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Fabian Heck & Marc Richards
Universität Leipzig

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

## 1. Introduction

*Our goal:*
To give an analysis of agreement restrictions and conditions on incorporation in Southern Tiwa in terms of Agree (Chomsky (2000; 2001)).

*General background*:
Southern Tiwa (Tanoan, New Mexico) is head-marking, exhibits rich agreement (using portmanteau morphemes) and makes extensive use of noun-incorporation.

*Noun classes:*
The singular and plural forms of 3rd person nouns in Southern Tiwa belong to one of three inflectional classes – called A, B, and C, respectively – following one of the patterns 1,2,3:

(1)

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

*Note:*
(i) Animate nouns always follow pattern 1 (Rosen (1990, 672)).
(ii) Only 3rd person nouns belong to a class.

*Agreement:*
Verbs agree with ergative (NP$_{erg}$), absolutive (NP$_{abs}$) and dative (NP$_{dat}$) with respect to person, number, and class (3rd only), see (2), (3), and (4), from Rosen (1990, 670).

(2) a. <u>Te</u>-mĩ-ban (eskwela-'ay)
1stsg-go-past school-to
"I went (to school)"
b. <u>A</u>-mĩ-ban (eskwela-'ay)
2ndsg-go-past school-to
"You went (to school)"

(3) a. <u>Ka</u>-musa-wia-ban
1stsg:A:2ndsg-cat-give-past
"I gave the cat to you"
b. <u>Kam</u>-musa-wia-ban
1stsg:B:2ndsg-cat-give-past
"I gave the cats to you"

(4) a. 'Uide <u>tam</u>-musa-wia-ban
child-A 1stsg:B:A-cat-give-past
"I gave the cats to the child"

b. 'Uide tow-keuap-wia-ban
child-A 1stsg:C:A-shoe-give-past
"I gave the shoes to the child"

*Notation:*
An affix that encodes agreement with NP$_{erg}$ = X, NP$_{abs}$ = Y, and NP$_{dat}$ = Z is glossed as X:Y:Z; accordingly for NP$_{erg}$ and NP$_{abs}$ (X:Y), and NP$_{abs}$ and NP$_{dat}$ (Y:Z).

## 2. The Data

### 2.1. Agreement Restrictions

Southern Tiwa agreement is subject to several restrictions. A very explicit and elegant analysis is given in Rosen (1990) (Allen and Frantz (1983), Allen et al. (1990), Aissen (1990)).

(5) *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.

*Note:*
(i) There is no agreement suffix for A/B/C:1st/2nd in transitives (as is indicated by "???" in (6-b)). To express such a proposition, Southern Tiwa resorts to a passive (see (6-c)).
(ii) NP$_{abs}$ obligatorily incorporates (see (6-a), lit. "I dog-saw", and section 2.2.).
(iii) The restriction in (5) is very reminiscent of the "weak" Person Case Constraint (PCC) (see in particular Anagnostopoulou (2006) and references therein).

(6) a. Ti-khwian-mu-ban
1stsg:A-dog-see-past
"I saw the dog"
b. *'Uide ???-mũ-ban
child-A A:2nd-see-past
"The child saw you"
c. 'Uide-ba ma-mũ-che-ban
child-inst 2ndpl-see-pass-past
"You were seen by the child"

(7) *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).

(8) a. Im-seuan-wan-ban
B:1stsg-man-come-past
"The men came to me"
b. *???-wan-ban
2ndsg:1stsg-come-past
"You came to me"
c. A-wan-ban na-'ay
2ndsg-come-past me-to
"You came to me"

*Note:*
(i) Here Southern Tiwa resorts to an oblique (marked by the post-position -*'ay*), see (8-c).
(ii) The restriction is known as the "strong" PCC, see Bonet (1991), Boeckx (2000), Anag-

nostopoulou (2003; 2006), Rezac (2004), Richards (2006), Adger and Harbour (2007).

(9) *Third agreement restriction (ditransitives; Rosen (1990, 677)):*
In a ditransitive structure, $\mathrm{NP}_{erg}$ must not be 3rd and $\mathrm{NP}_{abs}$ must be 3rd ($\mathrm{NP}_{dat}$ is free).

