

Title: Third-Person Marking in Menominee

Jochen Trommer
Institute of Linguistics
University of Leipzig

Address:

Beethovenstrasse 15
D-04107 Leipzig
Germany

e-mail: jtrommer@uni-leipzig.de

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1 Introduction

Recent models in feature theory (Harley and Ritter, 2002; Bejar, 2003) suggest highly articulated systems of ϕ -features which both substantially restrict possible person- and number categories in human language and predict crosslinguistically observed asymmetries between features. A core assumption in this line of research is that what is descriptively called 3rd person is not characterized by any specific features, but by the lack of features characteristic for 1st and 2nd person. It follows that under structural competition, 1st and 2nd person always win over 3rd person since they are more specific. While this is the correct prediction for many phenomena, 3rd-person agreement in Menominee provides strong evidence against both claims: An adequate analysis of 3rd-person marking implies the assumption of an explicit feature characteristic for 3rd person, and of higher prominence of 3rd over non-3rd person. To solve this problem, I propose to capture person asymmetries not by feature structure, but by ranked violable constraints (Trommer, 2003b,e, 2004), which allows to relate the unusual preference of Menominee 3rd person marking to the specific characteristics of its affixal inventory.

The paper is organized as follows: In section 2, I introduce person hierarchy effects in Menominee. Section 3 presents current accounts relating such effects to the structure of person features. Section 4 shows that Menominee 3rd-person marking is problematic for these approaches. An alternative constraint-based analysis of the data using binary features is provided in section 5. In section 6, I give additional evidence for binary person features and show that a feature system with such features does not necessarily overgenerate possible person categories. Section 7 is a short summary of the paper.

2 Hierarchy Effects in Menominee

It is well known that in Algonquian languages such as Menominee pronominal clitics do not consistently agree with subject or object but with the argument which is higher on the person hierarchy $2 \succ 1 \succ 3$ (cf. e.g. Valentine, 2001; Zúñiga, 2002). Thus in clauses with 2nd person arguments the preverbal clitic refers to this argument no matter whether it is subject (1a,b) or object (1c):¹

¹Page numbers refer to Bloomfield (1962), which is the source of all Menominee data in this paper.

- (1) a. **ke-po-se-m** ‘**thou** embarkest’ (p. 150)
 2-embark-[-3]
 b. **ke-na-n-ek-w** ‘he fetches **thee**’ (p. 154)
 2-fetch-D-[+3]
 c. **ke-na-n-a-w** ‘**thou** fetchest him’ (p. 152)
 2-fetch-D-[+3]

If no 2nd person argument is present, but a 1st person argument (2), the clitic marks 1st person. Only if no 1st or 2nd person argument is present, a 3rd person clitic appears (3):²

- (2) a. **ne-po-se-m** ‘**I** embark’ (p. 150)
 1-embark-[-3]
 b. **ne-na-n-ek-w** ‘he fetches **me**’ (p. 154)
 1-fetch-D-[+3]
 c. **ne-na-n-a-w** ‘**I** fetch him’ (p. 152)
 1-fetch-D-[+3]
- (3) **o-po-se-n-an** ‘**he** does not embark’ (p. 150)
 3-embark-PER-NEG

A similar phenomenon can be found in a specific class of person and number agreement markers in Menominee. Here, there is agreement with a 1st person plural argument (subject or object) if there is one (4). Otherwise, there is agreement with the 2nd or 3rd person plural argument (5). Suppression of plural agreement with non-1st person arguments leads to considerable ambiguity (e.g. (5c)). Since the difference between 2nd and 3rd person argument is not differentiated by the relevant affixes, we get a contrast between 1st and non-1st person arguments and a preference for 1st person, which we can express by a person hierarchy 1 > 2,3.³

- (4) a. kan ne-pu-se-n-**i-naw**-an ‘**we (exc.)** do not embark’ (p. 168)
 NEG 1-embark-PER-[+1+pl]-NEG
 b. kan ne-na-tom-eko-n-**i-naw**-an ‘they/he do(es) not call **us (exc.)**’ (p. 170)
 NEG 1-call-D-PER-[+1+pl]-NEG
 c. kan ne-ne-w-a-n-**i-naw**-an ‘**we (exc.)** do not see him/them’ (p. 169)
 NEG 1-see-D-PER-[+1+pl]-NEG

²3rd person clitics are also restricted to negative verb forms. See section 4.2 for discussion and section 5.5 for an analysis of this restriction.

³**-i-naw** and **-owaw** also occur in unnegated (independent order) forms where they cooccur with **-w** and **-m**, with the only difference that 3pl arguments in unnegated forms are never expressed by **-owaw**.

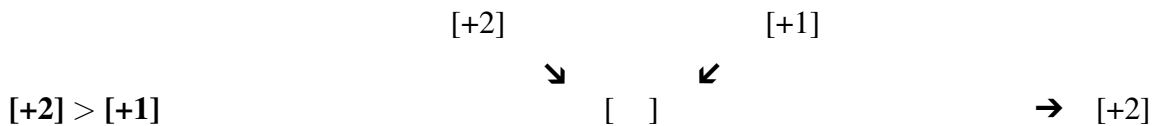
- (5) a. kan o-po-se-n-**owa**-w-an ‘**they** do not embark’ (p. 168)
 NEG 3-embark-PER-[-1+pl]-NEG
 b. kan ke-po-se-n-**owa**-w-an ‘**you (pl.)** do not embark’ (p. 168)
 NEG 2-embark-PER-[-1+pl]-NEG
 c. kan ke-ne-w-a-n-**owaw**-an ‘**you (pl.)** do not see him/**them**’
 NEG 2-see-D-PER-[-1+pl]-NEG ‘you (sg.) do not see **them**’ (p. 169)

What both phenomena despite the differences have in common is that local person (1st and 2nd person) seems to be more prominent under competition than 3rd person. This corresponds nicely to the often-made claim that 3rd person is somewhat defective in comparison to 1st and 2nd person. In the words of Benveniste (1950), 3rd person is a non-person. In section 3, I will introduce formal approaches which try to relate hierarchy effects in Algonquian directly to the formal representation of person features.

3 Feature-geometric Accounts of Person Asymmetries

In early Distributed Morphology (Halle and Marantz, 1993), competition for affixal slots in multi-argument agreement was driven by the stipulation that two syntactic feature structures have been fused into a single one allowing only the insertion of a single vocabulary item. This is for example the analysis of Halle and Marantz for Potawatomi, an Algonquian language closely related to Menominee. Subject and object clitic are fused and the preference for 2nd person clitics is either achieved by stipulation or directly invoking a prominence hierarchy, as is schematically depicted in (6):

(6) **Algonquian Pronominal Clitics in Halle and Marantz (1993)**



However, most recent approaches to hierarchy effects in Algonquian have been reluctant to acknowledge feature hierarchies (or stipulation on VIs) as a primitive of linguistic theory, and have tried to relate these effects to the formal structure of person features. Thus Dechaine (1999) assumes that person features in Algonquian are represented as in (7):

(7) **Algonquian Person Features in Dechaine (1999)**

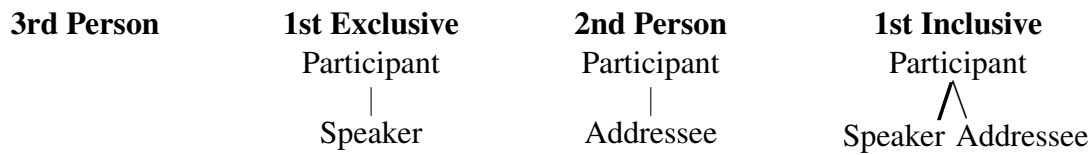
3rd Person	1st Exclusive	2nd Person	1st Inclusive
-2	-2	+2	+2
-1	+1	-1	+1

In this feature system, the preference for 1st and 2nd over 3rd person can be derived from the fact that there is no specific feature for 3rd person. If plus-valued items are preferred over minus-valued ones, 3rd person can never win under competition since it is only specified by the negation of the specific features for 1st and 2nd person.

