

A Probe-Goal Approach to Agreement and Incorporation Restrictions in Southern Tiwa

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Abstract

Southern Tiwa (Tanoan) exhibits agreement with up to three arguments (ergative, absolutive, dative). This agreement is subject to certain restrictions resembling the Person-Case Constraint paradigm (Bonet (1991)). Moreover, there is a correlation between agreement restrictions and conditions on (the obviation of) noun-incorporation in Southern Tiwa, as explicitly and elegantly captured by Rosen (1990) in terms of a heterogeneous feature hierarchy and rules of association. We attempt to recast Rosen's central insights in terms of Anagnostopoulou's (2003; 2006) probe-sharing model of Person-Case Constraint effects, to show that the full range of Southern Tiwa agreement and (non)incorporation restrictions can be given a single, unified analysis within the Probe-Goal-Agree framework of Chomsky (2001). In particular, we argue that Southern Tiwa's triple-agreement system is characterized by (i) an independent class probe located on the heads T and v, and (ii) a rule that allows this class probe to be deleted in the context of local-person T-agreement. The various restrictions on agreement and nonincorporation then reduce to a single source: failure of class-valuation with DP (as opposed to NP) arguments.

1. Introduction

Rosen (1990) offers a remarkably elegant reanalysis of the complex set of agreement restrictions and conditions on incorporation in Southern Tiwa, a Tanoan language spoken in New Mexico, as first described

*For helpful comments and questions we would like to thank the audiences at the Workshop on Grammar and Processing of Verbal Arguments (Universität Leipzig, April 2007), Generative Grammatik im Süden (Universität Konstanz, May 2007), and the Workshop on Morphology and Argument Encoding (Harvard University, September 2007), as well as the participants of the Colloquium on Syntax and Morphology at Universität Leipzig, April 2007. Particular thanks go to Daniel Harbour, Gereon Müller, Andrew Nevins and Jochen Trommer.

and analysed in the pioneering work of Allen, Frantz and Gardiner (see, especially, Allen et al. (1990)). Southern Tiwa is a head-marking language (in the sense of Nichols (1986)) that makes extensive use of noun-incorporation and exhibits a particularly interesting system of rich agreement (using portmanteau morphemes): as argued by Rosen, Southern Tiwa is a *triple-agreement* language, in which the verb agrees with all arguments present in a clause. Thus verbs may agree with as many as three arguments: the ergative (NP_{erg}), absolutive (NP_{abs}) and dative (NP_{dat}). This agreement, which is expressed in the form of a verbal prefix, registers [PERSON], [NUMBER] and, in the case of third-person arguments, [CLASS] as well; see (1), (2), and (3), from Rosen (1990, 670).

- (1) a. Te-mĩ-ban (eskwela-'ay)
1SG-go-PAST school-to
‘I went (to school)’
- b. A-mĩ-ban (eskwela-'ay)
2SG-go-PAST school-to
‘You went (to school)’
- (2) a. Ka-musa-wia-ban
1SG:A:2SG-cat-give-PAST
‘I gave the cat to you’
- b. Kam-musa-wia-ban
1SG:B:2SG-cat-give-PAST
‘I gave the cats to you’
- (3) a. 'Uide tam-musa-wia-ban
child-A 1SG:B:A-cat-give-PAST
‘I gave the cats to the child’
- b. 'Uide tow-keuap-wia-ban
child-A 1SG:C:A-shoe-give-PAST
‘I gave the shoes to the child’

The agreement prefix is glossed as follows: a prefix that encodes agreement with NP_{erg} = X, NP_{abs} = Y, and NP_{dat} = Z is glossed as X:Y:Z; accordingly a prefix encoding for NP_{erg} and NP_{abs} is glossed X:Y, and one encoding for NP_{abs} and NP_{dat} is glossed Y:Z. The letters A, B and C indicate class-agreement: the singular and plural forms of third-person nouns in Southern Tiwa belong to one of three inflectional classes, labelled A, B and C, respectively, which follow one of the three patterns in (4):

(4) *Class patterns:*

	Pattern 1	Pattern 2	Pattern 3
Singular	A	A	B
Plural	B	C	C

Animate third-person nouns always follow Pattern 1 (Rosen (1990, 672)), a fact that will become crucial in section 4.

Example (1), then, exhibits person and number-agreement for the single, absolutive argument of an intransitive; examples (2) and (3) display triple-agreement with all three arguments of a ditransitive, with the absolutive argument registering variation in inflectional [CLASS] according to [NUMBER] in (2) and [ANIMACY] in (3).

Additionally, and of central concern to the present paper (and to Rosen (1990)), agreement and incorporation in Southern Tiwa are subject to a number of constraints, which can be summarized as follows (a more detailed exposition and explanation of these constraints can be found in sections 2, 4, and 5):

(5) *Restrictions on Southern Tiwa agreement and incorporation:*

Any two (or more) of the following three argument types are barred from cooccurring:

- a. A dative DP (of any person)
- b. A third-person ergative DP
- c. A local-person (1st/2nd) or nonincorporating absolutive DP.

Rosen’s strikingly simple and insightful analysis describes the banned configurations in terms of crossing association lines on a featural hierarchy, akin to a tier in autosegmental phonology. Thus, given the hierarchical arrangement of person, case and animacy features in (6), ungrammaticality arises wherever the linking of arguments according to these features with the corresponding points on this tier would result in the crossing of linkages, formalized as association lines.

(6) *Rosen’s hierarchy:*

Sole animate » Ergative » 1st/2nd *or* specific *or* nonincorporated » Dative » 3rd » Absolutive » Inanimate

The reader can check for themselves that attempting to combine any two of the three categories in (5) will result in crossing associations, and thus a prohibited configuration.

Effective and explicit as this analysis surely is, the particular technology it employs (a primitive hierarchical tier to which arguments are somehow associated, presumably by special rules of association) is of questionable status, especially under the more stringent standards to which syntactic explanation is held in the recent developments of the Minimalist Program (Chomsky (1995) et seq.). Our aim in the subsequent sections of this paper is thus to attempt a further (re)rethinking of the restrictions in (5) that builds on and recasts Rosen's central insights in terms of the Probe-Goal mechanism underlying the operation Agree of (Chomsky (2000; 2001)). In particular, Rosen's crossing association lines would seem to readily suggest a reanalysis as intervention effects arising from the minimality of Agree, whereby a probe must agree (first) with the *closest* goal in its c-command domain. Insofar as such a reworking of Rosen's analysis proves possible, the typologically rare triple-agreement system of Southern Tiwa becomes amenable to principled explanation in the sense of Chomsky (2005; 2006), which, echoing Rosen's own concerns (Rosen (1990, 670)), would be an interesting theoretical result in itself.

The rest of the paper is organized as follows. Section 2 elaborates on the empirical situation, presenting the data and restrictions on agreement and nonincorporation in greater detail. Our theoretical assumptions are then summarized in section 3, which leads to an analysis of Southern Tiwa's agreement restrictions in terms of Person-Case-Constraint effects in section 4. Section 5 extends this analysis to the restrictions on nonincorporation, developing a unified account that strengthens the connection that Rosen draws between (non)agreement and (non)incorporation by removing the stipulations associated with her hierarchical rankings. Finally, section 6 offers a brief conclusion.

2. The Restrictions

2.1. Agreement restrictions

Let us first illustrate the three agreement restrictions to which Southern Tiwa is subject, adhering largely to the presentation in Rosen (1990) (see also Allen & Frantz (1983), Allen et al. (1990), Aissen (1990)); for a more crosslinguistic view of these and similar restrictions, see Aissen (1999), Haspelmath (2003), Baker (2006)).

The first restriction relates to transitive clauses and bars the cooc-

currence of a third-person ergative with a first- or second-person absolutive. As shown in (7), there is no agreement prefix to express A/B/C:1/2 in transitives (the position of the nonexistent prefix is indicated in the structure by \square in (7-b)). Instead, Southern Tiwa resorts to a passive to express such a proposition (see (7-c)).