(10) a. Tow-wia-ban
1stsg: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
1stsg:2ndsg:A-give-past
"I gave you to him"

*Note:*
The second part of (9) again constitutes an instance of the strong PCC.

(11) *Summary of agreement restrictions:*
a. *$\mathrm{NP}_{erg,3rd}$ + $\mathrm{NP}_{abs,1st/2nd}$ (weak PCC)
b. *$\mathrm{NP}_{dat}$ + $\mathrm{NP}_{abs,1st/2nd}$ (strong PCC)
c. (i) *$\mathrm{NP}_{erg}$ + $\mathrm{NP}_{dat}$ + $\mathrm{NP}_{abs,1st/2nd}$ (strong PCC)
(ii) *$\mathrm{NP}_{erg,3rd}$ + $\mathrm{NP}_{dat}$ + $\mathrm{NP}_{abs}$ (restriction on $\mathrm{NP}_{erg}$)

## 2.2. Incorporation

Rosen (1990) shows that there is a correlation between agreement restrictions and conditions on noun-incorporation in Southern Tiwa (see also Allen et al. (1984), Sadock (1985), Baker (1988) on N-incorporation in Southern Tiwa).

(12) *First condition on incorporation (Rosen (1990, 680)):*
If $\mathrm{NP}_{abs}$ is the sole argument of a clause, then it must incorporate if inanimate and must not incorporate if animate.

(13) a. Musan i-teurawe-ban
cats B-run-past
"The cats ran"
b. *I-musa-teurawe-ban
B-cat-run-past

(14) 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

(15) *Second condition on incorporation (Rosen (1990, 681)):*
$\mathrm{NP}_{erg}$ never incorporates.

(16) 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"

(17) *Third condition on incorporation (Rosen (1990, 681f.)):*
NP$_{dat}$ never incorporates.

(18) a. Ta-'u'u-wia-ban hliawrade
1stsg:A:A-baby-give-past woman
"I gave the baby to the woman"

b. *Ta-hliawra-'u'u-wia-ban
1stsg:A:A-woman-baby-give-past

(19) *Fourth condition on incorporation (Rosen (1990, 682f.)):*
An NP$_{abs}$ that is not the sole argument of the clause obligatorily incorporates (unless (22)).

(20) 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 to-me

(21) a. Im-musa-hliaw-ban
B:1stsg-cat-come.down-past
"the cats came down to me"

b. Musan i-hliaw-ban
cats B-come.down-past

(22) *Fifth condition on incorporation (Rosen (1990, 683, 688)):*
An NP$_{abs}$ that is not the sole argument can optionally obviate (otherwise obligatory) incorporation (see (19)) 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.

(23) a. Ti-seuan-mũ-ban
1stsg:A-man-see-past
"I saw the man"

b. Seuanide ti-mũ-ban
man 1stsg:A-see-past

(24) 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

(25) a. Ka-'u'u-wia-ban
1stsg:A:2ndsg-baby-give-past
"I gave the baby to you"

b. *'U'ude ka-wia-ban
baby 1stsg:A:2ndsg-give-past

## 3. Assumptions

*Case and agreement (Chomsky (2001)):*
(i) Agreement features on T/v (the probes) lack values (person, number, and in the case of Southern Tiwa, class); they must recieve these values from agreement features of the NP arguments (the goals).
(ii) Case features on NP arguments must be valued in the syntax by the verbal heads T or v.
(iii) Case valuation on NP is a by-product of agreement valuation on T/v (case and agreement are two sides of the same coin.
(iv) Valuation is performed by the operation Agree, see (26).

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

(27) *Closeness:*
Goal $\beta$ is closer to probe $\alpha$ than goal $\gamma$ if a. and b. hold.
a. $\alpha$ c-commands both $\beta$ and $\gamma$.
b. $\beta$ asymetrically c-commands $\gamma$.

*Activation condition:*
Case as boolean switch: If [case] is unvalued (switched on), then the goal is visible for the probe; if [case] is valued (switched off), then the goal is invisible (see (26-d)).

(28) *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).