An even more radical formulation of this asymmetry can be found in the feature-geometric model of phi-features proposed in Harley and Ritter (2002, H&R). Since the features in H&R’s system are privative, no negative feature values exist. 3rd person is characterized by the com-

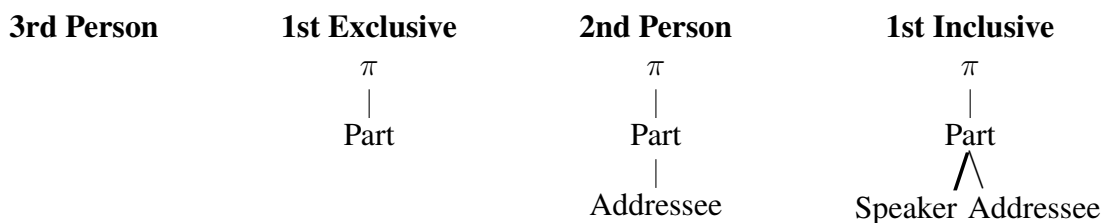
plete lack of person features. Preference of local person categories over 3rd person can now be related to the fact that these are more specific:

(8) **Algonquian Person Features in Harley and Ritter (2002)**



While H&R do not address hierarchy effects, Bejar (2003) uses a slightly modified feature geometry to develop a general model of hierarchy effects in syntactic terms, assuming that all person features are dominated to the exclusion of number and gender features by a generic feature node π (cf. also the papers by Bejar and McGinnis in this volume):

(9) **Algonquian Person Features in Bejar (2003)**



Bejar assumes that hierarchy effects are the effect of functional heads which can in principle attract features of subject or object. If the features of the closest NP do not exactly match the specification of the functional head, the search domain might be extended and the feature specification of the functional head is impoverished so that it can also target the other argument and match arguments with less specific features. For Algonquian clitics she assumes that the relevant functional head is specified as in the 2nd person structure in (9) and immediately above the object. If the object is 2nd person, a perfect match obtains. Otherwise the search domain is extended (by re-projecting F above the subject) to subject *and* object, and F is reduced to a structure containing only π . If the subject is 2nd person now this is the closest controller and again 2nd person agreement obtains. Otherwise if the subject or object are 1st person, agreement is with this argument. Technically, there is no 3rd person agreement in Algonquian, since 3rd person is too underspecified to trigger agreement. Apparent 3rd person agreement is analyzed as default agreement.

This approach makes three important claims: First, there is no specific feature characterizing 3rd person. 3rd person means simply the lack of the features for 1st and 2nd person. From this follows the second claim: No grammatical process can specifically target 3rd person (i.e., to the exclusion of 1st and 2nd person). Third, in hierarchy effects, local person (1st and 2nd) should always outrank 3rd person, since the latter can never be more specific than 1st or 2nd person. In the following section, I will provide evidence from Menominee that these claims are too strong.

4 Third-person Marking in Menominee

In addition to pronominal clitics and the person/number-suffixes discussed in section 2, Menominee also crossreferences subjects and objects by specific person suffixes. In the independent

order, the main paradigm in Menominee (and Algonquian in general), the suffix **-w** appears if at least one of the arguments is 3rd person, and **-m** appears if all arguments are 1st or 2nd person:

(10) **Menominee 3rd Person Marking (Independent Order)**

- | | |
|--|--------------------|
| a. <i>ne-po-se-m</i>
1-embark-[-3] | ‘I embark’ |
| b. <i>ke-po-se-m</i>
2-embark-[-3] | ‘you (sg.) embark’ |
| c. <i>po-se-w</i>
embark-[+3] | ‘he embarks’ |
| d. <i>ne-na-n-ek-w</i>
1-fetch-D-[+3] | ‘he fetches me’ |
| e. <i>ne-na-n-a-w</i>
1-fetch-D-[+3] | ‘I fetch him’ |

-m and **-w** are glossed as –3 and +3 in (10) since this allows straightforwardly to capture the fact that they appear in exactly the same affixal position and exclude each other. However, in a feature-geometric approach to person, the feature +3 does not exist. In addition, under a feature-geometric analysis the data in (10) also contradict the prediction that 3rd person should never have precedence over 1st and 2nd person.

Basically, the same pattern as in the independent order can be observed in the conjunct order, an inflectional paradigm which is largely restricted to subordinate clauses and similar contexts.⁴ Here the contrast between 3rd and non-3rd person is expressed by a different set of suffixes, **-yan** for –3 and **-t** for +3, but again +3 has precedence over –3 (10c):

(11) **Menominee 3rd Person Marking (Conjunct Order)**

- | | |
|------------------------------------|--------------------------|
| a. <i>po-se-yan</i>
embark-[-3] | ‘when I/you(sg.) embark’ |
| b. <i>po-se-t</i>
embark-[+3] | ‘when he embarks’ |
| c. <i>ne-w-e-t</i>
see-D-[+3] | ‘when he sees me’ |

What the conjunct order data show is that the preference for 3rd over non-3rd person in Menominee is not restricted to specific affixes (**-yan** and **-m** and **-t/-w** seem to be phonologically completely unrelated)⁵ nor to the context of other grammatical items, such as the pronominal clitics: in the conjunct order, clitics are completely suppressed. Nonetheless, the same effects in 3rd-person marking hold.

Note also that **-w** and **-t** are not linked to other features which crossclassify 3rd person arguments in Algonquian. Thus Menominee differentiates animate and inanimate gender nouns by nominal inflection and verb agreement. Similar morphological reflexes are found for a second morphological contrast between two categories, traditionally labeled “proximate” and “obviative”, where proximate roughly corresponds to NPs referring to topic information and

⁴See Brittain (2001) for a detailed recent discussion of the morphosyntactic status of the conjunct order.

⁵In the terms of Williams (1994), suppression of –3 markers in Menominee is ‘metaparadigmatic’. Cf. also Harley (this volume).

obviative to NPs introducing new discourse referents. While in the examples given so far, **-w** indicates 3rd-person agreement with proximate animate NPs (e.g. (10c)), it is also used for inanimate (12a), and obviative (12b) NPs:⁶

- (12) a. *mɛhki-w(-an)* ‘it is red’ (‘they are red’, inanimate, p. 151)
 be.red-[+3](-[+pl])
 b. *po·se-w-an* the other embarks’ (obviative, p. 150)
 embark-[+3]-[+obv]

More generally, every NP type which Menominee (and Algonquian) classifies as 3rd person can trigger appearance of **-w**. This shows that **-w** cannot be marked for any other relevant feature, but is truly a 3rd-person marker.

