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# A model for variable pronominal linear orders in Occitan based on feature geometry and Optimality Theory

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For the morphological model proposed in this paper, we study Romance varieties spoken within the French department of Alpes-Maritimes. The analysis draws upon data which come from transcribed oral interviews. These interviews are in the form of questionnaires that each informant translates from French into his or her own local dialect of Occitan. Using data from nineteen different survey points, the linear orders of unstressed object pronouns are compared based on grammatical case. Three regions are identified within Alpes-Maritimes according to linear orders of pronominal sequences (ACC + DAT, DAT + ACC, and a variable linear order). Within the framework of Optimality Theory (Prince & Smolensky 1993), a hierarchical morphological model is used along with alignment constraints based on Case to account for these pronominal linear orders, some of which are otherwise unexpected using the morphological model alone.

KEYWORDS: feature geometry, pronominal linear orders, Distributed Morphology, Optimality Theory.

## *1. Introduction*

A morphological model is proposed drawing upon our study of Romance varieties spoken within the French department of Alpes-Maritimes. The data comes from transcribed oral interviews. I start out in section 2 by discussing examples from our own data in terms of observed pronominal morphology and, especially, the linear order of pronouns as pertains to Case. In section 3 I discuss morphological models proposed by Harley & Ritter (2002) as well as Heap (2005) to account for pronominal morphology as well as, in the case of Heap's model, the linear order of pronouns. I focus on a feature geometry that Heap (2005) initially applies to both standard and nonstandard varieties of Spanish. In section 4 I examine a constraint proposed by Heap (2005) to account for pronominal linear orders, including some that vary. This constraint, which relies upon his hierarchical morphological model, takes into account the relative degree of morphological complexity of pronominal forms. In section 5 I provide examples from Spanish, Catalan, and Occitan varieties in which the pronominal linear orders

do not initially appear to follow Heap's LLL ('Least Leafy to the Left') constraint which, based on Heap's hierarchical model, would have unexpected linear orders.[1,2,3] In section 6 we similarly observe examples from our own data which do not initially appear to follow Heap's constraint. Within the framework of Optimality Theory (henceforth OT) (cf. Prince & Smolensky 1993), a model is proposed in section 7 to account for unexpected linear orders of clitic pronouns observed in our data. This model combines Heap's constraint for linear orders as well as alignment constraints that are based on Case.

## *2. Observed linear orders from our own data*

In this section we examine linear orders of object pronouns in sentences from the PAM (Parlers des Alpes-Maritimes, Dalbera 1994) notebooks. In the original analysis the forms of the pronouns as well as their linear orders were systematically compared across the investigated municipalities (*communes*). At times, the informant may leave out a word in translating from French to their local dialect of Occitan.[4]

The map in Figure 1 shows the French department of Alpes-Maritimes, which is situated in the southeast corner of France, bordering both Italy and the Mediterranean Sea. The communes investigated are grouped according to the observed linear orders (ACC + DAT, DAT + ACC, and variable between the two). The isogloss drawn in the central region of Alpes-Maritimes depicts the region where variable linear orders (i.e. ACC + DAT / DAT + ACC) are predominantly observed. This distinction, as opposed to clitic order in general, is examined in this paper.

In the following three examples (1-3) for the commune of Malaussène, we observe sentences in which the 1SG precedes the 3SG. ACC (DAT + ACC), as is the case for French.[5]

(1) Malaussène[6]

| [m | ɔw | djˈes | tuʤˈu][7] |
|---|---|---|---|
| 1SG | 3SG.ACC | say.PRS.2SG | always |

'You always say it to me.'

(2) Malaussène

| [m | ɔw | az | dˈitʃ | jˈɛr] |
|---|---|---|---|---|
| 1SG | 3SG.ACC | have.PRS.2SG | say.PST.PTCP | yesterday |

'You told it to me yesterday.'


**Figure 1.** The three principal regions of Alpes-Maritimes according to pronominal linear orders (ACC + DAT, DAT + ACC, and variable between the two (i.e. ACC + DAT / DAT + ACC))[8] (*Les ordres linéaires* translates to 'Linear Orders'). Modified from Dalbera (1991: 610).

(3) Malaussène

| | | | |
|---|---|---|---|
| [pwˈɔdes | m | ɔw | repetˈa] |
| can.PRS.2SG | 1SG | 3SG.ACC | repeat.INF |

'Can you tell it to me again?'

However, for this same commune we also find examples with the reverse linear order (ACC + DAT), as shown in (4-6).

(4) Malaussène

| | | | |
|---|---|---|---|
| [la | mi | sjew | manʤˈa] |
| 3SG.F.ACC | 1SG | be.PRS.1SG | eat.PST.PTCP |

'I ate it.'

(5) Malaussène
[dˈi lu mi]
tell.IMP.2SG 3SG.ACC 1SG
'Tell me!'

(6) Malaussène
[dˈunɔ li mi]
give.IMP.2SG 3PL.ACC 1SG
'Give them to me.'