*T and v in Southern Tiwa:*
(i) T and v each come in two varieties in Southern Tiwa: one with unvalued agreement and class ($T_{[agr:\square,class:\square]}$ + $v_{[agr:\square,class:\square]}$), the other without ($T_{[-]}$ + $v_{[-]}$, called "defective").
(ii) Variants of T and v combine freely, see (29). ($T_{[-]}$ + $v_{[-]}$ is ruled out on independent grounds: Being unable to value any case it is incompatible with NP arguments.)
(iii) Special assumptions: The simple intransitive case employs either T with unvalued [agr:☐] and a default valued [class:A] or T with unvalued [class:☐] and default valued [agr] ([pers:3,num:sg]).

(29)

| T/v-combinatorics | | Clause type |
|---|---|---|
| $T_{[agr:\square]}$ + $v_{[-]}$ | $\rightarrow$ | transitive |
| $T_{[agr:\square]}$ + $v_{[agr:\square]}$ | $\rightarrow$ | ditransitive |
| $T_{[-]}$ + $v_{[agr:\square]}$ | $\rightarrow$ | dative intransitive |
| $T_{[agr:\square,class:A]}$ + $v_{[-]}$ | or | |
| $T_{[pers:3,num:sg,class:\square]}$ + $v_{[-]}$ | $\rightarrow$ | simple intransitive |

(30) *Clausal structure:*
$[_{\text{TP}}$ T $[_{\text{vP}}$ NP$_{erg}$ $[_{\text{v'}}$ v $[_{\text{VP}}$ NP$_{dat}$ $[_{\text{V'}}$ V NP$_{abs}$ $]]]]]$

(31) *Case assignment:*

| | | |
|---|---|---|
| $T_{[pers]}$ | $\rightarrow$ | Ergative |
| $v_{[pers]}$ | $\rightarrow$ | Dative |
| $T/v_{[num/class]}$ | $\rightarrow$ | Absolutive |

*"HiSpec":*
We equate Rosen's (1990) category *HiSpec* ("highly specific") with the presence of a D-head. Nouns that are not HiSpec lack a DP-shell (i.e., are bare NPs). As a strong tendency HiSpec (DP) associates with animacy, specificity, and the like.

*Assumption:*
DPs (HiSpecs) are always animate, but animates need not to be DPs, see (32) (Rosen (1990, 699); see also Adger and Harbour (2007, 20) for the same relation between the features [participant] and [animacy] in Kiowa):

(32) *One-way implication:*
DP $\rightarrow$ animate
animate $\not\rightarrow$ DP

*Observation:*
NP$_{erg}$ and NP$_{dat}$ must be animate (Rosen (1990, 682); see also Fillmore (1968), Pesetsky (1995), Adger and Harbour (2007)).

*Proposal:*
(i) By (32), this follows from their obligatorily being DPs (HiSpec), i.e., DP$_{erg}$ and DP$_{dat}$.
(ii) By contrast, NP$_{abs}$ is only optionally HiSpec, i.e. optionally DP$_{abs}$ or NP$_{abs}$.

*Accessibility of class:*
(i) The class feature is located on the NP, i.e., it is a lexical property of the category N.
(ii) If "protected" by a DP-shell, the NP's class feature is not accessible from outside of DP.

(33) *Nominal structure:*
$[_{\text{DP}}$ $D_{[pers,num]}$ $[_{\text{NP}}$ $N_{[class]}$ $]]$

*Possible implementation:*
(i) Alongside vP and CP, DP constitutes a *phase* (Chomsky (2001)). As such, it is subject to the Phase Impenetrability Condition, (34).
(ii) Once v has been introduced into the structure, everything on the complement side of D (of a DP within VP) becomes inaccessible due to the PIC; only SpecD and D remain accessible.

(34) *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.

## 4. Analysis 1: Agreement restrictions

*Core idea:*
(i) Sometimes, the features of a functional head F act as separate probes, with the result that

the case features of several NPs can be valued by a single probe (see Taraldsen (1995), Anagnostopoulou (2003), Rezac (2004), Sigurðsson and Holmberg (2006), Richards (2006)).
(ii) The NP closest to F will establish Agree with F first and consume certain probes (as many as possible, by (28)). Probe features once consumed cannot be re-used for case valuation of other NPs (i.e., there is no "true" multiple Agree).
(iii) Thus the (set of) probe features available for more remote NPs is constrained, resulting in PCC-effects (see Bonet (1991), Boeckx (2000), Anagnostopoulou (2003), Haspelmath (2003), Rezac (2004), Richards (2006)).