4.1 *Default Affixes in the [+/-3] System*

The data above are actually less problematic for the approach of Dechaine (1999) than for the feature-geometric approach. In Dechaine’s representation of person, 3rd person is defined as [-2 -1] which makes it possible to specify **-w** and **-m** as follows:

(13)

- w** : [-1 -2]
-m : []

Since **-m** is now a default marker, preference for 3rd over non-3rd person affixes is not due to any differences in the representation of person features. It results from the idiosyncratic underspecification of VIs and the Elsewhere Principle. However, this approach does not capture the parallels between 3rd person marking in conjunct and independent order, nor does it allow to state any generalizations over the position and complementary distribution of these suffixes. Moreover, there is also a fatal empirical problem for an account of this type: there are affixes (not discussed so far) also occupying the position of 3rd person markers, but having the properties of true default markers. Thus in the independent order, **-n** appears instead of **-w** and **-m** in the so-called indefinite-actor forms which are restricted to clauses with unspecified subjects

⁶(12b) is also used for obviative inanimate NPs. See section 5.5 for a discussion of transitive verb forms involving agreement with inanimate 3rd person NPs and 1st/2nd person NPs.

(14a). The same suffix also appears in most forms with the negative suffix **-an** (14b,c):⁷

- (14) a. po·se·**n** ‘there is embarking’ (p. 148)
 embark-PER
 b. ne·po·n·a·**n** ‘I put it in the pot’ (p. 159)
 1-put:in:pot-D-PER
 c. ne·ne·w·a·**n**-an ‘I do not see him’ (p. 169)
 1-see-D-PER-NEG

Again, the data in the conjunct order are largely parallel. In indefinite actor forms, instead of **-yan** and **-t**, a third affix, **-k**, appears (conjunct order forms are never negated by affixes, cf. footnote 2):

(15) **Forms with -k (Conjunct Order)**

- a. po·se·n·**k** ‘when there is embarking’ (p. 148)
 embark-LRS-PER
 b. aktε·**k** ‘when it is there’ (p. 170)
 1-pot:put-D-PER

The distribution of **-w**, **-m**, and **-n** is shown schematically in (16). The graphic shows that only **-m** and **-w** are restricted with respect to person: **-m** only appears in the presence of 1st or 2nd person arguments, **-w** appears only in the context of 3rd person arguments. **-n** can appear in the context of either and in the seemingly “personless” environment of indefinite actors which do not exhibit a person contrast in this position.

(16) **Distribution of -w** **-m** **-n**

	only +3	+3 and -3	only -3	indef. actor
unnegated				
negated				

The fact that **-m** cannot be a default marker can also be shown in a second way: Suppose that **-m** is indeed a default (maximally underspecified) marker. Then, **-n** cannot be a default marker because it would then have the same distribution as **-m**.⁸ Hence, **-n** should be specified for some content. If we consider the distribution of **-n** in the unnegated independent order, the only possible content for **-n** would be something like “unspecified actor. However, this is immediately contradicted by the fact that it also occurs with standardly specified arguments in negated forms. Hence the assumption that **-m** is a default marker leads to a paradox for the specification of **-n**. On the other hand, the assumption that **-n** is a default marker, and **-w/-m** mark [+/-3] is perfectly coherent if we assume that unspecified actors are verbally unspecified for person, and expression of the +/-3 contrast is generally blocked in negated forms.

I conclude that a reanalysis of +3 over -3 prominence as preference for more specified affixes is not viable and the Menominee data pose a serious challenge to all approaches denying

⁷Bloomfield calls this the negative order. However, the morphology of these forms is much closer to the one of unnegated independent forms than to the conjunct order forms. In addition to **-an**, a word-level negator (**kan**) has to be used. Conjunct order forms do not have any affixal negation.

⁸In other words, forms with **-n** or **-m** would be in free variation.

a binary feature $+/-3$. In the next subsection, I will provide further evidence that Menominee is governed by a constraint which allows only one affix specifying the feature [3].

4.2 Extending the $[+/-3]$ Restriction

We have seen above that Menominee allows only one suffix specifying the feature 3, either +3 or -3. If one argument is +3 and the other -3, we do not find cooccurrence of **-m** and **-w** (or **-yan** and **-t**), but suppression of the -3 marker. Interestingly, this restriction holds also across agreements and clitics. Thus, the 3rd person clitic **o-** in Menominee, in addition to being suppressed in the context of 1st and 2nd person clitics (cf. section 2) is also impossible in unnegated independent-order forms (17b)⁹:

- (17) a. **o-po-se-n-an** ‘he does not embark’ (p. 150)
 3-embark-PER-NEG
 b. **po-se-w** ‘he embarks’ (p. 150)
 embark-3

Hence, if there is a 3rd person clitic, there is no 3rd person suffix and vice versa. This can be captured straightforwardly, if we assume that the restriction to one $+/-3$ item extends from the agreement domain to a larger domain comprising agreement and clitics. In other words, the restriction identified so far as a constraint on agreement affixes only actually requires that in a complex containing an inflected verb and pronominal clitics only one 3rd-person marker (agreement affix or clitic) is allowed. Notice that in contrast to **o-**, 1st and 2nd person clitics can cooccur with **-m** as well as with **-w**:

One could argue that the restriction of **o-** to negated forms is due to a context restriction, allowing this clitic only in the context of negation. However clitics are also used outside the verbal domain, namely in the marking of pronominal possessors. Here, **o-** appears to express a 3rd person possessor without the restriction to negation:

(18) Pronominal Clitics in Nominal Possession

- | | | |
|--------------------|--------------------|-------------------|
| a. ne-hka-t | b. ke-hka-t | c. o-hka-t |
| 1-leg | 2-leg | 3-leg |
| ‘my leg’ | ‘your (sg.) leg’ | ‘his leg’ |

That **o-** occurs in nominal possession also provides direct evidence for the claim that the restriction to maximally one $+/-3$ item extends to clitics: In contrast to other inflectional affixes (e.g. 1pl **-enaw**, cf. section 2) which occur in verbal agreement *and* possessor marking, the $[+/-3]$ suffixes are restricted to verbs.

A final piece of evidence for this restriction comes from negated forms where all arguments are inanimate. Recall that generally **-m** and **-w** in negated independent forms are neutralized to **-n**. The only exception to this generalization are intransitive forms with inanimate arguments (19a) and transitive forms with inanimate subject and object (19b). Here, $[+3]$ **-w** is also retained in the negated forms:

⁹Recall that all clitics are suppressed in conjunct order forms.

(19) **Negative Forms with Inanimate Arguments only**

- a. mɛhki·-w-an 'it isn't red' (p. 151)
red-[+3]-NEG
- b. a·kuaqnɛ·sk-amemakat-w-an 'it doesn't shade it' (p. 159)
shade-D-[+3]-NEG

These forms are also exceptional in a second respect. While all other negated forms (except intransitive unspecified actor forms – recall that unspecified actors never exhibit +/-3 marking by clitics or suffixes) appear together with pronominal clitics, the forms in (19) do not. Again, 3rd person clitics and suffixes do not cooccur.

