended you to him (Josep).' (Catalan; Bonet 1991:179)

(9) En Josep, te 'l va recomenar la Mireia
the Joseph, 2.dat 3.acc has recommended the Mireia
'She (Mireia) recommended him (Josep) to you.' (Catalan; Bonet 1991:179)

IO-DO PCC effects have also been documented for Arabic, for Greek, for Basque, and for Georgian, in which its repair involves object 'camouflage' through spurious reflexivization (Harris 1981:92; Rezac 2009):

(10) važa-m da-m-i-xat-a *sen / *Ø / šeni tav-i me
Vazha-erg PV-1sg-V-paint-3sg.aor you / you / your self-nom 1.dat
'Vazha painted you for me.'

By contrast, the existence of subject clitic-object clitic interaction for person complementarity has received comparatively less discussion in the literature than that of IO

and DO interactions (under the rubric of the Person-Case Constraint), but such cases can indeed be found. A case of person complementarity that resembles the PCC for Catalan above can be observed with Kashmiri clitics between subject and object. Kashmiri clitics cluster together on the second-position auxiliary, following the order Nom-Acc-Dat (Hook and Kaul 1987). Much like Catalan, a third person argument cannot dominate a second (or first) person argument within the same TP/vP.

(11) Bi ch- u- s- an- av su tohi nis sozan
I be- m.sg 1sg- 3sg- 2pl he you.dat near sending
'I am sending him to you.'

(12) Biz sooz- a- th tsi toor
I send- 1sg- 2sg you there
'I'll send you there.'

(13) *Su sooz- yi- th tsi toor
He send 3sg- 2sg you there
'He'll send you there.' (*3.subj > 2.obj)

A Kashmiri 3rd person subject clitic cannot co-occur with a 2nd person object clitic, illustrating very much the same restriction as is found between IO and DO in Catalan. The goal of our analysis, therefore, will be to illustrate how Multiple Agree can derive PCC effects for both IO/DO interactions, as was developed in Nevins (2007), as well as for Subject/Object interactions, where I will propose that clitichood enables this wider extension of the locality domain. In other words, Subject/Object PCC effects can only hold when both goals are probed by the same head. As subject and object are normally separated by a vP boundary, I argue that it is clitic movement that enables the object to shift into the same Agree domain as the subject.

Before delving into the details of the Multiple Agree analysis for Person-Case Constraints, however, we turn to an exemplification of a phenomenon that has received comparatively little attention in contrast to the PCC: Omnivorous Number effects.

3.2 Omnivorous number

The phenomenon of omnivorous number is one in which an agreement morpheme dedicated to realizing number shows up under the condition that either—or both—of the subject and object is plural, as illustrated in the following table:

(14) Omnivorous Number:

Subject	Object	Plural Marker Shows Up on Verb
Pl	Sg	Yes
Sg	Pl	Yes
Pl	Pl	Yes
Sg	Sg	No

Omnivorous number thus results in potentially massive ambiguity of which argument is plural, as can be seen in the following two examples from Georgian, repeated from Sect. 1:

(15) g- xedav- t
2obj.- saw- pl
'I saw y'all; we saw y'all; he saw y'all; we saw you.'

(16) g-xedav
2obj.- saw
'I saw you; he saw you.'

The omnivorous number pattern with Georgian *-t* is only found with 1st and 2nd person arguments. By hypothesis, this is because only 1st and 2nd person arguments have object markers that are eligible for Multiple Agree. In terms of the theory presented in Sect. 4, this is because only 1st and 2nd person arguments generate object clitics, enabling them to shift to the specifier of vP.

Omnivorous number is found not only with plural marking, but also with dual marking, thus yielding a similar ambiguity in Onandaga:

(17) s- g- ni -gẽha
2subj.- 1obj.- dual- see
'You see us two; you two see me; you two see us two.' (Barrie 2005)

The Onandaga omnivorous number pattern is found for dual agreement, where the dual marker *ni* indicates that one or both of the subject and object is dual. It is also found for plural agreement, where the plural marker *wa* indicates that one or both of the subject and object is plural.[4]

While the Georgian and Onandaga omnivorous number patterns do not transparently involve clitics (an issue to which I will return in Sect. 4.4, where I argue that they do indeed involve clitics), it is important to point out that such patterns can also be found in uncontroversial cases of Romance clitics, such as the Italian dialect of Soazza (Manzini and Savoia 2007):

(18) la bev-an
3f drink-fem.pl
'They (f.) drink.'

(19) la tSami-an
3f call.1sg-fem.pl
'I call them (f.).'

(20) la la tSam-an
3f 3f call-fem.pl
'She calls them; they.f call her; they.f call them.f.'

[4]In an interesting complication that does not affect the main argumentation of the paper, the plural marker *wa* trumps the dual marker *ni*. This could be due to the specifications associated with the Vocabulary Items that realize agreement, with the former being a more specific vocabulary item—suppose *wa* is both [plural] (really, nonsingular) and [±augmented], while the Vocabulary Item *ni* is only [plural] (nonsingular). Alternatively, it may be due to a more nuanced interpretation of the feature [± augmented] (Harbour 2007) that distinguishes dual and plural in terms of reference sets.

As the Soazza examples show, the feminine plural ending *-an* can crossreference either subject or object clitic. As I will argue below, subject clitics and object clitics occupy syntactic positions locally close enough to each other to render them equidistant for the purposes of plural agreement, yielding the omnivorous number pattern.

A similar pattern is found in Eastern Abruzzese (D'Alessandro and Roberts 2010):

(21) Giuwanne a pittate nu mure
John has painted.sg a wall

(22) Giuwanne e Mmarije a pittite nu mure
John and Mary have painted.pl a wall

(23) Giuwanne a pittite ddu mure
John has painted.pl two walls

(24) Giuwanne e Mmarije a pittite ddu mure
John and Mary have painted.pl two walls

In the examples above, past participle agreement is plural when either subject (22), or object (23), or both (24) are plural.