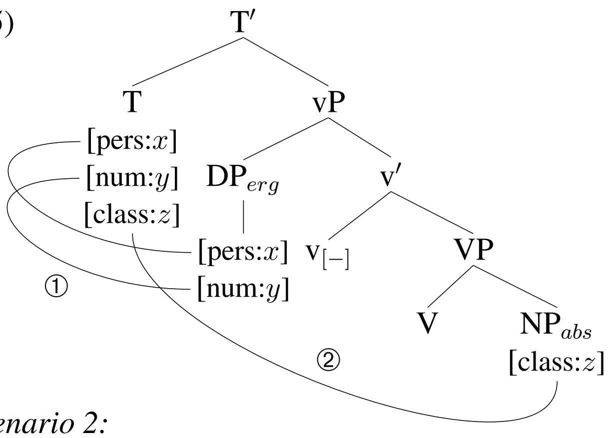
### 4.1. Transitives

*Recall:*
(i) Transitives with DP$_{erg}$ and DP/NP$_{abs}$ involve T$_{[agr:\square]}$ + v$_{[-]}$. (Assumption: v$_{[-]}$ selects for a VP with only one argument).
(ii) Thus the probe(s) on T must value the case features of both DP$_{erg}$ and DP/NP$_{abs}$.

*Auxiliary assumption:*
D in Southern Tiwa comes in two varieties: either defective, with person features only, or complete, with person and number features (cf. Anagnostopoulou (2003; 2006) on the defective nature of dative DPs); defective: D$_{[pers]}$, complete: D$_{[pers,num]}$

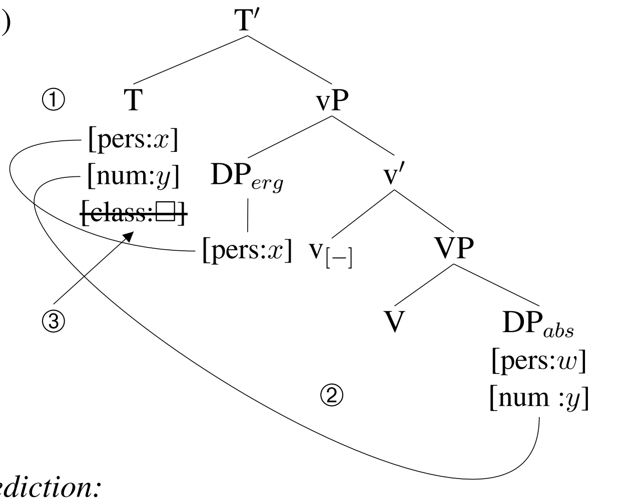
*Scenario 1:*
Assume that DP$_{erg}$ is 1st/2nd and NP$_{abs}$ is 3rd. T probes for the closer DP$_{erg}$ in order to value its agreement features (and DP$_{erg}$'s case feature). Maximize (28) forces valuation of T's [pers] and [num] by DP$_{erg}$ (see ① in (35)). Since 1st/2nd DP$_{erg}$ lacks class, the class probe is left for NP$_{abs}$. NP$_{abs}$ usually incorporates (see section 2.2.) suggesting that NP$_{abs}$ is not embedded under D (even if animate). Thus, its class feature is accessible (by PIC) and both NP$_{abs}$'s case feature and the class probe on T (see ②) become valued. Note that DP$_{erg}$ must not be defective, otherwise T's [num] would remain unvalued (NP$_{abs}$ lacks D).

(35)




*Scenario 2:*
Assume that both DP$_{erg}$ and DP$_{abs}$ are 1st/2nd. Since neither of them bears [class], they can only get their case features valued if they are probed by [pers] and/or [num]. Suppose first that DP$_{erg}$ is complete. Then Maximize forces valuation of [pers] and [num] by DP$_{erg}$, leaving nothing for DP$_{abs}$ to get its case feature valued. But if DP$_{erg}$ is defective, then it consumes [pers] on T only (see ① in (36)), leaving [num] for DP$_{abs}$ (see ②). (Note that the derivation must crash if DP$_{abs}$ is defective).

(36)




*Prediction:*
Scenario 2 predicts that exclusively DP$_{abs}$ can control for number agreement. The syncretisms in (37) illustrate that the prediction is borne out and thus support the assumption that D can be defective in Southern Tiwa.