As with the restriction of clitics to negated verbal forms, one might adduce the fact that **o-** does not occur in the forms in (19) to lexical specification by stipulating that it is listed in the lexicon as [+3 +an]. But once again, there is counterevidence from the nominal domain. In possessor marking, **o-** can crossreference inanimate as well as animate arguments. Thus **o-hka-t** in (18c) can refer to the leg of an animate being (a human or animal), but also to the leg of a chair.

(20) shows schematically the distribution of +3 suffixes and clitics. While the distribution is complex, and not all forms have +3 marking, there is never cooccurrence of +3 clitics and suffixes:

(20) **Distribution of [+3] prefixes and suffixes**

	only +3	+3 and -3	only -3	indef. actor	only inanimate
unnegated					
negated					

	+3 animate	+3 inanimate	-3
possessor			

+3 prefix
 +3 suffix
 no +3 marker

5 An OT-Analysis

The data from Menominee 3rd-person marking show that deriving hierarchy effects from asymmetric feature representations which treat 3rd person as the absence of person features is highly problematic. Menominee seems to require a binary feature [+/-3] and formal mechanisms to reconcile the existence of +3 over -3 prominence with the more familiar pattern, where 1st and 2nd person are ranked above 3rd. A natural alternative to a feature-geometric model is an account which derives hierarchy effects from grammatical constraints on the morphological realization of syntactic features. In this section, I will propose such an analysis of the Menominee data based on binary features and optimality-theoretic constraints, which avoids the problems raised by the feature-geometric approach.

5.1 The Theoretical Framework

The theoretical framework I will assume in the following is Distributed Optimality (DO; Trommer, 2002a,b, 2003c,d), a constraint-based approach to postsyntactic spellout merging con-

cepts from Optimality Theory (OT, Prince and Smolensky, 1993; McCarthy and Prince, 1993, 1994, 1995) and Distributed Morphology (DM, Halle and Marantz, 1993). However, most of the arguments should carry over to any OT-based approach to spellout, where morphology has crucial access to syntactic structure (as e.g. in Noyer, 1993; Grimshaw, 1997, 2001). DO shares with DM the assumption that morphology is a separate module of the grammar interpreting the outputs of syntax, where the latter operates on abstract feature bundles (= heads = Lexical Items) without phonological content. Morphology assigns phonological content to syntactic structures by pairing word-like syntactic units (spell-out domains) with strings of vocabulary items (VIs) which combine (underspecified) morphosyntactic features with phonological content. Here is an illustrative example with the Menominee conjunct order verb form *po·se-yan*, ‘I embark’:¹⁰

(21) **Syntax-Morphology Mapping for *po·se-yan***

Input: [+V]₁ [+C +conj]₂ [+Agr +Nom +1 -2 -3]₃
Output: *po·se*:[+V]₁ *yan*:[-3]₃

The input consists of a complex of abstract heads, the output of a list of VIs. Both representations are linked by coindexing according to the principles of Correspondence Theory (McCarthy and Prince, 1994, 1995). Note that not all underlying heads and features are necessarily expressed in the output (e.g. [+C + Conj] and +1 in (21) are not).

Since the output of syntax serves in DO as the input to morphological computation, the grammar and, more specifically the generator function GEN, generates, as usual in OT, an infinite candidate set of output candidates which contains here all strings which consist exclusively of VIs compatible with input heads.¹¹ For example, a VI specifying the feature [+3] (e.g. *w*:[+3] could not be part of any candidate for the input in (21) since there is no input head specifying [+3].

5.2 *Constraint Types*

Which heads are actually realized by VIs and the order of VIs in a given language depends on the language-specific ranking of universal constraints on markedness, faithfulness and morpheme order. This is illustrated with the example from (21) and one very basic constraint PARSE F in (22):

(22) **Input:** [+V]₁ [+C +conj]₂ [+Agr +Nom +1 -2 -3 -pl]₃

	PARSE F
a. <i>po·se</i> :[+V] ₁ <i>yan</i> :[-3] ₃	*****
b. <i>po·se</i> :[+V] ₁	*****!
c.	*****!*

PARSE F induces one constraint violation for each input feature which is not realized by a coindexed VI (e.g. +Nom and -pl for (22a)). Since there are no appropriate VIs in the lexicon of Menominee to express these features, violations of PARSE F are unavoidable. However, they are minimized to guarantee maximal expression of features by VIs.

¹⁰As in DM, the input to morphology in DO has actually an internal syntactic structure with consequences for domains of constraint application . Some aspects of this complex are discussed in section 5.3.

¹¹See Trommer (2003c) for technical details.

Apart from the lack of VIs also specific higher-ranked constraints can induce violations of PARSE F. Constraints of the COHERENCE-type require that maximally one VI of a certain type be present in a form.¹²

(23) **COHERENCE X:** Allow only one VI of type X in the output

For example, the constraint COHERENCE [3] allows only one instance of the feature [+/-3] in a given output. Each additional instance of this feature leads to constraint violations. COHERENCE [1 +pl] allows only one affix specifying 1 and +pl. Evidence for both constraints has been discussed in the preceding sections.

Preference for more prominent features in hierarchy effects is expressed by relativized parse constraints such as (24a,b):

- (24) a. PARSE [P]^{[+1]/[+3]}
 b. PARSE [P]^{[+pl]/[-pl]}

PARSE [P]^{A/B} is to be read as follows: Realize the person features of a syntactic head containing A if this is adjacent to a head containing B. Thus, PARSE [P]^{[+2]/[+3]} requires that the person features of a [+2] head are spelled out by an affix, if it is neighbored by a [+3] head. Relativized parse constraints are related to prominence hierarchies such as [+1]/[+2] > [+3] Person or plural > non-plural by the general constraint schema in (25):

- (25) If $A_1 \dots A_n$ are distinct from $B_1 \dots B_n$, and $A_i \geq B_i$ on a scale S_i ($1 \leq i \leq n$), then there is a constraint PARSE [AGR]^{[A₁...A_n]/[B₁...B_n]}

Note that (25) allows to derive PARSE [P]^{[+1]/[+3]} from the scale [+1]/[+2] > [+3], but also [P]^{[+1]/[+2]} and [P]^{[+2]/[+1]}, since 1st and 2nd person are unranked on this scale. Among other facts, relativized parse constraints capture the fact that 2nd person clitics are preferred over 3rd person clitics in Menominee:

(26) **Input:** [+Cl +2 -1-3]₁[+Cl +3 -2 -1]₂

		PARSE [P] ^{[+2]/[+3]}
a.	o:[+3] ₂	*!
b.	ke:[+2] ₁	

5.3 Constraint Domains

I assume that all constraints introduced so far can apply in different syntactically defined local domains.¹³ More specifically, I assume the three domain types in (27):

¹²See Trommer (2003c,a) for a more technical definition of COHERENCE, based on indices, which also has important consequences for affix order. In particular, COHERENCE favors forms where different VIs corresponding to the same syntactic head (i.e. the result of “fission” in terms of DM, cf. Halle and Marantz (1993)) are linearly adjacent. As far as I am aware, COHERENCE does not correspond in a straightforward way to constraints proposed in the phonological literature, though it bears some resemblance to CONTIGUITY and INTEGRITY (McCarthy and Prince, 1995).

¹³This is analogous to OT-approaches to phonology, where phonological constraints apply in different prosodic domains such as the syllable or the phonological word.