- (7) a. Ti-khwian-mu-ban
 1SG:A-dog-see-PAST
 ‘‘I saw the dog’’
 b. *’Uide \square -mũ-ban
 child-A A:2-see-PAST
 ‘‘The child saw you’’
 c. ’Uide-ba ma-mũ-che-ban
 child-INST 2PL-see-PASS-PAST
 ‘‘You were seen by the child’’

This restriction, which bears the hallmarks of the ‘‘weak’’ Person-Case Constraint (see in particular Anagnostopoulou (2006) and references therein, and section 4 below), may be stated as follows:

- (8) *First agreement restriction (simple transitives; Rosen (1990, 675f.)):*
 If NP_{erg} in a simple transitive structure is 3rd, then NP_{abs} must be 3rd, too.

The second restriction on Southern Tiwa agreement applies to ‘‘dative intransitives’’, intransitive clauses in which the absolutive cooccurs with a dative goal, and by extension to ditransitives too (see also the third restriction, (12), below). The dative argument may or may not control agreement (i.e. be expressed in the verbal prefix). If it is an agreement-controlling dative, then the cooccurring absolutive is once again barred from being first- or second-person, as shown in (9). Propositions involving a first- or second-person absolutive require a non-agreeing dative, i.e. the language must resort to an oblique dative (marked by a postposition, as for instance -’ay in (9-c)).

- (9) a. Im-seuan-wan-ban
 B:1SG-man-come-PAST
 ‘‘The men came to me’’
 b. * \square -wan-ban
 2SG:1SG-come-PAST
 ‘‘You came to me’’

- c. A-wan-ban na-'ay
 2SG-come-PAST me-to
 "You came to me"

This restriction, which resembles the "strong" Person-Case Constraint (see Bonet (1991), Boeckx (2000), Anagnostopoulou (2003; 2006), Rezac (2004), Richards (2006), Adger & Harbour (2007), and section 4 below), may be stated as follows:

- (10) *Second agreement restriction (dative intransitive; Rosen (1990, 678f.)):*

In a structure with NP_{abs} and NP_{dat}, NP_{abs} must be 3rd (NP_{dat} is free).

Finally, the third restriction on agreement in Southern Tiwa applies to ditransitives, such that a dative may not cooccur with a third-person ergative, as in (11-b). Since a dative is present, the previous restriction (10) applies here too, thus excluding a first- or second-person absolutive (see (11-c)).

- (11) a. Tow-wia-ban
 1SG:C:A-give-PAST
 "I gave them to him/her"
 b. *-wia-ban
 A:C:A-give-PAST
 "He gave them to him/her"
 c. *-wia-ban
 1SG:2SG:A-give-PAST
 "I gave you to him"

We might state this restriction as in (12), which includes the strong PCC restriction in (10) as its second part.

- (12) *Third agreement restriction (ditransitives; Rosen (1990, 677)):*
 In a ditransitive structure, NP_{erg} must not be 3rd and NP_{abs} must be 3rd (NP_{dat} is free).

In sum, the three restrictions on Southern Tiwa agreement ban the three logically possible pairings of datives, third-person ergatives, and first- or second-person absolutives:

- (13) *Summary of agreement restrictions:*
 a. *NP_{erg,3rd} + NP_{abs,1st/2nd} (weak PCC)

- b. *NP_{dat} + NP_{abs,1st/2nd} (strong PCC)
 c. *NP_{erg,3rd} + NP_{dat} (restriction on NP_{erg})

2.2. (Non)incorporation restrictions

Rosen (1990) shows that there is a correlation between agreement restrictions and the “seemingly intricate” conditions on noun-incorporation in Southern Tiwa, specifically the conditions under which a third-person absolutive nominal may obviate otherwise obligatory incorporation and thus appear in a “free-standing” form (see also Allen et al. (1984), Sadock (1985), Baker (1988) on N-incorporation in Southern Tiwa). Though apparently “chaotic” and “idiosyncratic” at first sight, these conditions are shown to follow a simple pattern by Rosen, who reduces them to the same formal restriction as the agreement conditions reviewed above: namely, the ban on crossing association lines. Noting that an absolutive may only “stand unincorporated if it has [...] a high degree of specificity” (Rosen (1990, 683)), Rosen captures this effect by ranking the property of “High Specificity” high on the hierarchy in (6), at the same position as 1st/2nd person.

The various conditions on (non)incorporation in Southern Tiwa may be stated as follows.

Firstly, in intransitives, if the sole (absolutive) argument is inanimate then it must incorporate; if it is animate then it must stand unincorporated:¹

- (14) *First condition on incorporation (Rosen (1990, 680)):*
 If NP_{abs} is the sole argument of a clause, then it must incorporate if inanimate and must not incorporate if animate.

¹In fact, this restriction is rather more flexible than it sounds. As Rosen (1990, 699, fn. 16) puts it, “when the grammar is manipulated in real discourse”, exceptions are possible: thus examples of unincorporated inanimates with class-A (“animate”) agreement instead of the expected class-B/C-agreement can be found. In effect, a speaker is free to optionally promote an inanimate to the class of “animate”, nonincorporating absolutives (i.e. to invest it with the “High Specificity” property of high pragmatic salience) at their discretion. In the analysis we propose below (section 5), this equates to the free optionality of embedding an NP under a DP shell, a choice which is subject only to considerations of pragmatic deviance.

- (15) a. Musan i-teurawe-ban
 cats B-run-PAST
 “The cats ran”
 b. *I-musa-teurawe-ban
 B-cat-run-PAST
- (16) a. I-k’uru-k’euwe-m
 B-dipper-old-PRES
 “The dipper is old”
 b. *K’uru i-k’euwe-m
 dipper B-old-PRES

Secondly, ergatives can never incorporate. Consequently, this allows disambiguation in sentences such as (18-b).

- (17) *Second condition on incorporation (Rosen (1990, 681)):*
 NP_{erg} never incorporates.
- (18) a. Seuanin ibi-musa-mban
 men B:B-cat-see-PAST
 “The men saw the cats” Not: “The cats saw the men”
 b. Ibi-kan-hwiwimu-’an
 B:B-horse-hate-PRES
 “They hate horses” Not: “Horses hate them”

The same is true of datives:

- (19) *Third condition on incorporation (Rosen (1990, 681f.)):*
 NP_{dat} never incorporates.
- (20) a. Ta-’u’u-wia-ban hliawrade
 1SG:A:A-baby-give-PAST woman
 “I gave the baby to the woman”
 b. *Ta-hliawra-’u’u-wia-ban
 1SG:A:A-woman-baby-give-PAST

For all other cases, incorporation is normally obligatory. Thus, where the absolutive is not the sole argument (i.e. in transitives), incorporation is mandatory (pending the exceptions to be stated in the final condition (24) below), including for animates:

- (21) *Fourth condition on incorporation (Rosen (1990, 682f.)):*
 An NP_{abs} that is not the sole argument of the clause obligatorily incorporates (unless (24)).

- (22) a. Musan i-hliaw-ban na-'ay
 cats B-come.down-PAST me-to
 "The cats came down to me"
 b. *I-musa-hliaw-ban na-'ay
 B-cat-come.down-PAST me-to
- (23) a. Im-musa-hliaw-ban
 B:1SG-cat-come.down-PAST
 "The cats came down to me"
 b. *Musan im-hliaw-ban
 cats B-come.down-PAST

In (22), "cats" is the sole argument controlling agreement (the dative is a prepositional oblique), and so cannot incorporate, in accordance with the first condition (14), above. By contrast, (23-a) involves a dative intransitive in which both arguments control agreement; "cats" is thus not the sole argument, and must incorporate, by (21).

Though generally obligatory, such incorporation of non-sole absolutes is obviated under two conditions. Firstly, as noted above, the absolute must be interpreted as "highly specific". Secondly, nonincorporation cannot cooccur with either a third-person ergative (see (26)) or any dative (see (27)).