(37)

| DP$_{abs}$ \ DP$_{erg}$ | | 1st sg | 1st du | 1st pl | 2nd sg | 2nd du | 2nd pl |
|---|---|---|---|---|---|---|---|
| | sg | | | | *bey-* | *bey-* | *bey-* |
| 1st | du | | | | *ku-* | *ku-* | *ku-* |
| | pl | | | | *ku-* | *ku-* | *ku-* |
| | sg | *i-* | *i-* | *i-* | | | |
| 2nd | du | *men-* | *men-* | *men-* | | | |
| | pl | *ma-* | *ma-* | *ma-* | | | |

*Potential question and answer:*
Q: Wouldn't one expect DP$_{abs}$ to lack control for person in contrast to what can apparently be observed (cf., e.g., *bey-* vs. *i-* for DP$_{abs}$'s change from 1st/sg to 2nd/sg)?
A: Yes, but the observed co-variation of the affix (and of DP$_{abs}$'s person value) could equally well be interpreted as being caused by variation of DP$_{erg}$'s value for person (as expected).

*Note:*
Affixes for contexts in which both arguments are marked for the same person belong to a special reflexive paradigm, which we do not address here.

*Problem:*
There is still an unvalued class-feature on T (see [class:☐] in (36)).

*Claim:*
In the context of a 1st/2nd DP$_{erg}$, Southern Tiwa grammar can, as a last resort, delete an unvalued class feature on T (③ in (36)) that has not been valued by Agree. This is rule (38).

(38) *Feature deletion:*
Unvalued [class:☐] on T can be deleted in the local context of 1st/2nd person.

*Scenario 3:*
Suppose that both DP$_{erg}$ and NP$_{abs}$ are 3rd. In this scenario, the features are valued almost exactly as in scenario 1, except that this time DP$_{erg}$ *does* have a class goal. However, this

goal is not accessible, being embedded under a DP-shell.

*Prediction:*
Scenarios 1 and 3 make the prediction that person and number agreement should be exclusively controled for by DP$_{erg}$. However, pending a proper subanalysis of the affixes, it is not decidable whether the prediction is borne out (due to the interaction of NP$_{abs}$'s class):

(39)

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

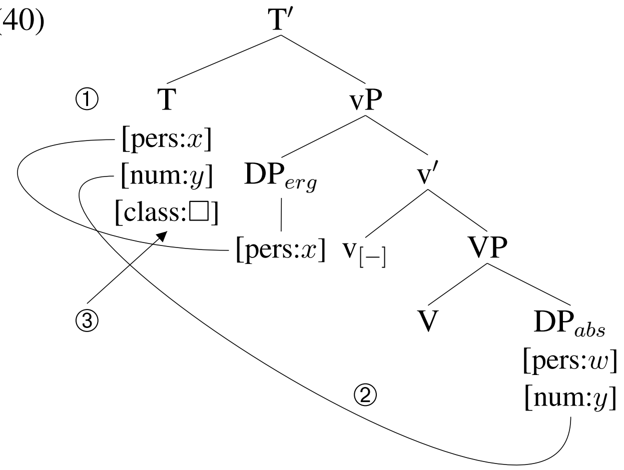
*Problem:*
Scenario 3 requires that DP$_{erg}$ cannot control for class. However, it *does* seem to control for class (see, e.g., *u-* vs. *in-* vs. *iw-* with a class C NP$_{abs}$ in (39)), so that all of T's probes should be exhausted, leaving no probe to value NP$_{abs}$.

*Auxiliary observation:*
Recall that 3rd animate NPs always follow pattern 1 in (1): in the singular, they belong to class A, in the plural, they belong to class B.

*Solution:*
We thus reinterpret the alleged class agreement of DP$_{erg}$ in (39) as number agreement. Note that at the same time this suggests that DP$_{erg}$ is complete (i.e., bears [pers] *and* [num]) in some contexts in Southern Tiwa.