Barceloní Catalan, according to Bonet (1995, p. 639), shows the same effects, although for IO and DO: "The plural marker /z/ surfaces whenever one of the input clitics (or both) is plural".[5] Thus dative singular plus accusative plural, dative plural plus accusative singular, or dative plural plus accusative plural all yield the clitic output *lzi*, where *z* is the exponent of [plural]:

(25) Els llibres, a en Quim, əlzi donaré demà
the books, to the Quim, 3.acc-pl-3.dat will-give.1st tomorrow
'I will give the books to Quim tomorrow.'

(26) Als nens, əlzi donaré pomes demà
to-the children, 3.acc-pl-3.dat will-give.1st apples tomorrow
'I will give apples to the children tomorrow.'

In fact, omnivorous number effects can be found with clitics even in languages not thought to canonically display them. In a series of experimental studies involving elicited productions of written French, Fayol et al. (1994) elicited written production "errors" such as the following, in which plural verbal agreement reflects the plurality of the object clitic, and not the subject argument:

(27) Il les rangent
He them.cl put.away-pl
'He puts them away.'

Similar patterns have been elicited in production studies of Standard Italian by Franck et al. (2006). While still at the level of an "error", it is noticeable that errors of this type have been found precisely with clitics. I propose that all clitics are in a local-enough configuration to grammatically permit omnivorous number, but that not all

[5] Omnivorous number effects between IO and DO can also be found in Nahuatl (Launey 1981), according to Mark Baker (personal communication).

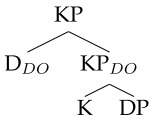
languages have omnivorous number as a grammaticalized rule. However, such "erroneous" productions can become evolutionarily grammaticalized, if "performance proposes, and locality disposes"—in other words, if performance errors can become "syntacticized" (the analogue of "phonologization" in Hyman 1976), should they exhibit an effect that the principled rules of locality in the grammar can deal with—precisely the case, I will argue, when the participating arguments are clitics.

Many more omnivorous number effects are likely to be waiting to be discovered, and, given the proposal in Sect. 4.4, the expectation is that the three properties of tense-invariance, omnivorous number, and person complementarity will often be found in tandem. We first proceed to the syntactic explanation for omnivorous number, which I will argue is firmly rooted in the featural representation of number as privative, and in the syntax of cliticization.

4 Clitic syntax and multiple agree

In this section I outline a syntax for pronominal clitics, with the following basic ingredients. Pronominal clitics are argued to be part of a big-DP structure (specifically, a KP, with Case), but are deficient, in lacking a Case of their own (see also Roberts 2010).

(28) Clitics as adjoined to KP:



That is, Case is assigned to the sister of the clitic (the argumental KP) but not to the clitic itself. Pronominal clitics will thus pattern differently in their morphosyntactic behavior from full DPs or strong pronouns specifically in the fact that the latter undergo Case assignment. I argue that Case assignment (specifically, the valuation of K) blocks the ϕ-features within that KP from probing for Agree. Clitics, therefore, will pattern differently from KPs in that only the former will retain ϕ-features that are visible for Multiple Agree.

This distinction allows one to encode the generalization that PCC effects (and omnivorous number effects) occur only with clitics, and not with full DPs (which are KPs). KP direct objects, in virtue of having their K valued, will no longer be able to furnish ϕ-features for Multiple Agree, and in fact, will remain invisible to it. Since Multiple Agree is the mechanism that I propose underlies PCC effects, KPs will naturally not be able to participate in PCC effects.

4.1 Clitic syntax prior to object shift

I assume that the clitic is an adjunct to the pronominal argument, projecting another level of DP structure—a variation on the big-DP structure originally proposed by Torrego (1992) and Uriagereka (1995); see also Franks and Rudin (2005). Like floating quantifiers, adjoined to DP (Haegeman 2006), clitics and their hosts can be derivationally separated. Crosslinguistic variation in clitic doubling results from conditions

on generating big-DP structures. For example, if only definite or specific DOs undergo clitic doubling, then only definite or specific DPs will be eligible to generate a big-DP structure. If negative quantifiers do not undergo subject clitic doubling, they will not be eligible to generate a big-DP structure. If 3rd person arguments do not undergo clitic doubling (e.g. Georgian), this is because the big-DP structure is unavailable for such arguments. (See Roberts 2010 for a more general discussion of how conditions on clitic-doubling result from conditions on big-DP structures.) Similarly, in languages not having subject clitics, the subject DP will still be in the same position as a subject clitic would, namely in the externally-merged specifier of vP.

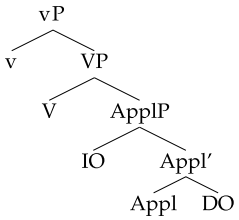
I follow Cardinaletti and Starke (1999), Déchaine and Wiltschko (2002), and Roberts (2010) in identifying clitics as morphosyntactically defective elements. In the specific implementation pursued here, the crucial distinction between clitics and full DPs (or for that matter, strong pronouns) is that clitics lack case features. In terms of the big-DP structure, this can be understood in terms of the following claims:

(29) *Clitics lack a KP and therefore lack Case:*

a. An element needs KP structure in order to bear/receive Case
b. Clitics do not contain a KP layer
c. Clitics are adjoined to the KP argument with which they are associated

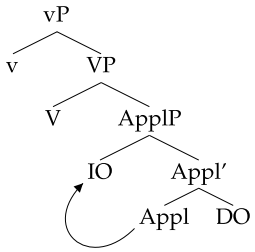
For ditransitives with IO and DO clitics, I adopt Pylkkänen's (2008) structure for the Low Applicatives involved in such verbs:

(30) Low Applicative Structure:



Moreover, I propose that in Romance languages (and other languages in which Appl is phonetically empty), Appl must undergo cliticization to the IO.[6]

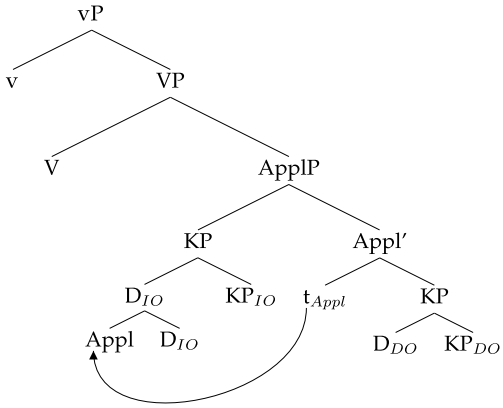
(31) Incorporation of Appl into IO:



[6]This structure involves movement of a head into its specifier. For related discussion of Probe-Goal relations between a head and its specifier, see Richards (2004).