- (24) *Fifth condition on incorporation (Rosen (1990, 683, 688)):*
 An NP_{abs} that is not the sole argument can optionally obviate (otherwise obligatory) incorporation (see (21)) if it is interpreted as specific and if a. and b. hold.
- a. NP_{erg} is 1st/2nd.
 b. There is no NP_{dat} co-argument.
- (25) a. Ti-seuan-mũ-ban
 1SG:A-man-see-PAST
 "I saw the man"
 b. Seuanide ti-mũ-ban
 man 1SG:A-see-PAST
- (26) a. Ø-seuan-mũ-ban
 A:A-man-see-PAST
 "He/she saw the man"
 b. *Seuanide Ø-mũ-ban
 man A:A-see-PAST

- (27) a. Ka-’u’u-wia-ban
 1SG:A:2SG-baby-give-PAST
 ‘I gave the baby to you’
 b. *U’ude ka-wia-ban
 baby 1SG:A:2SG-give-PAST

Thus nonincorporating absolutes, i.e. those associated with specific interpretations, induce the same kinds of Person-Case Constraint effects as 1st- and 2nd-person absolutes: both nonincorporating (“highly specific”) absolutes and 1st/2nd-person absolutes are barred from cooccurring with datives or third-person ergatives. This can be summarized as follows, a slight modification of (13):

- (28) *Summary of agreement and nonincorporation restrictions:*
 a. *NP_{erg,3rd} + NP_{abs,1st/2nd/nonincorporating} (weak PCC)
 b. *NP_{dat} + NP_{abs,1st/2nd/nonincorporating} (strong PCC)
 c. *NP_{erg,3rd} + NP_{dat} (restriction on NP_{erg})

The restrictions on agreement and nonincorporation thus unified, the challenge is to identify a single property common to both these types of absolutes (1st/2nd and nonincorporating/specific) that is responsible for inducing them. For Rosen, this property is an identical ranking on her featural hierarchy (cf. (6)). We will suggest in section 5 that the unifying property is simply the presence of a D head on the absolute argument. This D head contributes both the person feature (1st/2nd) and the animacy/specificity interpretation, and serves to block the kind of agreement with the head noun that yields both (non)incorporation and Person-Case Constraint effects in Southern Tiwa. Before presenting the workings of this analysis, we must first make explicit the theoretical assumptions from which our analysis proceeds. These are outlined in the following section.

3. Theoretical assumptions

Our aim is to develop an account of the restrictions in (28) that follows from independently motivated conditions on agreement within a minimalist architecture of the language faculty (Chomsky (1995; 2005)). As such, we adopt the Probe-Goal model of feature-agreement as first set out in Chomsky (2000), in which designated checking configurations are

replaced with simple c-command between a probe (which lacks feature values) and a goal (which bears the corresponding feature values and specifies these values on the probe).

We adopt the standard assumption that T and v are the locus of unvalued agreement features (i.e. probes), and that these agreement features include [PERSON] and [NUMBER]. Further, we assume that T and v in Southern Tiwa additionally have an unvalued class feature, as indicated in section 1. These features must all seek values from the corresponding interpretable agreement features of NP arguments (goals). The goal arguments, for their part, bear case features that must be valued in the syntax by the verbal heads, T or v. Case valuation on NP is thus a by-product of agreement valuation on T/v (in the spirit of the long-standing insight that case and agreement are two sides of the same coin, cf. George & Kornfilt (1981)).

Valuation of case and agreement features on probe and goal is effected by the operation Agree, a standard version of which is given in (29):

- (29) *Agree:*
 α can agree with β with respect to a feature bundle Γ iff a.-d. hold:
- a. α bears at least one unvalued probe feature in Γ and thereby seeks the β -value of a matching goal feature β in Γ .
 - b. α c-commands β .
 - c. β is the closest goal to α .
 - d. β bears an unvalued case feature.

“Closest” in (29-c) captures an important property of the minimalist computational system: search is minimized (on grounds of operative efficiency), so that the first goal encountered values as many features as it can. For concreteness, Closeness can be structurally defined as in (30), and the maximization of feature valuation may be stated as in Next, though the effects of both of these are simply the result of minimal search.

- (30) *Closeness:*
 Goal β is closer to probe α than goal γ if a. and b. hold.
- a. α c-commands both β and γ .
 - b. β asymmetrically c-commands γ .

- (31) *Maximize (Chomsky (2001)):*
 One application of Agree values all features of the probe that find a matching feature on the currently selected goal (see also Pesetsky's (1989) Earliness Principle).

The condition (29-d) on Agree is sometimes subsumed under the Activation Condition. As argued in Richards (2007), case features render interpretable ϕ -sets (i.e. goals) visible to the syntax and thus contribute to optimal design. A goal is thus only visible (active) for as long as it has an unvalued case feature. In effect, case thus acts as a boolean switch: if it is unvalued (switched on), then the goal is visible to probes; if it is valued (switched off), then the goal is invisible. We further assume that, for a goal's case feature to be valued, it is in principle sufficient for the goal to Agree with just *one* of the probe's agreement features, in the spirit of maximizing valuation opportunities (cf. (31)); that is, a blind, local computational system should not allow valuation to be delayed in the hope of finding a better (fuller) match later in the derivation. (See also Rezac (2003; 2004) for an approach to the individual deactivation of goal features.)

As is standard, we further assume that T and v each come in two varieties: a defective variant, which lacks ϕ features, and a nondefective, ϕ -complete variant able to partake in agreement and case valuation. For Southern Tiwa, we thus have nondefective variants of T and v with unvalued agreement and class features [AGR:□] and [CLASS:□] (the feature's lack of value is indicated by the presence of □) and defective variants of T and v that lack these features. The various variants of T and v are allowed to combine freely in principle as lexical choices in the numeration; some of these combinations will simply lead to non-convergent derivations due to unvalued features. Thus a combination of defective T and defective v is unable to value case at all and so is incompatible with the presence of nominal arguments; on the other hand, a combination of T and v each bearing [AGR:□] and [CLASS:□] will fail to converge in a simple transitive due to the presence of more probe features than two arguments are able to value ([PERSON], [NUMBER] and [CLASS] are never valuable by the same argument in Southern Tiwa, for reasons of the complementary distribution of these features across D and N: see (36) below). It follows that the only possible (convergent) combinations of T-types and v-types are those given in (32), and that each corresponds to a particular clause type that provides just the right

number of arguments for the features of all the probes and goals to be valued.²

(32)	T/v-combinatorics	Clause type
	$T_{[AGR:\square, CLASS:\square]} + v_{[-]}$	→ transitive
	$T_{[AGR:\square, CLASS:\square]} + v_{[AGR:\square, CLASS:\square]}$	→ ditransitive
	$T_{[-]} + v_{[AGR:\square, CLASS:\square]}$	→ dative intransitive
	$T_{[AGR:\square, CLASS:A]} + v_{[-]}$	or
	$T_{[PERS:3, NUM:SG, CLASS:\square]} + v_{[-]}$	→ simple intransitive

The simple clause structure in (33) shows the base positions that we assume for the various probes and goals. The latter are identified by their valued case forms. By Closeness (30), these case forms can be identified with particular probes, as given in (34).

(33) *Clausal structure:*
 $[_{TP} T [_{vP} NP_{erg} [v' v [_{VP} (NP_{dat}) [v' V NP_{abs}]]]]]$

(34) *Case assignment:*
 $T_{[PERS]} \rightarrow$ Ergative
 $v_{[PERS]} \rightarrow$ Dative
 $T/v_{[CLASS(/NUM)]} \rightarrow$ Absolutive

Our final set of assumptions relates to the categorial status of nominal arguments as NPs versus DPs. As noted in the previous section, Rosen (1990) claims that nonincorporating absolutes are “highly specific”, belonging to a class of definite or specific referring expressions that she calls “HiSpec”. Further, she also notes that ergatives and datives, which may not incorporate, are always animate (Rosen (1990, 682); see also Fillmore (1968), Pesetsky (1995), Adger & Harbour (2007)). Animacy and specificity thus characterize the entire class of nonincorporating arguments. Recent work has revealed an implicational link between the specification of person features, on the one hand, and precisely these semantic properties (animacy and specificity) on the other: see

²The simple intransitive case employs a defective (probeless) v with a “semi-defectivized” T that comprises either (i) unvalued [AGR:□] and a default valued [CLASS:A] or (ii) unvalued [CLASS:□] and default valued [AGR] ([PERSON:3, NUMBER:SG]). See section 4.3 for empirical and conceptual justification of this.

Adger & Harbour (2007) on the person-to-animacy entailment, and Richards (2007) on the person-to-specificity entailment. If, following Postal (1970) and Richards (2007), we take person to be a property only of DPs (bare NPs being inherently third-person), then we can provide a structural definition of the entire class of nonincorporating arguments (regardless of case): these are all DPs. We thus equate Rosen's (1990) category HiSpec with the presence of a D-head. Nominals that are not HiSpec (i.e. incorporating nominals) lack a DP-shell, i.e. they are bare NPs, and optionality of HiSpec now translates to optionality of DP over NP.