*Scenario 4:*
Finally assume that DP$_{erg}$ is 3rd while DP$_{abs}$ is 1st/2nd. Again, T must value both DP$_{erg}$ and DP$_{abs}$. If DP$_{erg}$ is complete, it consumes both [pers] and [num]; the derivation crashes as DP$_{abs}$, being 1st/2nd, does not possess a class feature to value the class-probe on T, thereby failing to value its own [case]. Thus DP$_{erg}$ must be defective. It values [pers] (see ① in (40)) and DP$_{abs}$ values [num] (see ②). However, there still remains an unvalued [class] on T (see ③), which cannot be deleted by (38) (recall that (38) is confined to the context 1st/2nd). The derivation crashes, yielding restriction (5).

(40)



### 4.2. Ditransitives

*Recall:*
(i) Ditransitives involve $T_{[agr:\square]}$ + $v_{[agr:\square]}$. ($v_{[agr]}$ selects a VP with two arguments).
(ii) T must take care of $DP_{erg}$, whereas v must value the case of both $DP_{dat}$ and DP/$NP_{abs}$.
(iii) $DP_{dat}$ is closer to v than DP/$NP_{abs}$.

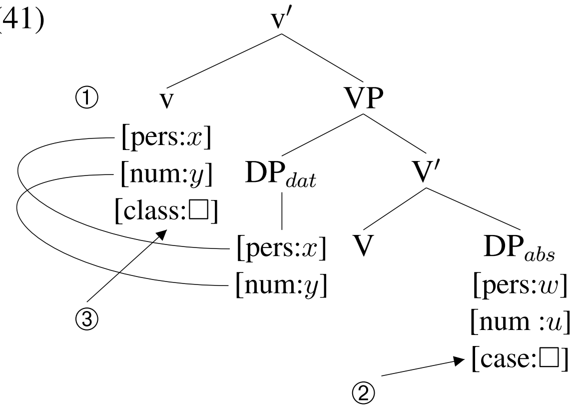
#### *4.2.1. Probing from v*

*Scenario 1:*
Suppose that $DP_{dat}$ is 1st/2nd and $NP_{abs}$ is 3rd. As was the case for T, v must not spend all of its probes on $DP_{dat}$. If $DP_{dat}$ is complete, then it consumes [pers] und [num]. This automatically leaves class for $NP_{abs}$, which possesses an (accessible) class feature and thus can value its case and the probe on v. If $DP_{dat}$ were defective, this would leave [num] on v unvalued and lead to a crash of the derivation.

*Scenario 2:*
If $DP_{dat}$ and $NP_{abs}$ are both 3rd, then the derivation proceeds almost exactly as in scenario 1 (modulo the presence of class on $DP_{dat}$).

*Scenario 3:*
Now assume that $DP_{abs}$ is 1st/2nd. No matter what the person value for $DP_{dat}$, if it is complete, it consumes v's [pers] and [num] (see ① in (41)), leaving only [class] to $DP_{abs}$. However, $DP_{abs}$, being 1st/2nd, does not have [class]; hence both its case feature (see ②), and the class probe on T (see ③) remain unvalued (the context 1st/2nd for the deletion rule (38) to apply is not met) and the derivation crashes. If $DP_{dat}$ is defective, it consumes [pers] and leaves [num] for $DP_{abs}$. All case features are valued, but [class] on v still remains unvalued. This yields restriction (7) (also the second half of restriction (9)).

(41)




#### *4.2.2. Probing from T*

*Scenario 1:*
If $DP_{erg}$ is complete and 1st/2nd, then it will consume the probe's [pers] and [num]. Class remains unvalued because 1st/2nd lacks class. However, the context for the last resort deletion rule (38) is met, which takes care of T's remaining class probe. If $DP_{erg}$ is incomplete, [num] on T remains unvalued ($DP_{dat}$ and DP/$NP_{abs}$ are already inactive).

*Prediction:*
In contrast to scenario 2 of the transitives, where DP$_{erg}$ is in competition with DP$_{abs}$, DP$_{erg}$ must value both [pers] and [num] in ditransitives. Thus, 1st/2nd DP$_{erg}$ should control for number. This is (partially) borne out for 2nd DP$_{erg}$, see (42).