In fact, (31) should be decomposed so as to show the full structure of pronominal clitics with their big-DP structures, with incorporation of Appl into IO's D clitic:

(32) Resulting Tree from Incorporation of Appl into D clitic of IO:



The resulting complex clitic Appl + IO is precisely what allows for allomorphic differentiation among IO and DO clitics, yielding for example the following elements in French:

(33) /lui/ ⇔ [D_{-part} + Appl]
/le/ ⇔ [D_{-part}]

Clearly, the movement in (32) does not occur in Bantu languages in which Appl is an overt verbal affix; notably, in precisely these languages, IO clitics and DO clitics have no allomorphic differentiation. Thus, according to Woolford (2010), the form (34) in Haya is ambiguous. This follows naturally from a theory in which IO and DO clitics themselves are not assigned Case, and can only be allomorphically differentiated by virtue of whether Appl incorporates into the IO clitic.

(34) A- ka- mu- n- deet -el -a
3.Agr Tense- Cl.3sg- Cl.1sg -bring -Appl -Mood
'He brought him to me.' or 'He brought me to him.' (Duranti 1979, p. 40).

The occurrence of Appl as a suffix to the main verb in (34) indicates that the correlation holds between the lack of Appl-incorporation-to-IO and the lack of allomorphic distinction between IO and DO clitics.

4.2 Multiple agree and object shift

PCC effects are not found in all languages; specifically, they are not found in languages without pronominal clitics, even when the object undergoes Object Shift. I argue that the lack of PCC effects (with either IO-DO or Subject-DO) with these objects is the result of the fact that valued KPs cannot participate in Multiple Agree:

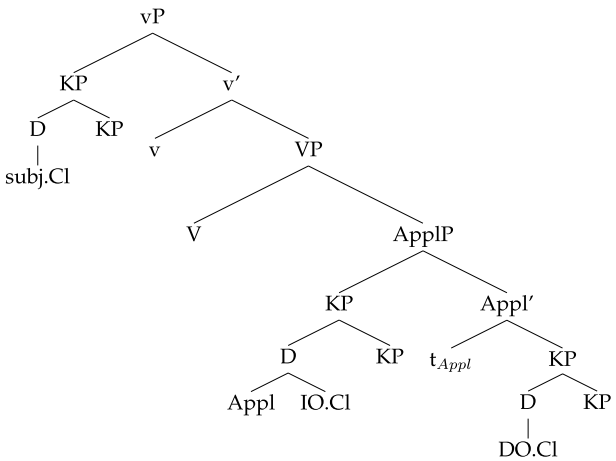
(35) a. Valued K prevents the ϕ-features of DP from being accessible
b. Valued KPs are thus invisible to Multiple Agree

Clitics, lacking a KP, will thus always be available for Multiple Agree. The cases of PCC effects between IO and DO (as analyzed, for example, in Nevins 2007) or between Subject and DO will only hold when the participating elements either are pronominal clitics, *or are KPs that have not yet valued their K*.

This brings us immediately to Subject–Object PCC interactions. Such effects are also not found between subject and object in all languages. Subject–Object interactions, both in terms of person complementarity (as in Kashmiri) and in terms of omnivorous number (as in Georgian) raise the question of how it is that the subject and object can be sufficiently local for them to interact. I assume that what enables Subject–Object interactions in these cases is Object Shift of the clitic into the same Agree domain as the Subject, following the basic proposal for such movement of Chomsky (2001).

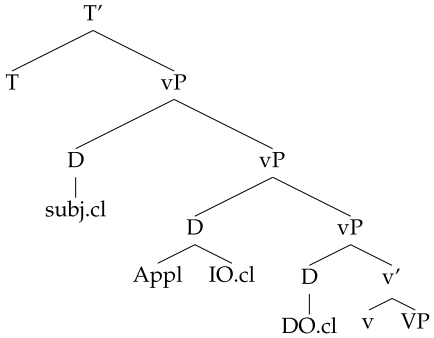
The proposal therefore is that clitics are generated in argument positions alongside the arguments, and move to the specifier of vP via Object Shift. In other words, I treat object cliticization as movement of D element of a complex argument out of the complement of v, to the specifier of v; see also Roberts (2010) and Boeckx and Gallego (2008) for related proposals. This unification of Romance object cliticization with Germanic style object shift has already been identified and argued for by Suñer (2000) (see also Kallulli 2000 for a comparison of clitic doubling in Greek with Germanic object shift). The base positions of the clitics are shown below:

(36)



The (IO and) DO clitics are attracted to v by Multiple Agree (Nevins 2007), and TUCK-IN (Richards 1997) under the subject clitic. When successful attraction of both clitics occurs, as a result, these elements are thus all 'co-specifiers' of the same functional head, as shown below:

(37) Result of Object-Shift:



One consequence of the tree in (37) is that the local sisterhood relations among the clitics will render them close enough to enact post-syntactic deletion operations, such as removal of the 1st person subject clitic in the presence of the 2nd person object clitic in Georgian, alluded to in (5). A second consequence of the tree in (37), which will play a vital role in the trees in (55) and (61), which provide the derivations for Subject–Object PCC effects and Omnivorous Number effects, respectively, is that subject and object clitics are now *equidistant* (Chomsky 1995) for the purposes of Multiple Agree by T. Specifically, according to the definition of *Closest* in Rackowski and Richards (2005:579) (38), all of the clitics in (37) will be equidistant from T:

(38) Closest: A goal α is the closest one to a given probe if there is no distinct goal β such that for some X (X a head or maximal projection), X c-commands α but does not c-command β.