(27) **Domains for spellout constraints**

- Head Domain:** A set of string-adjacent heads
belonging to the same extended projection
- Chain Set:** The set of heads
which are members of the chain C
- Chain Domain:** A set S such that there exists a Head Domain D
and S contains all heads of all chain sets occupying a position in D

The most straightforward of these domains is the Chain Set. I assume that coindexed clitics and agreement markers always are part of a chain with the schematic form in (28) (order irrelevant):

(28) $DP_i \quad Clitic_i \quad V \quad Agr_i$

The Chain Set then amounts to $\{Clitic_i, Agr_i\}$ if DP_i is syntactically complex and to $\{Clitic_i, Agr_i, DP_i\}$, if DP_i is a bare head. Crucially, only indexed heads are visible for Chain Sets.

A Head Domain is roughly equivalent to the traditional notion of “morphological word”. A simple example is a sequence of a verb stem with Tense, subject, and object agreement heads ($[+V][+Tense] [+Agr +Nom] [+Agr +Acc]$). Note that the exact tree structure configuration of the heads is irrelevant for the definition of a Head Domain. Thus, $[+V]$ could be placed adjacent to $[+Tense]$ by head movement to Tense or by remnant movement of a phrase containing $[+V]$ to a higher specifier position. Important is only string adjacency. Another instance of a Head Domain that will become relevant are clitic clusters.

Finally, Chain Domains combine Head Domains with Chain Sets. In other words, a Chain Domain is a Head Domain plus all heads contained in chains with a position in this Head Domain. I will call constraints applying in Head Domains *Head-Level Constraints* constraints applying in Chain Domains *Chain-Level Constraints*, and constraints on Chain Sets *Chain Constraints*.

5.4 *Accounting for the Basic 3rd-Person Preference in Menominee*

As already mentioned, the fact that Menominee allows only one 3rd person marker can be captured now straightforwardly by COH [3]. To ensure that the constraint actually applies, it must be ranked above PARSE F because otherwise, the language would prefer to realize +3 and -3:

(29) **Input:** I see him: $[-3 +1]_1 [+3 -1]_2$

	COH [3]	PARSE F
☞ a. $-w:[+3]_2$		*
☞ b. $-m:[-3]_1$		*
c.		***!
d. $-m:[-3]_1 -w:[+3]_2$	*!	

Assuming that COH [3] applies in the Chain domain, it also excludes cooccurrence of $-w:[+3]$ and $o:[+3]$. Now the crucial problem is to account for the fact that not $-m$ is chosen, but $-w$. The constraint schema for relativized PARSE constraint allows to capture preference of 1st over 3rd person, but not the opposite preference. On the other hand, modifying the schema in a way that also constraints such as PARSE $[+1]/[+3]$ are licensed seems to allow basically any

conceivable preference among person features and deprive the system of any predictive power.

My solution of this problem is based on the observation that [+3] markers seem never to be preferred under competition over markers for [+1] or [+2], i.e. markers for other plus-valued person features. What occurs (in Menominee) is only preference of a [+3] marker over a generic [-3] marker (i.e. one not differentiating between 1st and 2nd person). The Menominee pattern in 3rd person suffixes can then be captured by the second constraint schema in (30) which generally favors realization of plus-valued over corresponding minus-valued features:

(30) For each person feature F there is a PARSE constraint PARSE [+F]/[-F]

(30) licenses the constraint in (31) which allows to derive correctly the choice for **-w** over **-m** in the example in (29), as shown in (32):

(31) **PARSE [+3]/[-3]:** Prefer a [+3] marker over a [-3] marker

(32) **Input:** I see him: [-3 +1]₁ [+3 -1]₂

	COH [3]	PARSE [+3]/[-3]	PARSE F
a. -w:[+3] ₂			*
b. -m:[-3] ₁		*!	*
c.		*!	**
d. -m:[-3] ₁ -w:[+3] ₂	*!		

The schema in (31) also licenses the constraints PARSE [+1]/[-1] and PARSE [+2]/[-2] which seem to be in principle plausible. Crucially, the constraints licensed by this schema will never interfere with patterns like Menominee clitics, where the lexicon does not provide an appropriate [-3] element (assuming that **-w** and **-t** as all other suffixes are marked by +Agr or a similar feature excluding them for the expression of clitics.)

5.5 Accounting for the Whole Range of Data

As we have seen, an approach in terms of preference constraints allows to capture the basic 3rd-person marking pattern in Menominee which is highly problematic for feature-geometric approaches. In this subsection, I will show that this account straightforwardly extends to the whole range of data in 3rd-person marking that I have discussed in section 4.

Recall that **-w** and **-m** are only licensed with verbs, not in nominal inflection. I assume that this is due to a context specification for the relevant VIs which restricts them to verbal contexts. If **-n** also has the same context restriction as in (33), this also explains why **-n** appears even though it does not specify any person features.

- (33) a. -w [+3] / [+V]
 b. -m [-3] / [+V]
 c. -n [] / [+V]

As argued in Trommer (2003c), specific constraints favor appearance of context specifications (this accounts also for the fact that otherwise identical VIs with context restrictions are preferred to VIs without context restrictions, which is expressed in DM by the Subset Principle.). I will implement this idea here by the constraint CONTEXT, which incurs a constraint violation for each underlying head which is not crossreferenced by a context restriction of a VI in the output: Appearance of **-n** serves to satisfy CONTEXT in forms such as intransitive indefinite

actor forms where **-m** and **-n** are not possible (I assume here that this form involves an empty agreement head):

(34) **Input:** there is embarking: $[+V]_1 []_2$

	PARSE F	CONTEXT
a. $[+V]_1 -n:[]_2 / [+V]$		*
b. $[+V]_1$		**!

If **-m** or **-w** are present, the same context restriction is already realized, and appearance of **-n** would not lead to any improvement. Since unnecessary structure is generally suppressed in DO by alignment constraints, **-n** is blocked. This is illustrated in (35) by the antagonistic Alignment constraints $L \Leftarrow [+V]$ and $[+V] \Leftarrow R$. $L \Leftarrow [+V]$ counts a constraint violation for each VI between the verb root and the left edge of the spellout domain, and $[+V] \Leftarrow R$ correspondingly for VIs between the verb root and the right edge of the spellout domain. A major effect of $L \Leftarrow [+V]$ is that the root occurs to the left of all agreement affixes. While $[+V] \Leftarrow R$ is ranked lower, and hence denied influence on affix order, it still favors forms with less VIs between the root and the right word edge, which causes suppression of **-n** in forms with **-m** or **-w**:

(35) **Input:** I embark: $[+V]_1 [-3 +1]_2$

	PARSE F	CONTEXT	$L \Leftarrow [+V]$	$[+V] \Leftarrow R$
a. $[+V]_1 -m:[-3]_2 / [+V]$	*	*		*
b. $[+V]_1 -m:[-3]_2 / [+V] -n:[]_2 / [+V]$	*	*		**!
c. $[+V]_1$ -n:[]_2 / [+V]	**!	*		*
d. $[+V]_1$	**!*	**		

Let us turn now to the fact that 3rd person clitics are suppressed in un-negated independent-order verbs even when no other clitic is licensed:

- (36) a. **o-po-se-n-an** **'he does not embark'** (p. 150)
 3-embark-PER-NEG
 b. **po-se-w** **'he embarks'** (p. 150)
 embark-3

The fact that **-w** and **o-** cannot cooccur follows, as already mentioned, from the assumption that COH [3] applies in the Chain Domain. However, it seems that also appearance of the clitic and suppression of **-w** should fare equally well:

(37) **Input:** [+3 +Cl]₁ [+3 -Agr]₁

	COH [3]	PARSE F
☞ a. -w:[+3] ₁		*
☞ b. o:[+3] ₁ - n:[] ₁		*
c.		**!
d. o:[+3] ₁ - -w:[+3] ₁	!	