(42)

| | | DP$_{erg}$ | 1st | | | 2nd | | |
|---|---|---|---|---|---|---|---|---|
| | | | sg | du | pl | sg | du | pl |
| DP$_{dat}$ | | NP$_{abs}$ | | | | | | |
| 1st | sg | A | | | | *ben-* | *men-* | *mim-* |
| | | B | | | | *bem-* | *mem-* | *mim-* |
| | | C | | | | *bow-* | *mow-* | *miw-* |
| | du/pl | A | | | | *mim-* | *mim-* | *mim-* |
| | | B | | | | *mim-* | *mim-* | *mim-* |
| | | C | | | | *miw-* | *miw-* | *miw-* |
| 2nd | sg | A | *ka-* | *ka-* | *ka-* | | | |
| | | B | *kam-* | *kam-* | *kam-* | | | |
| | | C | *kow-* | *kow-* | *kow-* | | | |
| | du | A | *mim-* | *mim-* | *mim-* | | | |
| | | B | *mim-* | *mim-* | *mim-* | | | |
| | | C | *miw-* | *miw-* | *miw-* | | | |
| | pl | A | *mam-* | *mam-* | *mam-* | | | |
| | | B | *mam-* | *mam-* | *mam-* | | | |
| | | C | *mow-* | *mow-* | *mow-* | | | |

*Side remark:*
The syncretisms in (42) are not syntactically conditioned. They must be accounted for in the morphology.

*Scenario 2:*
A 3rd DP$_{erg}$'s class goal is embedded under a DP-shell, just like that of a 1st/2nd DP$_{erg}$. Thus T again retains its class probe (no matter whether DP$_{erg}$ is complete or defective). Moreover, last resort deletion of T's [class] is impossible this time (the local context of a 1st/2nd is not met). As a consequence, it remains unvalued and the derivation crashes. The first half of restriction (9) is derived.

### 4.3. Dative intransitives

Empirical shape and theoretical derivation of restriction (7) are completely parallel to those of the second half of the restriction (9), which was discussed in section 4.2.1.

### 4.4. Simple intransitives

*Recall:*
Simple intransitives involve either T$_{[agr:\square,class:A]}$ or T$_{[pers:3,num:sg,class:\square]}$.

*Scenario 1:*
Suppose the only argument is DP$_{erg}$ and that T = T$_{[agr:\square,class:A]}$. Complete DP$_{erg}$ values [pers] and [num] on T. T's [class] bears default value A. (Other options crash: If

$\mathrm{DP}_{erg}$ is incomplete, then the derivation crashes due to unvalued [num] on T; if T = $\mathrm{T}_{[pers:3,num:sg,class:\square]}$, then $\mathrm{DP}_{erg}$ cannot value its [case] because its [class] is not accessible.)

*Evidence for default class:*
The intransitive paradigm (43) almost completely matches that part of the transitive paradigm (44) where $\mathrm{NP}_{abs}$ belongs to class A (see Rosen (1990, 673, footnote 4)).

(43)

| $\mathrm{DP/NP}_{erg}$ | 1st | | | 2nd | | | A | | $\mathrm{B}_{pl}$ | C |
|---|---|---|---|---|---|---|---|---|---|---|
| | sg | du | pl | sg | du | pl | sg | du | | |
| | *te-* | *in-* | *i-* | *a-* | *men-* | *ma-* | *Ø-* | *in-* | *i-* | *u-* |

(44)

| | $\mathrm{DP}_{erg}$ | 1st | | | 2nd | | | A | | $\mathrm{B}_{pl}$ | C |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | sg | du | pl | sg | du | pl | sg | du | | |
| $\mathrm{NP}_{abs}$ A | | *ti-* | *in-* | *i-* | *a-* | *men-* | *ma-* | *Ø-* | *in-* | *i-* | *u-* |

*Scenario 2:*
Suppose the only argument is $\mathrm{NP}_{abs}$ and T = $\mathrm{T}_{[pers:3,num:sg,class:\square]}$. Then $\mathrm{NP}_{abs}$ values [class] on T, [pers] and [num] are already defaulted. (If T = $\mathrm{T}_{[agr:\square,class:A]}$, then both [agr] on T and [case] on $\mathrm{NP}_{abs}$ remain unvalued.)

*Evidence for default person/number:*
The endings *-Ø, -i, -u* in the intransitive row (with a 3rd person argument) in (43) are the same as those found in a transitive with a 3rd person singular (and thus A-class) ergative, see the first column in (45). 3rd person singular looks exactly like the expected default.