Therefore, by hypothesis, PCC effects and Omnivorous Number effects that hold between Subject and Object can only obtain as the result of Object Shift that places the two in the same Agree domain. Moreover, as (29) states, only object clitics, and not full KPs, can be targets of Multiple Agree by T. We therefore have a principled explanation for the restriction of PCC effects to clitics, rooted in the base structure of clitics as caseless adjuncts to KP, and in their landing site in specifier of vP.

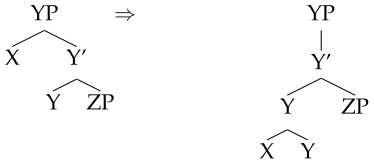
4.3 The morphophonological side of cliticization

I have proposed above that pronominal clitic doubling is essentially object shift of the Germanic type, moving an object argument to the specifier of vP, and that this movement feeds the locality of Multiple Agree, ultimately yielding PCC or Omnivorous Number effects holding between subject and object. However, clitic doubling does not "look" like object shift, for two reasons. The first is that object shift involves non-clitic pronouns and/or full DPs, which have their K(ase) valued, and hence cannot participate in Multiple Agree, unlike clitics, which are K-less. The second reason, which we focus on in this section, is that clitics are morphophonologically weak, unlike the potentially fuller pronouns of Germanic, and hence clitics 'move along' with verbs in processes such as head movement.

While I maintain clitic doubling and Object Shift are identical in their first step, namely movement of the object that tucks-in as a specifier of vP, these two phe-

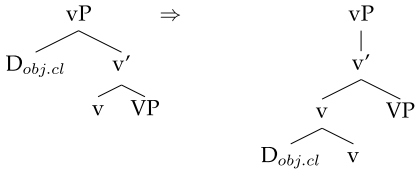
nomena differ as the result of a further operation: syntactic rebracketing, the Merger operation of Matushansky (2006). As they are phonologically deficient elements (like English *n't*), clitics must undergo syntactic rebracketing with their host.[7] I adopt the Merger operation of Matushansky (2006) (see also Williams's (2003) Reassociation for a similar mechanism), which rebrackets two heads that are in a specifier-head relation (39) as a complex head (40):

(39) Input to Rebracketing Merger:



When X is an object clitic and Y is v, therefore, the result of rebracketing is a complex head consisting of the clitic +v. In addition to their morphosyntactic differences, therefore, the morphophonological difference between clitics and weak/strong pronouns is that only the former undergo Rebracketing (in fact, in one and the same language, one may find pronouns that undergo Object Shift but fail to undergo rebracketing—e.g. Italian dative 3rd plural *loro* (Cardinaletti and Starke 1999)). The rebracketed, complex v may then undergo further head-movement to T:

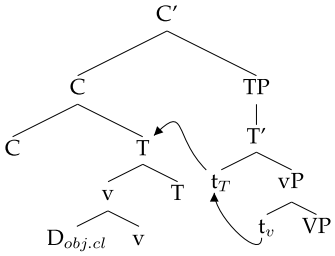
(40) Rebracketing of object clitic with v:



Note that all of the syntactic relations above encode dominance and sisterhood, but not linear order. Thus, within the postsyntactic component, the clitic itself may be right-linearized, yielding enclisis. When there are multiple clitics, each of them undergoes rebracketing successively, and each of them may be right- or left-linearized, according to language-particular requirements.

As rebracketing is interleaved with syntactic operations, it can feed further head movement:

(41) Head-Movement brings along the Rebracketed Clitic:



[7] However, they may move up to a matrix v first, if it is local enough, as in restructuring contexts.

This type of pied-piping of clitics in verb movement is found in examples such as French Inversion, which moves along object clitics with their hosts (note that French has v-to-T movement, feeding T-to-C movement), in examples such as (42):

(42) L'= a-t- il pas appris?
Acc.3sg.cl= has-Q he not learned?
'Has he not learned it?'

Clitics, affixes, and free pronouns thus differ in the following ways. Affixes are functional heads that are part of the clausal spine (or features of those functional heads) and join up with the verb by head-movement, while clitics are pronominal D elements that undergo object shift and then the cliticization-operation of syntactic rebracketing. Clitics and pronouns, being D elements, are tense-invariant, while functional morphemes that bear agreement affixes may be sensitive to tense. We will return to the tense-invariance property of clitics in Sect. 4.4.

Let us retrace our steps. Multiple Agree is a syntactic operation that simultaneously engages the features of two arguments. When both the subject and object are involved (as diagnosed by either PCC effects or Omnivorous Number), it means that they must be in the same Agree domain. As object and subject are not ordinarily in the same Agree domain, it must be because the object has shifted higher. Cliticization is a type of object shift, followed by further Merger, yielding the rebracketing of a specifier into part of a complex head.

The above reasoning yields a rather tight set of predictions: omnivorous number and subject/object PCC effects may (co)exist, but only when the participating (direct and/or indirect) objects are clitics. While the proposal that the elements displaying PCC and/or Omnivorous Number effects in Kashmiri, Barceloní, and Soazza are indeed clitics, it is not always widely accepted that the 'per-fixes' (a theory-neutral term I will use for person prefixes) of languages such as Georgian are clitics, although I contend that they are. In the entire discussion thus far, the term 'clitic' has been used entirely syntactically, referring to a pronominal element that is Caseless, is targeted by Multiple Agree, and which undergoes Object Shift (and subsequent Merger). Resistance to the classification of per-fixes in languages such as Georgian as clitics, therefore, largely rests on morphophonological diagnostics, rather than syntactic patterning. We thus must turn to a discussion of these matters in the next section.