But recall that all constraints apply in different domains with possibly different rankings. Thus, assuming that PARSE F can be ranked differently for the clitic and the agreement domain with the latter constraint ranked higher gives preference to 3rd person marking by agreement suffixes, as required:¹⁴

(38) **Input:** [+3 +Cl]₁ [+3 +Agr]₁

	COH [3]	PARSE F	PARSE F
☞ a. -w:[+3] ₁			*
b. o:[+3] ₁ - n:[] ₁		*!	
c.		*!	*
d. o[+3] ₁ - -w:[+3] ₁	!		

Domain: **Chain** **Agr** **Clitics**

For negated independent-order forms, I assume that an impoverishment constraint blocks realization of [+/-3] in the context of negation. Since this constraint applies in the agreement domain it does not affect clitics, and because [3] is suppressed for agreement, COH [3] now allows the [+3] clitic:

(39) **Input:** [+3 +Cl]₁ [+3 +Agr]₁ [+Neg]₂

	IMP [3]/[+Neg]	COH [3]	PARSE F	PARSE F
☞ a. o:[+3] ₁ : -n:[] ₁			*	
b. -n:[] ₁			*	*!
c. -w:[+3] ₁	*!			*
d. o[+3] ₁ - -w:[+3] ₁	*!	*		

Domain: **Agr** **Chain** **Agr** **Clitics**

While the suppression of **-w** here must be stipulated (as probably in every analysis), the fact that **o-** can appear just in this context in the verbal domain follows from independently motivated constraints.

As we have seen above, IMP [3]/[+Neg] is respected in all negated independent forms except the forms where all arguments are inanimate. This can be related to the prominence relation in (40), where [+hi] refers to the structurally highest argument of the predicate (i.e., the subject of a transitive or intransitive verb) and [+lo] to the lowest argument (the subject of an intransitive or the object of a transitive verb):

¹⁴Woolford (2000, 2003) argues for a similar pattern in Selayarese that crossreferencing an argument by clitics has precedence over realization by agreement. Thus, the preference for realization of [+3] by agreement in Menominee seems not be due to a universal prioritization of agreement over clitics. It may well be that the differences between Selayarese and Menominee in this respect can be reduced to independent syntactic factors, but this is clearly beyond the scope of this paper.

(40) [+hi] > [+lo]

The schema in (25) now licenses the constraint PRS [3]^{[+hi -an]/[+lo -an]} requiring that the feature +/-3 of the highest inanimate argument must be realized if the lowest argument is also inanimate. If this constraint is also restricted to the agreement domain and ranked above IMP [3]/[+Neg], it correctly predicts the behavior of the inanimate only forms:

(41) **Input:** [+3 +Cl +hi +lo -an]₁ [+3 +Agr +hi +lo -an]₁ [+Neg]₂

	PRS [3] ^{[+hi -an]/[+lo -an]}	IMP [3]/[+Neg]	COH [3]	PARSE F	PARSE F
a. o:[+3] ₁ - -n:[] ₁	*!			*	
b. -n:[] ₁	*!			*	*
c. -w [+3] ₁		*			*
d. o:[+3] ₋₁ -w:[+3] ₁		*	*!		
Domain:	Agr	Agr	Chain	Agr	Clitics

This analysis also accounts for the different distribution of **o-** with verbal and nominal forms. In nominal forms, [+/-3] agreement suffixes cannot appear since their context restrictions are not met. Therefore no conflict arises with COH [3] and **o-** appears for all 3rd person possessors. On the other hand, in verbal forms, the specific constraint ranking in Menominee ensures that **o-** can only appear if other constraints suppress **-w** or **-m** which highly restricts the occurrence of **o-**.

I turn finally to a pattern which is especially interesting since it seems to provide counterevidence to the assumption that [+3] is ranked higher than [-3] in Menominee. In transitive forms with one inanimate and one 1st/2nd person argument **-m** appears, not **-w**:

(42) **Transitive Forms with Inanimate and 1st/2nd Person Argument**

- a. ne-po·n-ε·-**m**-enaw ‘we (excl.) put it in the pot’ (p. 159)
put:in:pot-D-PER-[+1 +pl]
- b. ke-po·n-ε·-**m**-uaw ‘you (pl.) put it in the pot’ (p. 159)
put:in:pot-D-PER-[-1 +pl]
- c. ke-nε·qn-ek-**m**-enaw ‘it kills us (excl.) (p. 154)
kill-D-[-3]-[+1+pl]
- d. ke-nε·qn-ek-**m**-uaw ‘it kills you (pl.) (p. 154)
kill-D-[-3]-[-1+pl]

As we have seen above, forms with inanimate arguments only take [+3] **-w**. Hence, given the general preference for [+3] over [-3] in Menominee, we expect also in these cases **-w** instead of **-m**. However, these forms also involve a second prominence contrast, namely one between animate and inanimate. Thus given the hierarchy [+animate] > [-animate], the schema in (25) also licenses the constraint in (43):

(43) PARSE [3]^{[+an]/[-an]}

If this constraint is ranked higher than PARSE [+3]/[-3] we get the correct result for the data in (43). I disregard the possible appearance of a +3 clitic here because this is independently suppressed by the constraints governing competition among clitics (in effect **o-** is blocked in favor of **ke-**):

(44) **Input:** [-3 +an +Agr]₁ [+3 -an +Agr]₂

	COH [3]	PARSE [3] ^{[+an]/[-an]}	PRS [+3]/[-3]
☞ a. -m:[-3]₁			*
b. -w:[+3]₂		*!	
c. -m:[-3]₁-w:[-3]₂	*!		
Domain:	Chain	Agr	Agr

The analysis so far shows that implementing prominence effects by constraints related in a principled way to prominence hierarchies not only allows to capture the restriction to one 3rd person marker and preference for +3 over -3 in Menominee in a straightforward way unavailable in a feature-geometric approach, but also extends to intricate details of the distribution of 3rd person markers in the language. However, this approach crucially depends on the assumption of a feature system comprising three binary person features. In the next section, I will provide further evidence that such a system is empirically motivated and theoretically sound.

6 The Status of Binary Person Features

This section has two parts. In subsection 6.1, I discuss empirical evidence that also the features [1] and [2] are binary-valued. In subsection 6.2, I show that the main objection against a system with 3 binary-valued person features, the claim that it overgenerates possible person categories, is not valid, given a careful definition of the semantics for the single person features.