As mentioned above, Adger & Harbour (2007, 20), in their study of the related language Kiowa, propose an implication from person (specifically, the presence of [PARTICIPANT]) to animacy. This can now be restated as an implication from DPs to animacy:

- (35) *DP-animacy implication:*
 DP \Rightarrow animate
 animate $\not\Rightarrow$ DP

DPs are always animate, by virtue of the syntactic person feature that they specify. Animates may still be NPs, however, and thus incorporate, as in (23-a). Further, the obligatory animacy of datives and ergatives now follows if these are obligatorily DPs (in Adger & Harbour's (2007) terms, dative arguments are obligatorily person/participant-specified since indirect objects must be capable of mental experience; see Harbour (2007) for similar claims about agents and ergatives). We will thus refer henceforth to DP_{erg} and DP_{dat} instead of NP_{erg} and NP_{dat}. Absolutes, by contrast, may be optionally DP_{abs} or NP_{abs} (i.e. optionally HiSpec, for Rosen), and we will refer to them accordingly in what follows.

The structural difference between DPs and NPs has important consequences for the accessibility of the class feature of goals. We take [CLASS] to be a lexical property of the category N; thus [CLASS] is located on the head of NP. [PERSON] and [NUMBER], on the other hand, are contributed by D. We thus arrive at the DP-internal structure in (36).

- (36) *Nominal structure:*
 $[_{DP} D_{[PERS,NUM]} [_{NP} N_{[CLASS]}]]$

We assume that the category D, like C and v, constitutes a *phase* in

the sense of Chomsky (2001). (See Heck & Zimmermann (2004) for arguments that DP is a phase.) As such, it is subject to the Phase Impenetrability Condition, as defined in (37).

- (37) *Phase Impenetrability Condition, PIC; (Chomsky (2001)):*
 The domain of a head X of a phase XP is not accessible to operations at ZP (the next phase); only X and its edge (SpecX) are accessible to such operations.

As a result of (37), everything on the complement side of D (of an object within VP) becomes inaccessible once the phase head v has been introduced into the structure; only SpecD and D remain accessible. It follows that an NP's class feature is not accessible from outside of DP; i.e., [CLASS] on NP is only accessible to probes when that NP is not "protected" by a DP-layer. Third-person DPs, unlike NPs, thus have "invisible" [CLASS], a factor which will play a crucial role in the following sections in deriving the agreement and incorporation restrictions in (28).

4. Analysis 1: Agreement restrictions

With the above assumptions in place, we proceed to our analysis of the three agreement restrictions in (13) across the various clause types – transitives (section 4.1), ditransitives (4.2), and intransitives (4.3).

As noted in section 1, the agreement restrictions found in Southern Tiwa bear a close resemblance to a class of phenomena that has been dubbed the Person-Case Constraint (PCC) in the literature: so-called "weak" PCC effects in the case of transitives, and "strong" PCC effects in the case of ditransitives. Such effects may traditionally be analysed in terms of a Silversteinian prominence scale, such that the lower argument cannot be more prominent or salient in terms of its person/animacy properties than the higher argument (see Silverstein (1976)). Thus, for weak PCC, the lower argument cannot be 1st or 2nd person if the higher argument is 3rd person; for strong PCC, the lower argument cannot be high-ranked (local-person) at all. Instead of this, we adopt an approach to the PCC and PCC-like argument restrictions along the lines of recent minimalist analyses such as Anagnostopoulou (2003; 2006) and Rezac (2004), which dispense with primitive hierarchies and derive their effects from the mechanics of the Agree operation and the variable featural make-up of probes and goals. Specifi-

cally, agreement restrictions arise in the context of what we might call “probe sharing”, that is, where a single probe relates to and values multiple goals. The first (higher, closer) goal encountered by the probe is invariably fully specified for person features (see, e.g., Adger & Harbour (2007), Harbour (2007) for independent semantic arguments that arguments occupying specifier positions, namely indirect objects and external arguments, must be capable of mental experience, affectedness, volitionality and the like, which they equate with presence of a person/participant feature, implying animacy, as discussed in section 3 above). Consequently, the person (and number) features of the probe are consumed by this first goal (in line with (31)), leaving only a sharply reduced set of probe features with which to value the second argument (we assume that probe features, once valued, are no longer active and so cannot enter further Agree relations – cf. Chomsky (2001) and the discussion of the Activity Condition in section 3 above; there is thus no “true” multiple Agree). It follows that the second argument must be less featurally specified than the first, in order for its case to still be valuable by the remaining feature(s) of the reduced probe. Agreement restrictions on the second, lower argument thus arise as a consequence of its having to make do with the leftover features not valued by the first, higher goal. In sum, the (set of) probe features available for more remote arguments is constrained, resulting in PCC-effects (see Bonet (1991), Boeckx (2000), Anagnostopoulou (2003), Haspelmath (2003), Rezac (2004), Richards (2006)).

In the specific case of Southern Tiwa, we are assuming the ϕ -set of a probe to comprise person, number and, crucially, also class features. Since only third-person arguments bear [CLASS] (cf. section 1), the third-person restriction on absolutive arguments (PCC) follows whenever [PERSON] and [NUMBER] are consumed (valued) by the higher argument, leaving only [CLASS] to probe and value the lower, absolutive argument.

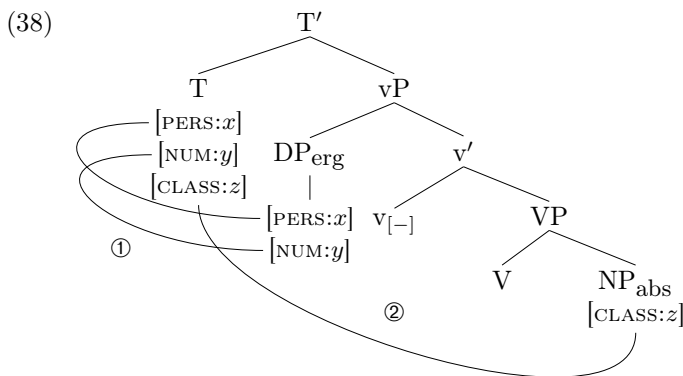
4.1. Transitives

Transitives with DP_{erg} and DP/NP_{abs} involve a T probe with unvalued ϕ -agreement (person, number) and class features, and a defective v probe, i.e. $T_{[AGR:\square, CLASS:\square]} + v_{[-]}$. Assuming that $v_{[-]}$ selects for a VP with only one argument (since otherwise there would be insufficient probes to value all the case features present), the probe(s) on T must

value the case features of both the DP_{erg} and DP/NP_{abs} argument. Accordingly, agreement restrictions (PCC effects) will arise on the second argument, DP/NP_{abs}.

Scenario 1:

Assume first that DP_{erg} is 1st/2nd-person and NP_{abs} is 3rd-person. The T probe first encounters the closer DP_{erg}, which values T's person and number features and, in turn, has its own case feature valued ergative by the T (see ① in (38)). Since 1st/2nd-person DPs are without class features, the class probe is left unvalued on T and is therefore able to probe further, for NP_{abs}. Insofar as the absolutive argument is an NP and not a DP, its class feature is accessible (by PIC, (37)) and so both the NP_{abs}'s case feature and the class probe on T (see ② in (38)) are valued in this second step of Agree. With all unvalued features thus valued, the derivation converges.