4.4 Clitics vs. agreement affixes: predictive correlations

As mentioned above, within the set of morphological markers of person (which includes both the familiar Romance clitics and a set of items called above 'per-fixes', as a theory-neutral term to be revised), three properties are often found together: (a) per-fixes are tense-invariant, (b) person complementarity occurs based on morphosyntactic features in clusters of more than one per-fix, and (c) omnivorous number, whereby a plural marker agrees with either per-fix. My objective in this section is to analyze per-fixes as clitics, even though they have not necessarily been so labeled before. I propose that an independent syntactic diagnostic for clitic vs. affix status is tense-invariance: a clitic, being a D element, will not show allomorphy across tenses.

This is true in all of the 'classic' clitic languages with PCC effects, such as Romance and Greek, in addition to Kashmiri, Georgian, Onandaga, Basque, Tiwa, Nahuatl, and doubtless many others.

Given a separation between morphosyntactic features and morphophonological properties, we can expect pronominal elements of category D to show variable morphophonological behavior. In a post-lexicalist landscape, morphosyntactic clitichood and morphophonological clitichood are orthogonal, and the analysis of elements as clitics requires keeping distinct the syntactic and morphophonological properties of clitics (see Zribi-Hertz and Diagne 2002 for a similar conclusion).

While Zwicky and Pullum (1983) have proposed certain diagnostics for clitics vs. affixes, such as the idea that clitics do not show context-sensitive allomorphy, in reality it is very hard to find a clitic that does not show some degree of allomorphy, making this diagnostic restrictive to the point where, if it is literally followed, perhaps nothing can be a clitic at all. For example, English possessive *'s*, the most host-unselective of all clitics, still displays morphological idiosyncrasies (allomorphy after plural stems (Lapointe 1996; Nevins 2011). Udi endoclitics, characterized as mobile elements par excellence, show an idiosyncratic restriction in that the 3rd person clitic *t'e* cannot combine with the negative particle *nut'* (Harris 2002:96ff). Romance clitics themselves show allomorphy depending on preverbal vs. postverbal position (e.g. Paduan, Cardinaletti and Repetti 2008). Another diagnostic is supposed to be low host selectivity; however, Gruber (2008), describing 2nd person subject clitics in Gmunden (Austria), shows that they display very low host selectivity, appearing on wh- phrases, complementizers, pied-piped phrases, and even comparative heads, nonetheless do not comfortably combine with bare *wh-* words such as *dem* 'who.dat-rel.pron' (pp. 40–41). The overall conclusion, then, will be that the diagnostic of "no allomorphy", and many other morphophonological diagnostics, can potentially lead researchers to classify elements as not clitics when in fact their *morphosyntactic* patterning is precisely that of clitics.

Many pronominal clitics have morphophonological properties that would make them fall on the "affix" side of Zwicky and Pullum (1983)'s diagnostics. In fact, scholars such as Miller and Sag (1997) claim that Romance pronominal clitics are actually affixes. However, these views raise a number of significant problems, in particular with respect to two issues: clitic climbing, which would have to be analyzed as an affix jumping into a matrix clause, and conditions on clitic doubling.

Consider first clitic climbing. Spanish has a process of *d*-deletion occurs when a 2pl clitic is associated with the verb (yet another case of a clitic inducing stem allomorphy) (43)–(44).

(43) ¡amad!
love.2pl.imper
'Love!'

(44) ¡ama =os! (*amad=os)
love.2pl.imper =2pl.refl
'Love yourselves!'

As Bermúdez-Otero and Payne (2008) show, if clitic climbing were somehow the "affixal realization" of features on a verb that can percolate up to the matrix clause, then even without clitic climbing, *d*-deletion should happen, counter to fact, as shown in (45a):

(45) a. ¡comenzad a amar =os!
begin.imper.2pl to love.inf =2pl.cl
b. comenza=os a amar!
begin.imper=2pl to love.inf
'Begin to love yourselves!'

Now, it cannot be claimed that 'feature percolation' is required only when clause union happens, because in Italian, even when auxiliary selection is determined by the lower verb, clitic climbing need not occur:

(46) Sono voluto andar=ci
Be-past.1sg wanted go=loc.cl
'I had wanted to go there.'

In other words, clitic climbing is an optional movement operation affecting a deficient pronoun, which may place it in the specifier of matrix v with which it undergoes rebracketing, rather than being a case of affixal percolation afforded by clause union. We can also dismiss the possibility that clitic climbing is a kind of long-distance agreement, as one of the robust generalizations of Baker (2008) is that Long-Distance *Agree* is never for Person.

Next, consider conditions on clitic doubling. In Spanish (Suñer 1988), clitic doubling is obligatory with all indirect objects, and obligatory with pronominal direct objects. There are no agreement systems, to my knowledge, that work like this—while pronoun vs. full NP splits are attested for case marking and agreement patterns, and indeed there are languages such as Irish (McCloskey and Hale 2003) in which agreement is impossible in the presence of pronouns, I know of know bona fide agreement system in which agreement is obligatory *only* with pronouns.

Given the problems that an agreement analysis of Romance clitics has for long-distance agreement and conditions on obligatory agreement, I conclude that clitics are weak pronouns, and not the realization of agreement. We must maintain a distinction between clitics and agreement, and as I hope to have shown briefly (with references to much other work), morphophonological properties will not make the right cut.

Instead, I have proposed three important morphosyntactic criteria for pronominal clitics. The first of these is that they are tense-invariant. Clitics must be tense-invariant, as they are pronominal elements. In fact, this might lead one to argue that, in languages with both subject and object agreement, tense-invariant object agreement is always a clitic, as is proposed by Woolford (2010): "There can only be one instance of true agreement per clause… True agreement must cross-reference a nominative argument (if one is present in the clause)". Taking this hypothesis to its logical conclusion would bring a vast number of elements previously analyzed as agreement

affixes into the fold as clitics, with the following criteria then potentially applicable for further investigation.