6.1 Additional Evidence for Binary Person Features

Below, I repeat the data from (4) and (5) displaying once again the basic pattern of plural marking in Menominee. **-i·naw** marks plural for 1st person arguments, and **-owa·w** for arguments which are not 1st person. Both occur exactly in the same morphological template position and are mutually exclusive, hence cannot occur together:

- (45) a. kan ne-pu-se-n-**i·naw**-an ‘we (exc.) do not embark’ (p. 168)
 NEG 1-embark-PER-[+1+pl]-NEG
 b. kan ne-na-tom-eko-n-**i·naw**-an ‘they/he do(es) not call us (exc.)’ (p. 170)
 NEG 1-call-D-PER-[+1+pl]-NEG
 c. kan ne-ne·w-a·-n-**i·naw**-an ‘we (exc.) do not see him/them’ (p. 169)
 NEG 1-see-D-PER-[+1+pl]-NEG
- (46) a. kan o-po-se-n-**owa·w**-an ‘they do not embark’ (p. 168)
 NEG 3-embark-PER-[-1+pl]-NEG
 b. kan ke-po-se-n-**owa·w**-an ‘you (pl.) do not embark’ (p. 168)
 NEG 2-embark-PER-[-1+pl]-NEG
 c. kan ke-ne·w-a·-n-**owaw**-an ‘you (pl.) do not see him/them’
 NEG 2-see-D-PER-[-1+pl]-NEG ‘you (sg.) do not see them’ (p. 169)

In a theory where the surface position and mutual exclusivity of affixes are determined largely by the feature content of the pertaining VIs, this is direct evidence that **-owa·w** marks [-1 +pl], just as **-i·naw** does for [+1 +pl]. That **-owa·w** is suppressed in the context of **-i·naw** can

then be captured straightforwardly in the approach introduced in section 5 using the following constraints:

(47) **Constraints on the Distribution of -i·naw and -owa·w**

- a. COHERENCE [1 +pl]
- b. PARSE pl^{[+1][+2]}
- c. PARSE pl^{[+1][+3]}

One could argue that **-owa·w** is not specified [-1 +pl], but simply [+pl], and that the COHERENCE constraint in (47a) as well as the constraints responsible for the position of both affixes target only this feature. That **-owa·w** never expresses plural for 1st person NPs could then be attributed to the fact that for this case a more specific affix (namely **-i·naw**) is available. However, an analysis of this type is flawed since there is another plural marker in verb agreement with different properties.

Thus in unnegated independent-order verbs, agreement with 3pl proximate NPs is expressed by the suffix **-ak**, not by **-owa·w**. This affix occurs later in the suffix string than **-owa·w**¹⁵ and **-i·naw** and is not in complementary distribution with these markers:

(48) **Plural Marking with -ak**

- | | | |
|--|-------------------------|----------|
| a. po·se-w- ak
call-[+3]-[+pl] | 'they embark' | (p. 168) |
| b. ne-na-n-a·w-e-naw- ak
1-fetch-D-[+3]-[+1+pl][+pl] | 'we (excl.) fetch them' | (p. 168) |
| c. ke-na-n-a·w-wa·w- ak
2-fetch-D-[+3]-[-1+pl][+pl] | 'you (pl.) fetch them' | (p. 168) |
| d. ne-na-n-ek -w-e-naw- ak
1-fetch-D-[+3]-[+1+pl][+pl] | 'they fetch us (excl.)' | (p. 168) |
| e. ke-na-n-ek-w-wa·w- ak
2-fetch-D-[+3]-[-1+pl][+pl] | 'they fetch you (pl.)' | (p. 168) |

Since **-ak** must specify [+pl]¹⁶, the vocabulary entry for **-owa·w** as well as the COHERENCE constraint in (47a) must specify [-1 +pl], not just [+pl] because otherwise, the constraint would also block cooccurrence of **-ak** with the other plural markers. Similar points hold for the constraints relevant for affix position. But of course this presupposes that [1] is a binary-valued feature.

Further evidence for the binary features [+/-3] and [+/-1] comes from the so-called marked-scenario affix *a-* in the Kiranti language Dumi, which according to van Driem expresses “all scenarios involving a first or second person actant except those with a first person agent or subject.” (van Driem, 1993, :123) (49) shows the contexts where it appears (“marked”) and where it does not (“unmarked”). (50) and (51) give concrete examples:¹⁷

¹⁵**-ak** also occurs after specific tense/aspect markers while these are preceded by **-i·naw** and **-owa·w**.

¹⁶Following a suggestion by Monica Macaulay (p.c.), I assume that **-ak** actually is specified as [+pl +prox(imate)]. This predicts that it occurs more rightwards than the other plural markers, since plural markers also specifying person crosslinguistically occur more to the left than plural markers without additional person specification (Trommer, 2003d).

¹⁷Dual forms are given here because they are morphologically especially transparent, but exactly the same distribution of **a-** is found with singular and plural arguments. Page numbers refer to van Driem (1993).

(49) **marked unmarked**

2 → 1	1 → 2
3 → 1	1 → 3
3 → 2	3 → 3
2 → 3	1
2	3

(50) **Dumi verb Forms marked by a-**

- a. **a-luph-i** 'you (du.)/they (du.) caught us (du.,exc.)' (p. 109)
MS-catch-[+1-2+du]
- b. **a-luph-i** 'they (du.) caught you (du.)' (p. 110)
MS-catch-[+du]
- c. **a-luph-i** 'you (du.) caught them (du.)' (p. 109)
MS-catch-[+du]
- d. **a-phikh-i** 'you (du.) got up' (p. 97)
MS-get:up-[+du]

(51) **Dumi verb Forms not marked by a-**

- a. **luph-i** 'we (du.,exc.) caught you (du.)/them (du.)' (p. 109)
catch-[+1-2+du]
- b. **luph-si** 'they (du.) caught them (du.)' (p. 110)
catch-[+du]
- c. **phikh-i** 'they (du.)/we (du.) got up' (p. 97)
get:up-[-du]

Without minus-values for [1] and [3] there is no straightforward account for this pattern. However assuming binary features *a-* can be simply characterized as [+hi-1][-3], implying that the affix occurs exactly then if (a) the highest argument is [-1] (i.e., 2nd or 3rd person) and (b) there is a non-3rd person argument. 2nd person arguments fulfill both conditions at the same time (i.e., correspond to both feature structures). In combinations of 3rd person subjects with 1st/2nd person objects, the subject corresponds to the first structure, and the object to the second one:

(52)	marked	unmarked
	2 _s → 1 _o [+hi-1] _s [-3] _{s,o}	1 _s → 2 _o * [+hi-1] [-3] _{s,o}
	3 _s → 1 _o [+hi-1] _s [-3] _o	1 _s → 3 _o * [+hi-1] [-3] _s
	3 _s → 2 _o [+hi-1] _s [-3] _o	3 _s → 3 _o [+hi-1] _s *[-3]
	2 _s → 3 _o [+hi-1] _s [-3] _s	1 _s * [+hi-1] [-3] _s
	2 _s [+hi-1] _s [-3] _s	3 _s [+hi-1] _s *[-3]

The evidence presented so far seems to be consistent with the feature system developed in Halle (1997), which he illustrates for Warlpiri as follows:

(53) **Warlpiri Person Features in Halle (1997)**

[+1 +3]	[+1 -3]	[-1 -3]	[-1 +3]
1st person exclusive	1st person inclusive	2nd person	3rd person

However, there is evidence in Menominee as well as in Dumi that this restricted system is

insufficient and we need actually the richer feature system in (54):

(54) Feature System with 3 Binary Features

[+1 -2 -3]	[+1 -2 -3]	[-1 +2 -3]	[-1 -2 +3]
1st person exclusive	1st person inclusive	2nd person	3rd person