(45)

| | $\mathrm{DP}_{erg}$ | 3rd | | | |
|---|---|---|---|---|---|
| $\mathrm{NP}_{abs}$ | | $\mathrm{A}_{sg}$ | $\mathrm{A}_{du}$ | $\mathrm{B}_{pl}$ | C |
| | A | *Ø-* | *in-* | *i-* | *u-* |
| 3rd | B | *i-* | *imim-* | *ibi-* | |
| | C | *u-* | *in-* | *iw-* | |

## 5. Analysis 2: Incorporation

*Observation:*
The contexts where incorporation can be (optionally) obviated (see (22-a) and (22-b)) bear a striking resemblance to the agreement restrictions in section 2.1.: (a) $\mathrm{DP}_{erg}$ must not be 3rd (cf. restriction (5)); (b) the presence of $\mathrm{DP}_{dat}$ restricts $\mathrm{NP}_{abs}$ (cf. restriction (7)).

*Roberts (2006):*
If Agree copies the values of all the features of a goal onto a probe, then Agree and Move become indistinguishable. This is how clitic movement comes into existence.

*Suggestion:*
Incorporation in Southern Tiwa is simply another instance of the same pattern: An $\mathrm{NP}_{abs}$ that copies the values of all of its features (i.e., class) onto the probe is spelled out as if it had moved to the probe.

*Consequences:*
(i) In contrast to $\mathrm{DP}_{erg}$ and $\mathrm{DP}_{dat}$, a 3rd absolutive can be HiSpec or not, i.e., can be embed-

ded under a DP-shell or not. Obligatoriness vs. optionality of incorporation (cf. restrictions (12) vs. (22)) thus now reduces to optional presence vs. absence of D.
(ii) Valuation of a class probe goes hand-in-hand with incorporation of the matching goal.

### 5.1. Transitives

*Scenario 1:*
Assume that absolutive is not HiSpec, i.e., it is NP$_{abs}$. As before, (complete) DP$_{erg}$ consumes [pers] and [num] of T. NP$_{abs}$ consumes [class]. Since class is the only goal on NP$_{abs}$, the values of *all* of NP$_{abs}$'s goal features (namely: class) are copied onto T, which results in spelling-out of NP$_{abs}$ in the position of the probe. This yields (19) (obligatory incorporation of non-HiSpec NP$_{abs}$).

*Scenario 2:*
If absolutive is HiSpec, then it is DP$_{abs}$ (in which case it is interpreted as specific/animate) and its class feature is not accessible. It will therefore be unable to value the class probe on T, nor will it be able to incorporate. Consequently, [class] on T is deleted by (38), which is only possible if DP$_{erg}$ is 1st/2nd. This yields (22-a).

### 5.2. Ditransitives

*Scenario 1:*
If absolutive is not HiSpec (i.e., it is NP$_{abs}$), then the derivation involves incorporation, just as in scenario 1 of the transitive case (see section 5.1.).

*Scenario 2:*
If absolutive is HiSpec (i.e., DP$_{abs}$), incorporation is impossible, and the class probe is left unvalued on v. However, this time the context for last resort deletion is not met: [class] is on v, not T. The derivation crashes, yielding (22-b).

### 5.3. Lack of incorporation

*Recall:*
DP$_{erg}$ and DP$_{dat}$ are assumed to always be HiSpec, i.e., DPs, and their class feature is thus assumed to be inaccessible and unable to undergo any Agree operation.

*Consequences:*
(i) It will never be the case that the values of *all* the features of DP$_{erg}$ and DP$_{dat}$ are copied onto the probe by Agree.
(ii) Thus DP$_{erg}$ and DP$_{dat}$ will never be conceived of as having moved to the probe in the sense of Roberts (2006) and incorporation is therefore impossible, yielding (15) and (17) (cf. also Baker (1988; 1996)).

## 6. Conclusion

(i) The seemingly complex restrictions on agreement and incorporation in Southern Tiwa are to a large extent derivable from independently motivated conditions on probe-goal relations plus some special assumptions about the featural make up of T, v, and D.
(ii) The difference between weak PCC in the T domain and strong PCC in the v domain

in Southern Tiwa reduces to whether last resort deletion of unvalued [class] is possible: Deletion is possible in the T domain, yielding the weaker PCC, but impossible in the v domain (cf. Adger and Harbour (2007), where [class] is assumed to be irrelevant for deriving PCC in the related language Kiowa).

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