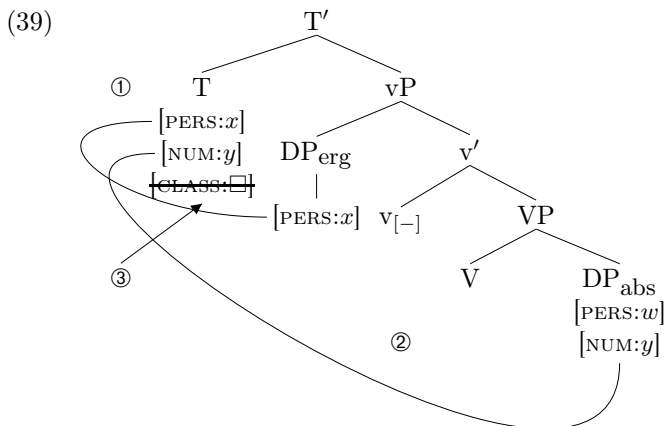
Scenario 2:

Assume next that both DP_{erg} and DP_{abs} are 1st/2nd-person. Since neither of these arguments bears [CLASS], both require probing by [PERSON] and/or [NUMBER] if they are to have their case features valued. This means that, in this particular case, T cannot expend both its person and number features on the closer, ergative argument; rather, it must withhold one of these for the more distant, absolutive argument. Clearly, this poses a lookahead problem, since the probe cannot know the 1st/2nd-person value of the second, lower argument prior to its agreeing with it, by which time it is too late to withhold a probe from agreeing with the first, higher argument. One possibility would be to allow violations of (31), so that a probe is not *forced* to maximize

agreement with the first goal that it finds. However, this would be an undesirable move on both empirical and conceptual grounds. Empirically, it would predict the absence of strong PCC effects with ditransitives (modulo rule (41) below; see also next section), since datives and 1st/2nd-person absolutes could freely cooccur in the absence of (31) by sharing *v*'s person and number probes. Conceptually, this solution introduces optionality into the workings of the syntax itself (specifically, the Agree operation, which now may or may not maximize valuation), weakening the local, feature-driven determinism of the system. Instead, optionality in a minimalist system should be confined to the numeration, i.e. to lexical choices.

In that spirit, we propose a local alternative in terms of variable defectiveness of the goal rather than variable defectiveness ((31)-violability) of Agree. Let us simply assume that D in Southern Tiwa comes in two varieties: either defective, with only a person feature, or else complete, with person and number features (cf. Anagnostopoulou (2003; 2006) on the defective nature of dative DPs, which she claims to check only [PERSON]; see also Richards (2007) on the person-only agreement of quirky dative subjects in Icelandic). We thus have a lexical choice between defective $D_{[PERS]}$ and complete $D_{[PERS,NUM]}$. For the most part, choice of the defective variant will simply result in non-convergence due to an unvalued number probe on T; in such cases, the complete (nondefective) variant must be chosen. However, wherever the lower argument is a DP and thus has accessible number features (i.e. when it is 1st/2nd-person or nonincorporating/HiSpec), choice of the defective variant has the potential to converge. The present example, scenario 2, is such a case.

Thus, suppose first that DP_{erg} is complete. Then both [PERSON] and [NUMBER] on T are valued by DP_{erg} , leaving no probe by which DP_{abs} could value its case feature. On the other hand, if DP_{erg} is defective, then it consumes only [PERSON] on T (see ① in (39)), leaving [NUMBER] for DP_{abs} (see ②). (Note that the derivation would crash if DP_{abs} were also of the defective, number-less kind, since T's person feature is already consumed by DP_{erg} .)



This defective-DP approach to the cooccurrence of local (1st/2nd person) subjects and objects predicts that it is exclusively the DP_{abs} argument that controls number-agreement in this scenario. Interestingly, the syncretisms in (40) illustrate that this prediction is borne out – there is no variation for [NUMBER] with the ergative argument – and thus support the claim that D may optionally be defective in Southern Tiwa. (Note that the apparent covariation of person-agreement with the absolutive argument in this paradigm can be readily attributed to variation in the ergative argument’s person value, and so does not speak against this claim.)³

(40)

		1st			2nd		
		SG	DU	PL	SG	DU	PL
1st	DP _{abs}				<i>bey-</i>	<i>bey-</i>	<i>bey-</i>
	DP _{erg}				<i>ku-</i>	<i>ku-</i>	<i>ku-</i>
	DP _{abs}				<i>ku-</i>	<i>ku-</i>	<i>ku-</i>
2nd	DP _{abs}	<i>i-</i>	<i>i-</i>	<i>i-</i>			
	DP _{erg}	<i>men-</i>	<i>men-</i>	<i>men-</i>			
	DP _{abs}	<i>ma-</i>	<i>ma-</i>	<i>ma-</i>			

The present analysis is thus able to explain why these syncretisms show up in the morphology of Southern Tiwa.

³Affixes for contexts in which both arguments are marked for the same person belong to a special reflexive paradigm, which we do not address here. See Rosen (1990) for discussion.

At this point, T's person and number features and the case features of both arguments are all valued. However, the derivation as yet will fail to converge, since there is still the unvalued class feature on T to take care of (see [CLASS:□] in (39)). To that end, it seems reasonable to assume that a triple-agreement language such as Southern Tiwa, i.e. a language with a separate class probe, will have at its disposal a last-resort deletion rule for removing unvalued class probes in precisely the context where no corresponding class features on goals are to be found, i.e. in the context of local-person arguments. We thus propose that a postsyntactic rule such as (41) is operative in Southern Tiwa at the PF interface, without which a class probe language would be unable to license canonical, prototypical, high-salience subjects (i.e. 1st/2nd-person ergatives).

- (41) *Feature deletion:*
 Unvalued [CLASS:□] on T can be deleted in the context of local (1st/2nd) person.

It is rule (41) which is responsible for the weak PCC effect characterizing Southern Tiwa T-agreement (i.e. transitives), rescuing as it does those configurations in which no class features are present on either subject or object, i.e. where both arguments are local person. As we will see below, rule (41) will equally account for the restriction against third-person ergative arguments in ditransitives as well as for the corresponding restriction of nonincorporation to local-person environments.

Scenario 3:

Let us now consider the scenario in which both DP_{erg} and NP_{abs} are third-person. Here, the derivation proceeds almost exactly as in scenario 1, except that this time the DP_{erg} is third-person and so bears a class feature. However, given our assumption that [CLASS] is a property of N, this feature is not accessible, being embedded under the DP-shell of the ergative (cf. section 3). This means that the pattern of feature valuation should be identical to scenario 1, with the ergative valuing only [PERSON] and [NUMBER] (its class feature being PIC-inaccessible), leaving T's class probe for NP_{abs}. Unfortunately, the morphological evidence appears to speak against this, since DP_{erg} does indeed seem to control for class (see, e.g., *u-* vs. *in-* vs. *iw-* with a class-C NP_{abs} in (42)).

(42)

DP _{erg}		1st			2nd			3rd		
		SG	DU	PL	SG	DU	PL	A _{sg}	A _{du}	B _{pl}
NP _{abs}	A	<i>ti-</i>	<i>in-</i>	<i>i-</i>	<i>a-</i>	<i>men-</i>	<i>ma-</i>	<i>Ø-</i>	<i>in-</i>	<i>i-</i>
	3rd B	<i>bi-</i>	<i>imim-</i>	<i>ibi-</i>	<i>i-</i>	<i>mimim-</i>	<i>bibi-</i>	<i>i-</i>	<i>imim-</i>	<i>ibi-</i>
	C	<i>te-</i>	<i>kin-</i>	<i>kiw-</i>	<i>ku-</i>	<i>men-</i>	<i>mow-</i>	<i>u-</i>	<i>in-</i>	<i>iw-</i>

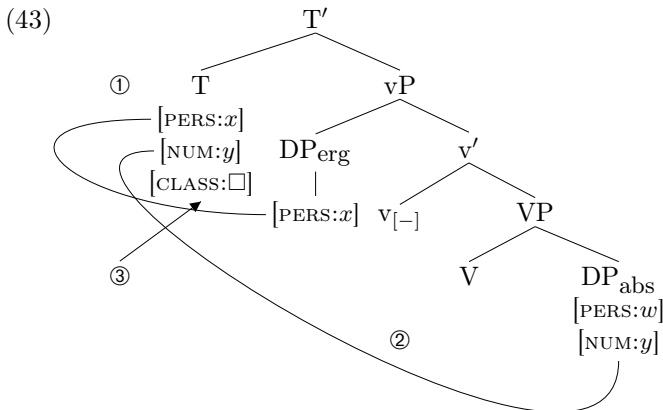
It would seem, therefore, that all of T’s probes ([PERSON], [NUMBER] and [CLASS]) are exhausted by the third-person DP_{erg}, which should fatally leave no probe to value NP_{abs}.