Recall first that in Dumi verb forms with a 3rd person subject and a first person exclusive object are marked by **a-**:

- (55) **a-luph-i** you (du.)/they (du.) caught us (du.,exc.)' (p. 109)
 MS-catch-[+1-2+du]

In the feature representation in (55), this is predicted since (55) is represented as (56b), where the first feature structure of the lexical entry for **a-** (56b) is matched by the 3rd person subject, and the second feature structure by the [-3] of the object. Halle's system predicts incorrectly that **a-** doesn't appear because the 1st person exclusive object would be analyzed as [+3]:

- (56) a. [+hi-1][-3]
 b. [+hi -1 -2 +3] [-Hi +1 -2 -3]
 c. *[+hi -1 +3] [-Hi +1 +3]

Consider next the implications of Halle's feature system for Menominee, especially the pronominal clitics. Since Halle does not have a feature specific to 2nd person, we would have to assume that **ke-** marks [-3] which would correctly predict that it does not occur in the 1pl exclusive, but in all other non-3rd person plural forms:

- (57) a. **ne-po-se-m** 'I embark' (p. 150)
 1-embark-PER
 b. **ne-po-se-m-enaw** 'we (exc.) embark' (p. 150)
 1-embark-PER-1pl
 c. **ke-po-se-q** 'we (inc.) embark' (p. 150)
 2-embark-1pl
 d. **ke-pu-se-m-waw** 'you (pl.) embark' (p. 150)
 2-embark-PER-[-1 +pl]

Since [+3] in Halle's system seems to be appropriate for all sets of entities containing at least one element which is not a participant in the speech event, [-3], and hence **ke-** should be appropriate for the sets containing only the hearer or only the speaker, hence 1sg and 2sg. While this is correct for 2sg (58a), we get the wrong result for 1sg (58b):

- (58) a. **ke-po-se-m** 'you (sg.) embark' (p. 150)
 1-embark-PER
 b. **ne-po-se-m** 'I embark' (p. 150)
 1-embark-PER

Hence again the data show that we need the richer feature system in (54). A final piece of evidence against differentiating inclusive and exclusive by invoking [+/-3] comes from the distribution of **-m** and **-w**. While inclusive forms without further tense/aspect affixes have neither, but only the irregular suffix **-q** which also suppresses the regular 1pl marker **-enaw**, (58c), we get more transparent forms in the so-called preterit (59a) and quotative modes (59b)

which have further affixation:¹⁸.

- (59) a. ke-ma-cia-**m**-eno-pah ‘but we (inc.) did set out’ (p. 163)
 2-set:out-PER-1pl-PRET
 b. ke-pi-to-**m**-enaw-en ‘it is said that we (inc.) bring it’ (p. 161)
 2-bring-DIR-PER-1pl-QUOT

Crucially, all 1st person arguments, whether exclusive or inclusive trigger **-m**. If this is analyzed correctly as a marker for [-3], then this provides strong evidence that exclusive and inclusive in the language are distinguished by [+/-2], not by [+/-3]. While Halle admits that some languages may have the feature system [+/-1 +/-2] instead of [+/-1 +/-3], this is not an option here. Menominee seems to provide evidence for both the contrast [+/-3] and [+/-2].

6.2 Binary Features and Possible Person Categories

A major argument for feature-geometric approaches to features is that the possible configurations they allow to form match exactly the possible category inventories of human languages. Thus assuming that person systems have maximally four categories (1st person exclusive and inclusive, 2nd and 3rd person), the feature geometry of Harley and Ritter (2002) generates exactly these. In contrast to this, a system with 3 binary person features seems to allow for 2³, i.e. 8 combinations, which is far beyond this inventory. In this section, following a similar proposal for number features in Harbour (2003) (cf. also Harbour, this volume), I will propose an alternative approach to restricting person categories which is based on the semantics of single features, where only those combinations of features are possible which result in logically consistent descriptions of referents. (60) shows the meaning postulates I will assume for single person feature values:

(60) Semantics of Person Features

- [+1] A FS containing [+1] denotes a non-empty group containing the Speaker
[-1] A FS containing [-1] denotes a non-empty group **not** containing the Speaker
- [+2] A FS containing [+2] denotes a non-empty group containing the Hearer
[-2] A FS containing [-2] denotes a non-empty group **not** containing the Hearer
- [+3] A FS containing [+3] denotes a non-empty group containing exclusively non-SAPs
[-3] A FS containing [-3] denotes a non-empty group **not** containing exclusively non-SAPs

These definitions are based on the assumption that feature structures (FSs) containing phi-features always denote groups. Thus the semantics of the equivalent of "I" is not the speaker, but a group containing the Speaker and nothing else. The Speaker and the hearer are conceptualized as two privileged participants of a specific speech act. In other words, in a given speech act, there is exactly one speaker and exactly one Hearer. "We" in this system denotes a group containing the Speaker and other members (which are not the Speaker), but not a group of different Speakers. (61) shows the possible combinations of these features and their denotations:

¹⁸In (59a), **enaw-epah** fuses by a general phonological process to **enopa**.

(61) **Possible Person Categories**

3rd person [+3 -1 -2] a nonempty group containing exclusively non-SAPs
and not containing Speaker or Hearer

1st exclusive [-3 +1 -2] a nonempty group **not** containing exclusively non-SAPs
containing the Speaker but not the Hearer

1st inclusive [-3 +1 +2] a nonempty group **not** containing exclusively non-SAPs
containing the Speaker and the Hearer

2nd person [-3 -1 +2] a nonempty group **not** containing exclusively non-SAPs
containing the Hearer but not the Speaker

The inventory in (61) exactly corresponds to the standard inventory of person categories which is also predicted by feature-geometric approaches. Now, all other possible combinations of person features lead to semantic descriptions which are logically inconsistent and therefore ill-formed:

(62) **Impossible Person Categories**

a. *[+3 +1 +2] a nonempty group containing exclusively non-SAPs
and containing the Speaker and the Hearer

b. *[+3 +1 -2] a nonempty group containing exclusively non-SAPs
and containing the Speaker but not the Hearer

c. *[+3 -1 +2] a nonempty group containing exclusively non-SAPs
and containing the Hearer but not the Speaker

d. *[-3 -1 -2] a nonempty group **not** containing exclusively non-SAPs
and not containing the Hearer or the Speaker

Thus the description in (62a) denotes a group which does not contain Speaker and Hearer and at the same time contains them. For similar reasons (62a) and (62b) are excluded. (62d) requires a group which neither contains the Hearer nor the Speaker nor anything else, hence an empty group. Since the group is at the same time required to be non-empty, we get again a contradiction.

Now assuming that logically inconsistent descriptions do not denote at all, possible person categories can now be simply defined as the combinations of all person features which denote groups.

7 Summary

In this paper, I have shown, using data from Menominee 3rd-person marking that a feature-geometric approach to person features and hierarchy effects faces serious problems. I have proposed an alternative account of the Menominee data which avoids the problems of the feature-geometric model, but requires a rich inventory of binary person features. Finally, I

have argued that there is additional evidence for binary person features, and that such a system does not necessarily lead to an overgeneration of possible person categories. These results are in a line with Harbour (2003) who argues for binary number features based on data from Kiowa.

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