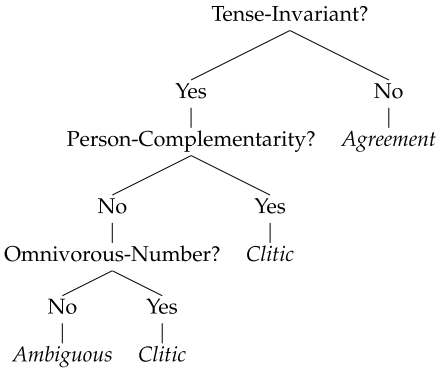
The second criterion is that Person Complementarity effects are found only with clitics, never with agreement. Tying together the first two criteria, then, we make a prediction: Person Co-Occurrence Restrictions are never found with Tense-Sensitive person markers. I have verified this claim for Romance, Greek, Kashmiri, Georgian, Albanian, Mohawk, Nahuatl, Southern Tiwa, Kambera, and Warlpiri, all of which show a classic Person-Case restriction banning *3DAT > 1SG. In none of these languages are the elements involved in PCC effects tense-variant.

The third claim is that omnivorous number agreement, of the sort found in Soazza, should not be found when the triggering element (e.g. the object as well as subject) is a tense-varying person marker. This prediction holds for all of the languages in which I have found omnivorous number agreement in Romance (Soazza, French, Barceloní Catalan, Italian). Moreover, Merchant (2011), analyzing Aleut *pro* as a clitic requiring a syntactic host, finds that the tense-invariant agreement markers show omnivorous number. Interestingly, in many languages, such as Georgian, Onandaga, and Mohawk, Omnivorous Number effects are only found with 1st and 2nd person arguments. By hypothesis, this would mean that 3rd person arguments do not generate a big-DP structure with a clitic. In fact, looking at Georgian 3rd person markers confirms this pattern: the 3rd person affixes are not only on the other side of the verb from the per-fixes, but are also not tense-invariant.

Kramer (2010) and Preminger (2009) propose additional sets of morphosyntactic diagnostics for distinguishing cliticization from agreement, also converging on the conclusion that cliticization involves a doubling D element, whereas agreement involves the valuation of phi-features on a functional head. As a result, while clitic doubling is dependent on generation of a big-DP structure, which may be conditioned by semantic features of the argument, may have interpretive effects, and may be optional, agreement canonically has none of these properties (Corbett 2006: 14–26). Indeed, one of Preminger's (2009) diagnostics of agreement is that defective intervention yields default agreement—*something* must supply the functional head with phi-features, whereas failure in clitic doubling (e.g. failure to move or find a host) yields the wholesale absence of the clitic element.

These morphosyntactic properties of clitics are dissociated from their morphophonological properties, such as whether or not they induce or undergo allomorphy. Dissociating morphosyntactic properties from morphophonological properties allows us to analyze 'per-fix' clitics in languages such as Georgian, and reap the analytic benefits; and it is my hope that having discarded the Zwicky and Pullum (1983) diagnostics—which do not even work for Romance pronominal clitics—a new set of person markers in a typologically broad set of languages can be tested for correlations between tense-invariance, person-complementarity, and omnivorous number, as shown in the decision tree repeated below:

(47) Morphosyntactic properties on which the learner can decide clitic or agreement:



The newly revised set of diagnostics may have consequences for diachronic studies of reanalysis of clitics as affixes (Fuss 2005). The ambiguous branch of the tree in (47) opens the possibility that a clitic whose mobile placement (i.e. host of syntactic rebracketing) has become distributionally restricted may be reanalyzed as a part of a functional head if the other three diagnostics are not decisive.

Given the potential similarity in morphophonological behavior between clitics and affixes (for, as we have seen, Romance clitics, like affixes, can induce and undergo allomorphy), and the fact that they both express person features, it is unsurprising that the clitic/affix distinction is a very fine-grained one which has puzzled and will continue to vex many language learners and linguists alike. Nonetheless I contend that 25 years of research on clitics subsequent to Zwicky and Pullum's (1983) paper now demonstrates the limited utility of these heuristics, and embracing a suite of diagnostics rooted in the division of labor between syntactic and post-syntactic computations and representations, proceed to treat Georgian, Onandaga, Basque, and Kashmiri per-fixes as pronominal clitics based on the criteria above.

Having outlined a classification for identifying clitics, and a syntax for cliticization that enables them to occupy the same domain as other arguments, let us now return to the fundamental difference in representational vocabulary between Person and Number that leads to divergent patterning of clitics in Multiple Agree for these two features.

5 Multiple agree for person vs. number

In this section I will show how Multiple Agree works for both the Person features (fully represented in the syntax) and the Number features (privative in nature), yielding different derivations for each, due to the lack of intervention effects with singular number.

5.1 Review of person complementarity derivation and application to subject–object PCC

In reviewing the mechanics of Multiple Agree as proposed in Nevins (2007) in terms of the conditions of Contiguous Agree and Matched Values, I would like to extend this treatment to interactions between subject and object, maintaining that such interactions are possible when the object is a clitic, for reasons discussed in Sect. 4. Recall that the two elements participating in Multiple Agree must be within the same Agree domain:

(48) Agree domain for T: everything c-commanded by T down to the next Agree domain
Agree domain for v: everything c-commanded by v down to the next Agree domain

In ditransitive constructions, therefore, the IO and DO will occupy the same Agree domain (to the exclusion of the subject), as both are c-commanded by v. In Subject–Object interactions, the Subject and the DO-clitic will occupy the same Agree domain, assuming that the latter has undergone object shift, and therefore both will be targeted for Multiple Agree by T. I will exemplify this for the Weak Subject–Object PCC. Kashmiri shows a Weak PCC between Subject and Object: 3rd person subjects cannot dominate 1st or 2nd person objects:

(49) Bi ch- u- s- an- av su tohi nis sozan
I be- m.sg 1sg- 3sg- 2pl he you.dat near sending
'I am sending him to you.'

(50) Biz sooz- a- th tsi toor
I send- 1sg- 2sg you there
'I'll send you there.'