To draw such a conclusion on the basis of (42) would be premature, however. Recall from section 1 the observation that animate NPs always follow Pattern 1 of the inflectional classes in (4). That is, in the singular they uniformly belong to class A, whereas in the plural they uniformly belong to class B. Number thus entirely determines “class” in the case of animates. The alleged class-A/B-agreement of DP_{erg} in (42) can therefore be readily reinterpreted as singular/plural number-agreement. Since the ergative argument is obligatorily animate (and thus a DP, on our assumptions) and [NUMBER] is located on D (cf. (36)), [NUMBER] on the ergative goal is always PIC-accessible to T (unlike [CLASS] on N), lending further support to our claim that what is usually taken to be class-agreement with ergative (and dative) DPs is really just number-agreement. The class probe on T therefore remains unvalued by the ergative, freeing it up for further probing and allowing NP_{abs}’s case feature to be valued. (Note that the number-less, defective variant of DP_{erg} would lead to a nonconvergent derivation in which T’s [NUMBER] goes unvalued in this scenario, thus number must always be present on D in this context, on independent grounds).

Scenario 4:

The final transitive scenario to consider is the one which is excluded as a weak PCC effect: a 3rd-person DP_{erg} with a 1st/2nd-person DP_{abs}. As in scenario 2, T’s [PERSON] and/or [NUMBER] must value both DP_{erg} and DP_{abs}, since neither of these goals bears (accessible) [CLASS]. DP_{erg} must therefore, as in scenario 2, be defective in order for the derivation to be viable, consuming just the person feature of T (see ① in (43)) and thereby leaving [NUMBER] for the absolutive argument (see ②). However, as in scenario 2, there again remains an unvalued class feature on T (see ③). Since the context is not one of local (1st/2nd)

ergative-agreement on T, the rule in (41) cannot apply in this case. The unvalued class feature thus remains undeleted and the derivation crashes, yielding the weak PCC restriction (8) on transitives.



4.2. Ditransitives

Whereas “upstairs”-agreement (T-Agree) is characterized by a weak PCC effect (barring local objects only in the context of nonlocal subjects), the “downstairs”-agreement domain (v-Agree) is characterized by a strong PCC effect, barring local direct objects with any (person of) indirect object. This difference between strong and weak PCC, we propose, reduces simply to the unavailability of a rule like (41) for v.

In the case of ditransitives, there are two probes present with unvalued agreement features: T and v both bear [AGR:□] and [CLASS:□]. Assuming that v with [AGR:□] selects for a VP with two arguments (cf. the clausal structure in (33)), it is the v probe that will enter into Agree with multiple goals, valuing the case of both DP_{dat} and DP/NP_{abs}. DP_{dat} is closer to v than DP/NP_{abs}, and so agreement restrictions will once again arise on the absolutive argument as the more distant of v’s two goals (the closer argument, DP_{dat}, being obligatorily animate and thus obligatorily specified for [PERSON], i.e. a DP in our terms). T, on the other hand, has just a single goal to take care of in ditransitives, namely the DP_{erg}. We first consider the Agree operations initiated by the v probe, and the associated strong PCC restriction, in section 4.2.1, before turning to the T probe and the ban on third-person ergatives (section 4.2.2).

4.2.1. *Probing from v**Scenario 1:*

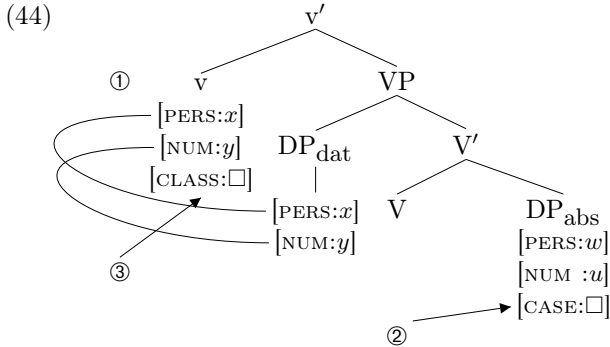
Suppose first that DP_{dat} is 1st/2nd-person and NP_{abs} is 3rd-person. As with the T- DP_{erg} relation in transitive scenario 1, DP_{dat} consumes both [PERSON] and [NUMBER] on *v*. This leaves [CLASS] for NP_{abs} , which possesses an (accessible) class feature, enabling valuation of [CASE] on NP and [CLASS] on *v*. (If a defective DP_{dat} were selected here, [NUMBER] on *v* would remain unvalued and thus crash the derivation.)

Scenario 2:

If DP_{dat} and NP_{abs} are both 3rd-person, then the derivation proceeds exactly as in scenario 1. As in transitive scenario 3, apparent class-A/B-agreement with DP_{dat} (whose embedded class feature on N should be PIC-inaccessible to *v*) can be reconceived as singular/plural number-agreement.

Scenario 3:

We finally consider the illicit cases, i.e. those in which DP_{abs} is 1st/2nd-person, ruled out as a strong PCC effect. This ban on local-person direct objects emerges as a “class Filter” effect: no matter what the person value for DP_{dat} , [CLASS] is left unvalued on *v*, since neither the DP_{dat} nor a 1st/2nd-person DP_{abs} is able to match and value it. The derivation involving a nondefective (ϕ -complete) DP_{dat} is shown in (44); here, case on DP_{abs} also goes unvalued, since no probe is available to match it ([PERSON] and [NUMBER] being both consumed by DP_{dat}). If a defective (number-less) DP_{dat} is selected instead, it consumes just [PERSON] on *v*, leaving [NUMBER] for DP_{abs} ; all case features are then valued, but [CLASS] on *v* still remains unsatisfied. Crucially, the deletion rule in (41) cannot apply here, since it is restricted to local person agreement with T. On the assumption that no last-resort deletion rule on a par with (41) is available for dealing with *v*’s class feature, the strong PCC restriction (10) on dative intransitives, and equivalently the second half of restriction (12) on ditransitives, is derived.



4.2.2. Probing from *T*

Turning now to the role of T-agreement in ditransitives, a nondefective 1st/2nd-person DP_{erg} will consume T's [PERSON] and [NUMBER] (a defective, number-less DP_{erg} will leave T's [NUMBER] fatally unvalued, since the lower arguments, DP_{dat} and NP_{abs} , are already rendered inactive through v-Agree). [CLASS] on T thus remains, with no active arguments left to value it. However, this is nonfatal, as the context for the last-resort deletion rule (41) is met ((41) is available for T in the context of 1st/2nd-person), which takes care of T's remaining class probe. On the other hand, a 3rd-person DP_{erg} (whose class feature is embedded under a DP-shell) is similarly unable to value T's [CLASS]; however, in this case T's retention of an unvalued class feature *is* fatal, since last-resort deletion by (41) requires a local context (valued 1st/2nd-person on T). As a consequence, T's [CLASS] remains unvalued, crashing the derivation as a class Filter effect. The first half of restriction (12) on ditransitives, which bars third-person ergatives with (any person of) datives, is thus derived.

4.3. Simple intransitives

The final clause type to consider is that which contains a single argument. Proceeding from the assumption that intransitives involve only a T probe (i.e. v in intransitives is defective and thus unable to value internal case – cf. Burzio's Generalization), we face the immediate problem of how a solo third-person argument is able to fully value T's agree-

ment and class features (see, e.g., example (15)). If that third-person argument is a DP, then T's [CLASS] should go fatally unvalued, since rule (41) applies (by assumption) only in local-person contexts. That is, we have an unexpected discrepancy between transitive and intransitive T, in that only the former is incompatible with third-person DPs (i.e. the PCC effects discussed in the previous sections). On the other hand, if the solo third-person argument is a bare NP, then the opposite problem arises: now the goal can value only the complement set of features, namely [CLASS], leaving T's person and number features unvalued.