(51) *Su sooz- yi- th tsi toor
He send 3sg- 2sg you there
'He'll send you there.' (*3*subj* > 2*obj*)

By hypothesis, the ban against (51) is the result of a Multiple Agree operation initiated by T, which encounters both arguments (subject and object) simultaneously, and must meet the following conditions (the reader is referred to Nevins 2007 for more extensive exemplification):

(52) Contiguous Agree (CA): For a relativization R of a feature F on a Probe P, and $x \in \text{Domain}(R(F))$,
$\neg\exists y$, such that $y > x$ and $p > y$ and $y \notin \text{Domain}(R(F))$
"There can be no interveners between P and x that are not in the domain of relativization that includes x"

(53) Matched Values (MV): For a relativization R of a feature F, $\exists\alpha, \alpha \in \{+, -\}$, $\forall x, x \in \text{Domain}(R(F)), \text{val}(x, F) = \alpha$
"All elements within the domain of relativization must contain the same value"

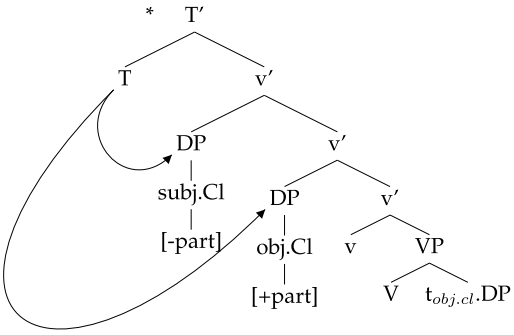
For PCC effects such as that in Kashmiri, a language-specific feature-based parameterization of the search restricts agreement valuation to marked values of [±participant], i.e. positive values. For a convergent derivation to occur, therefore, the two conditions above are met as follows. Condition CA requires that there cannot be any unmarked values of [±participant] that intervene between the Probe and elements within the featural specifications it is looking for. The second condition, MV, is trivially met when there is marked relativization to a single value of a binary feature (i.e. in this case), as there cannot be elements within this domain that have differing values for the feature in question. The possibilities for clitic ordering (with left-to-right indicating dominance, i.e. dative on the left and accusative on the right) are given below, and, in each case, an 'x' indicates that the configuration fails to meet a condition on Multiple Agree. Checkmarks (✓) are used in the table to indicate convergent derivations.

(54) Weak PCC: If Acc is 1/2, then Dat is 1/2.
Probe's Value-Relativization: Marked [Part].

Subj	Obj	CA	MV
1	3	✓	✓
1	2	✓	✓
2	1	✓	✓
2	3	✓	✓
3	1	x	
3	2	x	

The illustration of the illicit (51) is shown in (55).

(55) Multiple Agree with 3 > 2 violates the PCC:



To summarize the intuition behind the weak PCC within the current syntactic implementation: the Probe is searching for Marked values of Participant. Configurations such as ⟨3 1⟩ and ⟨3 2⟩ constitute violations of the Contiguous Agree domain, because a non-marked value of [±participant] interrupts the Agreement span.

A comment is in order on ⟨3 3⟩ combinations. When the probe is relativized to search for Marked values, and finds no instance of [+participant] at all, the search fails, and Agree requires insertion of default ϕ-features on the probe (Schütze 1997; Preminger 2009). A distinction is therefore required between intervention effects

(which cause outright ungrammaticality, as indicated by x's in (54)) and lack of finding any goal at all, which result in last-resort default agreement.

Person-Case Constraints, while very widespread, never find a parallel in Number-Case Constraints. This latter gap is somewhat puzzling given the machinery used to derived PCC effects that rely on 3rd person as the absence of person, since, by parity of reasoning, if singular number is the absence of number, in the same hierarchical configuration, the same syntactic constraints should obtain. On the other hand, if the right explanation of PCC violations is rooted in intervention by a featurally present unmarked person, then the absence of a feature for unmarked number will mean that no intervention can occur.

5.2 Applying multiple agree to omnivorous number

Let us now consider the result of applying the exact mechanism above to number agreement, with the sole difference that singular number is privative, and hence not represented in the syntax. A single number probe on T or v, looking for privative [plural] with Multiple Agree, will have no intervention by singular number, given the following two conditions:

(56) Contiguous Agree (CA): For a relativization R of a feature F on a Probe P, and $x \in \text{Domain}(R(F))$,
$\neg\exists y$, such that $y > x$ and $p > y$ and $y \notin \text{Domain}(R(F))$
"There can be no interveners between P and x that are not in the domain of relativization that includes x"

(57) Matched Values (MV): For a relativization R of a feature F, $\exists\alpha, \alpha \in \{+, -\}$, $\forall x, x \in \text{Domain}(R(F)), \text{val}(x, F) = \alpha$
"All elements within the domain of relativization must contain the same value"

In the case of two plurals, CA is satisfied, as the span is clearly continuous. In the case of one singular and one plural, the higher argument is literally absent for Agree, and hence does not interrupt CA. The condition MV is always trivially satisfied, as no value-mismatch can occur for a unary feature.

(58) Omnivorous Number: If either subject or object is plural, the plural marker is realized.
Probe's Value-Relativization: Marked [Plural]

Subj	Obj	CA	MV
[Plural]		✓	✓
	[Plural]	✓	✓
		✓	✓
[Plural]	[Plural]	✓	✓

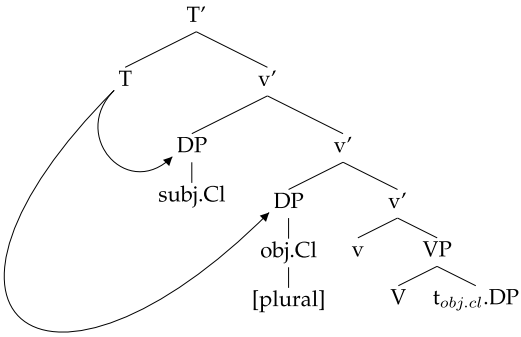
The result of Omnivorous Number probing is exemplified here for Georgian:

(59) g-xedav
2obj.- saw
'I saw you; he saw you.'