Our suggestion is that the defectivization of probes in intransitive clauses in Southern Tiwa extends beyond *v* to a subset of T's probe features. That is, in a language like English in which transitive clauses involve separate probes on distinct heads (T and *v*) for valuation of subject and object respectively, intransitives involve defectivization of one of these heads (namely *v*) in order to implement the "one argument - one probe" characteristic of Burzio's Generalization. In languages like Southern Tiwa, however, in which transitive clauses involve valuation of subject and object by the probes of a *single* head (namely [AGR] and [CLASS] on T), the "one argument - one probe" profile of intransitives must be achieved through defectivization of one of those features of T. Thus, intransitive T may comprise either active agreement (person/number) features or an active class feature, but not both, and is thus "defectivized". We suggest that in each case, the other (inactive) feature simply bears a pre-specified default value: simple intransitives therefore involve either T with [AGR:□] and [CLASS:A] or with [PERSON:3], [NUMBER:SG] and [CLASS:□], the two logical possibilities for defectivizing the T head. As we shall see, both these possibilities receive independent morphological support, suggesting that our approach to the defectivization of intransitive T is on the right track.

Scenario 1:

Let us first consider the scenario in which the only argument is (complete, nondefective) DP_{erg}, valuing [PERSON] and [NUMBER] on T. In this case, convergence requires that the T_[AGR:□, CLASS:A] variant of the defectivized T head is selected (if T bears [PERSON:3], [NUMBER:SG] and [CLASS:□], then [CLASS] on T and [CASE] on DP_{erg} go unvalued due to the unavailability of a matching class feature on the goal). T's [CLASS] thus bears the default value A in this scenario. An inspection of the intransitive paradigm (45) bears this out: the prefixes that ex-

press a single-argument DP are almost completely identical to those that constitute that part of the transitive paradigm (46) where NP_{abs} belongs to class A (see Rosen (1990, 673, fn. 4)).⁴

(45)	DP _{erg}	1st			2nd			A	B _{pl}
	SG	DU	PL	SG	DU	PL	SG	DU	
	<i>te-</i>	<i>in-</i>	<i>i-</i>	<i>a-</i>	<i>men-</i>	<i>ma-</i>	\emptyset -	<i>in-</i>	<i>i-</i>

(46)	DP _{erg}	1st			2nd			A	B _{pl}
	SG	DU	PL	SG	DU	PL	SG	DU	
NP _{abs}	<i>ti-</i>	<i>in-</i>	<i>i-</i>	<i>a-</i>	<i>men-</i>	<i>ma-</i>	\emptyset -	<i>in-</i>	<i>i-</i>

An important difference thus emerges between *deletion* of unvalued class features by rule (41) in transitives and *defaulting* (or lexical pre-specification) of [CLASS] to the A-value in intransitives. Only in the latter case does [CLASS] have a value, and so only there do we expect a morphological reflex of [CLASS] to be detected in the paradigm. The (41)-deleted class feature of transitives, by contrast, should fail to affect the morphology. This is indeed what we find. Thus, in a transitive scenario 2 derivation of the kind *I saw you_{pl}*, the 1st-person singular subject values T's [PERSON] to 1, the 2nd-person plural object values T's [NUMBER] to PL, and rule (41) deletes T's unvalued class feature. The features to be realized by the morphology are therefore [PERSON = 1, NUMBER = PL], with no expression of [CLASS]. This feature bundle is realized by the prefix *ma-*. On the other hand, in an intransitive derivation of the kind *We arrived*, the 1st-person plural argument values T's [PERSON] to 1 and T's [NUMBER] to PL, with [CLASS] (pre-)specified as default A. The features to be realized by the morphology are thus [PERSON = 1, NUMBER = PL, CLASS = A]. This feature bundle is realized by the prefix *i-* (cf. (45)). Thus the different strategies for dealing with syntactically unvalued [CLASS] in transitive versus intransitive clauses result in different morphemes, *ma-* versus *i-*, corresponding purely to the difference between deleted (non-)class and default A-class. Without this difference, we would expect these two derivations to yield identical morphological forms, since both result in

⁴Only the 1st-person singular prefixes introduce a slight disparity between the two paradigms (*te-* vs. *ti-*), a minor deviation, albeit one for which we presently have no account.

valuation of T's agreement features to 1st-person plural.

Scenario 2:

In the second sceanrio, the single argument is NP_{abs}, thus able to value only [CLASS] on T. The corresponding convergent choice of T bears [PERSON:3], [NUMBER:SG] and [CLASS:□]: its [PERSON] and [NUMBER] being already default-valued, only [CLASS] is unvalued and active as a probe, for which NP_{abs}'s accessible [CLASS] provides the appropriate goal. (If T with [AGR:□] and [CLASS:A] is chosen, then both [PERSON] and [NUMBER] on T and [CASE] on NP_{abs} remain unvalued.) Again, there is ample morphological evidence in support of this alternative defectivization of the T probe. The endings we find with a solo third-person argument in the intransitive row in (45), the relevant part of which is repeated and augmented for NP_{abs} in (47), are ∅-, *i*-, *u*-, and these are identical to those found in the transitive paradigm with a class-A and thus third-person singular ergative: see the first column in (48).

(47)

NP _{abs}	A _{sg}	B _{pl}	C
	∅-	<i>i</i> -	<i>u</i> -

(48)

	DP _{erg}	3rd
NP _{abs}	A	A _{sg} B _{pl}
3rd	B	<i>i</i> - <i>ibi</i> -
	C	<i>u</i> - <i>iw</i> -

Since third-person singular is exactly what one would expect to find as a default specification for [PERSON] and [NUMBER], and since the intransitives with a third-person argument show precisely these same forms, our postulation of a defectivized intransitive T bearing [PERSON:3], [NUMBER:SG] and [CLASS:□] is empirically corroborated.

5. Analysis 2: Incorporation

As described in section 2, theme arguments (direct objects) generally undergo obligatory incorporation in Southern Tiwa. The exceptions always involve nominals which, as Rosen (1990, 685) describes them, are “likely to [be] definite, or at least specific, referring expressions”.

Such nominals, along with human and animate nouns, belong to the category that Rosen dubs “HiSpec” (for “highly specific”), which can be equated with high prominence on a Silversteinian referential hierarchy. Let us pursue the suggestion put forward in section 3 that we can associate the HiSpec property with the presence of a D-head and thus DP-shell above the relevant NP. If [PERSON] is a property of D rather than N (there being no first- or second-person bare nouns, cf. Postal (1970), Richards (2007)), then this amounts to the suggestion that it is the specification of a person feature that translates to the interpretive properties of animacy, definiteness, etc., i.e. to the interpretive complex that Rosen refers to as HiSpec (see Adger & Harbour (2007), Richards (2007) on the relation between person (or participant) features in the syntax and animacy and definiteness in the semantic component). In short, DPs are person-specified nominals and therefore bear the person-associated semantic properties of animacy and/or specificity; as such, DPs are the categorial equivalent of Rosen’s HiSpec class of nominals.

The patterns of obligatory (non)incorporation in Southern Tiwa can then be simply restated as follows: DPs cannot incorporate, whereas bare NPs must (see Baker (1996) on incorporation as a property of bare, unmodified, lexical nouns only).⁵ For our present purposes, the technical reasons underlying this difference between the obligatory incorporation of NPs versus the obligatory nonincorporation of DPs need not concern us further. Plausibly the PIC (37) is again implicated in blocking the movement of N to V across the phase head D. Alternatively, one might adopt and adapt some of the central insights of Roberts’s (2006) recent treatment of head movement within the probe-goal framework: namely, Agree is indistinguishable from Move just in case Agree involves total matching of *all* features of probe and goal (rather than probe and goal being in a subset-superset relation, as is usually the case). In that case, the values of all the formal features of the goal are copied onto the probe, which in effect creates a new insertion site at the probe, allowing the goal to be spelled out at the position of the probe, yielding the effect of head movement. Roberts employs

⁵The ban on incorporating ergatives (17) and datives (19) now follows automatically if these arguments are always DPs, i.e. person-specified and animate. See also footnote 6 below. Similarly, the restriction in (14) falls out if, for whatever reason, sole animate arguments in intransitives must necessarily be DPs, i.e. person-specified. Obligatoriness of (non)incorporation thus correlates with the optional presence vs. absence of D.

similar reasoning as the basis of a compelling treatment of clitic movement. Given our claim that bare NPs in Southern Tiwa bear just a single formal feature, namely [CLASS], incorporation of the Southern Tiwa kind would seem to instantiate the same basic pattern: Agree with NP_{abs} copies the values of all of the goal's formal features (i.e., [CLASS]) onto the probe, and thus the noun is spelled out as if it had moved to the probe. Head movement (incorporation), thus construed, would have both a syntactic (Agree) and morphophonological (realizational) component, striking a balance between the two sides of the "syntax versus PF" debate in the recent literature (both approaches to head movement are correct, at least in part).

Assuming, then, that DPs cannot whereas NPs must incorporate in Southern Tiwa, the conditions on nonincorporation reviewed in section 2.2 become conditions on when a direct object may or may not appear as a DP (as opposed to as an NP). Recall the contexts in which obviation of incorporation obtains: In intransitives, animates resist incorporation (cf. (14)-(16)); in transitives, nonincorporation is possible only with specific and/or animate nominals (i.e., HiSpec nominals, and thus DPs on our assumptions), and then only when two further conditions are met, as given in (24) above, repeated here.

- (49) *Fifth condition on incorporation (Rosen (1990, 683, 688)):*
 An NP_{abs} that is not the sole argument can optionally obviate (otherwise obligatory) incorporation (see (21)) if it is interpreted as specific and if a. and b. hold.
- a. NP_{erg} is 1st/2nd.
 - b. There is no NP_{dat} co-argument.

As noted in section 2.2, the resemblance between the conditions on nonincorporation in (49-a), (49-b) and the agreement restrictions in (8) and (10), respectively, is striking. The contexts where incorporation may be obviated are identical to those in which a 1st/2nd-person absolutive may not appear in transitive and ditransitive clauses: (a) DP_{erg} must not be 3rd-person; and (b) no DP_{dat} may be present. Datives and third-person ergatives thus block nonincorporating (i.e. DP) absolutives in the same way that they block 1st- and 2nd-person absolutive DPs (yielding weak and strong PCC effects).

This identity of behaviour between HiSpec and local-person direct objects is surely not a coincidence, but rather indicates an underlying unity, such that nonincorporating (HiSpec) absolutives share a formal

property with 1st/2nd-person absolutes. Rosen (1990) captures this identity by ranking HiSpec in the same position as 1st/2nd-person on her alignment hierarchy (see (6)). Whilst this identity of ranking affords an effective and neat unification within her system, it is still an arbitrary stipulation. Building on her central insight, our approach allows us to take the unification a step further – the identical behaviour of 1st/2nd-person and HiSpec absolutes follows automatically for us, reducing to the presence of a single shared property, namely the D head. Both local-person nominals and Hi-Spec absolutes are DPs – as argued above, it is D that contributes [PERSON] (and is thus obligatorily present on 1st/2nd-specified nominals) and it is [PERSON], in turn, that contributes semantic animacy, specificity and so on. It follows that all 1st/2nd-person nominals are, in effect, HiSpec: all are DPs, hence the unity of behaviour.

Agreement restrictions due to D thus automatically become constraints on incorporation too, since these now all involve the same set of nominals, namely those with a person-specification: DPs. What blocks agreement with local-person direct objects in the presence of datives and third-person ergatives will also block nonincorporation in these contexts. We thus attain the simplest possible unification of the categories of 1st/2nd-person and HiSpec, reducing the conditions on nonincorporation to the conditions on agreement (weak and strong PCC) as analysed in the previous section.

To show how this works in practice, we now run through the derivation of the restrictions on nonincorporation in transitive (5.1) and intransitive (5.2) clauses, in each case considering first the case where an NP (i.e. non-HiSpec) absolute is chosen and then the case where the absolute is a DP (i.e. the category of nominal that resists incorporation). Since the category of nominal that obligatorily incorporates (i.e. NP) bears only a class feature, we arrive at a system in which valuation of a class probe on T/v always goes hand-in-hand with incorporation of the matching goal. DP direct objects, and thus nonincorporation, are then only tolerated where class-Agree is allowed to fail, and this, as we have seen in our derivation of the agreement restrictions in section 4, is independently determined by the deletion rule in (41).

5.1. Transitives

Assume first that the absolutive is not HiSpec, i.e. that it is NP_{abs} . As familiar from section 4.1, (complete) DP_{erg} consumes [PERSON] and [NUMBER] on T, leaving NP_{abs} to consume [CLASS]. All features are thus valued, ensuring convergence, and incorporation occurs due to the categorial status of the direct object (NP): in terms of Roberts (2006), the values of all of NP_{abs} 's formal features (namely: [CLASS]) are copied onto T, which results in spelling-out of NP_{abs} in the position of the probe. This yields (21) (the obligatory incorporation of non-HiSpec absolutives, NP_{abs}).

If the absolutive is HiSpec, i.e. if it is DP_{abs} (and thus interpreted as specific/animate), its class feature is not accessible to T, by (37). The class probe on T thus goes unvalued, and this failure of class-Agree is accompanied by failure of incorporation: DPs cannot incorporate (in terms of Roberts (2006), complete copying of the DP's formal feature values to the probe does not take place). Consequently, [CLASS] on T must be taken care of by the last-resort deletion mechanism (41). Since this is only possible if DP_{erg} is 1st/2nd-person, nonincorporation is only legitimate with 1st/2nd person ergatives. Thus the derivation of the restriction on nonincorporation in (49-a) reduces to that of the weak PCC restriction in (8): both are due to (41).

5.2. Ditransitives

Turning now to ditransitives, the same logic applies as in the transitive scenarios, except that the relevant class probe is now that of *v*, not T. If the absolutive is not HiSpec (i.e. if it is NP_{abs}), then the derivation involves class-Agree and incorporation, just as in scenario 1 of the transitive case above (section 5.1).

If, on the other hand, the absolutive is a DP (i.e. HiSpec), the class probe is left unvalued on *v* and incorporation is concomitantly impossible. However, in this case the context for last-resort deletion of [CLASS] by (41) is not met: the offending class feature is on *v*, not T. The derivation thus crashes, yielding (49-b): the ban on nonincorporation in the

presence of a dative DP reduces to the strong PCC restriction in (10) and thus, once again, to (41); cf. section 4.2.⁶

6. Conclusion

We have attempted to show that the seemingly complex restrictions on agreement and incorporation in the typologically rare triple-agreement system of Southern Tiwa are to a large extent derivable from independently motivated, universal conditions on Probe-Goal Agree plus some special, but nonarbitrary, assumptions about the featural make-up of the heads T, v and D (which all exist in defective and nondefective forms) and of DP versus NP arguments. The three overlapping conditions on agreement identified in section 1, such that combinations of any two out of the three categories of DP-argument (datives; 3rd-person ergatives; 1st/2nd-person and/or “HiSpec” absolutes) are banned, have been shown to reduce to a single feature-deletion rule that we have argued to be a necessary property of a triple-agreement language with an independent class probe. The differences between the weak PCC effect characterizing transitives and the strong PCC effect characterizing ditransitives in Southern Tiwa is then a function of the applicability of that rule: last-resort deletion of unvalued [CLASS] is available “upstairs”, in the T domain, but not “downstairs”, in the v domain, thus yielding the stronger PCC restriction on the lower domain. Person-Case-Constraint and incorporation restrictions thus arise in a specific context in Southern Tiwa, that of class-agreement, and are thereby unified into a single set of constraints on the licensing of DPs (i.e. that category of nominal which cannot value [CLASS] in the

⁶Note that, in terms of Roberts (2006), the ban on incorporation of datives and ergatives (cf. (17), (19)), which are always HiSpec/DPs, would follow in the same way as the ban on incorporation of HiSpec/DP absolutes (direct objects): at least where third-person DPs are concerned, it will never be the case that the values of *all* the formal features of DP_{erg} or DP_{dat}, i.e. [PERSON] and [NUMBER] *and* [CLASS], are copied onto the probe by Agree. Thus DP_{erg} and DP_{dat}, like DP_{abs}, never “move” to the probe and so incorporation is never possible (cf. also Baker (1988; 1996)). The situation is less clear for local-person DPs, where arguably person and number are the only features present (since local nominals lack [CLASS]). The technical possibility thus arises, at least in principle, of treating 1st/2nd-person agreement morphemes as incorporated pronominal (DP) arguments. We leave this for future research.

syntax). In this way, we have uncovered and identified an interesting difference between Southern Tiwa and its Tanoan relative, Kiowa: as analysed by Adger & Harbour (2007), the postulation of a class probe is unnecessary for deriving the (strong) PCC effects found in Kiowan ditransitives.

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