(60) g- xedav- t
2obj.- saw- pl
'I saw y'all; we saw y'all; he saw y'all; we saw you.'

The derivation for a syntactic structure such as 'I saw y'all', where singular is above plural, but no intervention effect obtains, is shown in (61):

(61) No Number-Case Constraint effects with Privative [Plural]:



The tree in (61) differs from the one in (55) in that the unmarked value on the higher argument is absent for number in the former, but is syntactically present (and hence constitutes an intervener) for person in the latter.

Crucially of course, omnivorous number is not found in every language. As the tree above demonstrates, it is only found when Multiple Agree is initiated. Whether or not the T head in a given language initiates Single or Multiple Agree is clearly a point of parametric variation (see also Baker 2008: 99–102), and it is only when two goals are agreed with that they can jointly influence the success or failure of featural valuation. In addition, as omnivorous number will only be found when Multiple Agree is initiated, *Non-Multiple* Agree will be potentially subject to defective intervention effects when the case of an intervener renders it ineligible to control agreement. For example, T attempting Agree with an in-situ nominative argument will hit a defective intervener with an experiencer dative in Icelandic, as reported in Holmberg and Hróarsdóttir (2004). This, however, is not due to properties of number (as both singular and plural intervening datives cause default agreement), but rather because dative arguments constitute defective interveners whose case blocks their phi-features from being accessible.[8]

Omnivorous number effects are found with Multiple Agree when both arguments are [plural], because they jointly furnish the same value for a single agreement morpheme. They are also found when only one argument is [plural], because the other argument does not syntactically intervene for Agree. The resulting morphosemantic ambiguity of Georgian sentences like (60) is because the element *-t* reflects a syntactic operation carried out between a single head and one or both arguments.

[8]Further questions arise as to whether certain probing functional heads (e.g. T vs. v) restrict successful valuation to certain cases; for example, it may be that v but not T can be valued by a dative argument.

Wholesale Omnivorous *Person* effects of this scale cannot result from Multiple Agree, because an unmarked person dominating a marked person *will* intervene.[9] On the other hand, when both arguments are marked, they will either run up against the Matched Values constraint (for [±author]), or the construction itself will be reflexive-marked. As a result, sentences with the analogous three-way ambiguity of omnivorous number configurations for person (e.g. the morpheme indicates that either subject, or object, or *both*, are [+participant]) will never be found.

6 Summary and general conclusions

I began this paper with the observation that while Person-Case Constraint and Omnivorous Number phenomena are widely found, Number Case Constraints and Omnivorous Person effects are not found in natural language, and proposed that this difference results from the syntactic representation of person as fully binary, in contrast with a syntactic representation of number as privative, where [singular] does not play a role throughout the syntax (although naturally, it enters into postsyntactic phenomena such as allomorph selection).

Both Person-Case and Omnivorous Number effects that involve Subject–Object interactions raised the question of how the object could be local enough to the subject to participate in Multiple Agree. I therefore extended the analysis of Person-Case Constraints, typically restricted only to discussions of indirect object and direct object, to Subject/Object interactions, with the important proviso that Subject and Object can interact via Multiple Agree only when the latter is a clitic. I have argued that pronominal clitics originate in a big-DP structure, undergo Object Shift, which places them in the same Agree domain as the Subject, that pronominal clitics are caseless (Roberts 2010), and therefore can participate in Multiple Agree, and that the morphophonological patterning of clitics with their hosts is a result of Matushansky's (2006) rebracketing operation.

I have furthermore argued for the widespread existence in natural language of Omnivorous Number patterns, which hold between subject and object in languages such as Georgian, again precisely when the latter is a clitic. The categorization of Georgian 'per-fixes' as clitics—based on its PCC effects, Omnivorous Number effects, and tense-invariance of its per-fix elements—has led to a re-inspection of the classic diagnostics for clitics vs. agreement, with the conclusion that even the most well-worn morphophonological diagnostics, such as 'no allomorphy', do not work for clitics as familiar as English *'s*. I have therefore proposed a morphosyntactic diagnostic for clitichood: tense invariance, a property to be expected of a D element. Coupled with Woolford's (2010) proposal that there can be only one instance of agreement per clause, this would necessitate an analysis of all cases of object agreement as pronominal clitics in languages with agreement with both subject and object, and thereby

[9] Multiple Agree for [+participant] with satisfaction of Matched Values effects could in principle be found when a single morpheme indicates the presence of the specific combination of *both* 1st and 2nd person arguments in its domain. This may in fact be the right analysis for the frequent 1 ↔ 2 portmanteaus discussed by Heath (1998), in languages such as Caddo.

opens the way for extensive investigation of Person Complementarity and Omnivorous Number effects in such cases.

Morphosyntacticians have always had an intuition that person and number are different, and the range of diverse evidence collected in Sect. 2 points to their fundamentally different pattering with respect to myriad grammatical phenomena. What this proposal has attempted to derive is their divergent patterning in multiple-argument exponence using a single operation, Multiple Agree, and relying solely on differences in representational alphabet. In an unexpected way, the absence of Number-Case Constraints from linguistic typology vitiates the analyses of Person-Case Constraints that rely on explicit featural encoding of 3rd person, such as Nevins (2007). Were both 3rd person and singular number to be coded as the absence of a feature, complete parallelism should be expected among person and number. At the kernel of the present paper is the assertion that this non-parallelism has a principled basis: 3rd person is encoded by the unmarked value of a binary feature, whereas singular number is the absence of a unary feature. As such, it represents another step in the current morphosyntactic research program of unpacking the set of ϕ-categories into a more articulated set of features, and following the methodology employed in phonological theory of attendant research into the sub-features that compose person and number, and concomitant evaluation in terms of the design features of language such as feature predictability, contrast, markedness, and privativity vs. equipollence.

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