For the sentence in (4) the order is ACC + DAT. In this example, the pronoun *mi* represents an ethical dative pronoun and is not an argument of the verb (Bonet 1995: 67; Leclère 1976: 74 and 83). However, the sentences in (5) and (6) contain no ethical dative and thus all the clitic pronouns are arguments of the verb. Thus, whether the 1SG is an ethical dative or not, the linear order remains the same. For the sentences in (5) and (6) the linear order is also ACC + DAT, but the verb is in the imperative. Thus, even in the imperative the linear order remains the same.

For our example sentences, it is important to also address the issue of clitic position. However, due to limitation of examples in our data, it is not possible to systematically compare sentences with pronouns in enclitic *vs* proclitic position.

Manzini and Savoia show that for Italian and other Romance dialects "enclisis/proclisis segmental alternations, as well as stress alternations and reordering, are determined by syntacticosemantic conditions" (Manzini & Savoia 2017: 2). They argue that the lexicon plays a critical role in determining whether or not the *l*-alternation or the vocalic series *u/a/i* (i.e. without the *l*) appears (Manzini & Savoia 2017: 2). They also assert that the *l*-alternation involves two lexical entries since there exists no process of *l*-insertion or *l*-deletion to independently motivate this (Manzini & Savoia 2017: 2).

Manzini and Savoia argue that the alternation between vocalic forms and *l*-forms is a D allomorphy (Manzini & Savoia 2017: 22). They show that the "D forms are required in the context of V in C or of the clitic negation" (Manzini & Savoia 2017: 22). Specifically, D-forms are caused by "the presence of non-veridical operators externalized higher than the clitic, hence to its left" (Manzini & Savoia 2017: 22). Manzini and Savoia illustrate that both "allomorphies and reordering are associated with non-veridical contexts namely negation, imperatives, infinitive complements (object clitics), questions and hypotheticals (subject clitics)" (Manzini & Savoia 2017: 19). Lastly, they note a complexity regarding the lexical form and ordering of clitics since the Romance

varieties they study present "both allomorphies and reordering though not necessarily all three of them in the same variety" (Manzini & Savoia 2017: 36).

The sentences in examples (5-6) are in the imperative and thus, according to Manzini and Savoia, would involve the presence of a non-veridical operator. This would account for the positioning of the verb in both sentences. However, example (4), in which the accusative pronoun contains the *l*-form, is a declarative sentence, which would explain the proclitic position of the pronouns. This sentence would not distinguish itself from the sentences in (1-2) in terms of requiring the presence of a non-veridical operator. Nevertheless, the sentences in (1-2) do not contain the *l*-form. Lastly, the sentence in (3) is a question, and yet no *l*-form is present. As mentioned in note 5, it remains to be determined whether or not the form [ɔw] represents the neuter clitic.

Further regarding our examples, we observe that for many communes within the department of Alpes-Maritimes, the speaker drops the third person accusative pronoun when it is combined with the third person dative (7). Thus, for these sentences the linear order of pronouns does not come into question.

(7) Tende
[i diz'emu]
3SG.DAT tell.PRS.1PL
'We tell him.'

As Dalbera also notes, we observe that when a dative pronoun combines with an accusative pronoun, the linear order varies according to the region of Alpes-Maritimes (Dalbera 1991: 609). In the eastern region of Alpes-Maritimes, the linear order accusative + dative (ACC + DAT) is observed, see (8) (Dalbera 1991: 609). This linear order according to Case is also observed for the imperative, i.e. in the enclitic position, (9).

(8) La Brigue
[ər te dizijav'ama]
3SG.ACC 2SG tell.IPFV.1PL
'We told you.'[9]

(9) La Brigue
[d'i ɻu m'e]
tell.IMP.2SG 3SG.ACC 1SG
'Tell me.'

In examining other combinations of pronouns, we observe that in the northwest region of Alpes-Maritimes, as Dalbera also notes, the

dative pronoun precedes the accusative (10) (DAT + ACC) (Dalbera 1991: 609).

(10) St-Étienne
[dˈuna me lus]
give.IMP.2SG 1SG 3PL.ACC
'Give them to me.'

This order is the reverse of what we observe in the following sentence from Malaussène, which is located in a more central region of Alpes-Maritimes (11) (ACC + DAT).

(11) Malaussène
[dunˈa li mi]
give.IMP.2SG 3PL.ACC 1SG
'Give them to me!'

Having examined the linear order of clitic pronouns in example sentences from various communes in Alpes-Maritimes, in section 3 I discuss a feature geometry that will enable us to account for these linear orders.

## *3. Previous morphological models to account for pronominal forms*

In this section I examine a hierarchical morphological model to account for the morphological forms as well as the linear order of pronouns. Heap's (2005) hierarchical model, which he uses to analyze the morphology and linear orders of clitic pronouns in Romance varieties, proves the most suitable for analyzing our data. I first discuss Harley & Ritter's (2002) morphological model, which Heap draws upon.

Harley & Ritter (2002) use feature geometry to account for pronominal paradigms across a variety of languages belonging to distinct language families. Harley & Ritter (2002) observe that there exist natural classes of morphological features, such as grammatical person, number, and gender. They argue that the grammatical features and numbers which characterize pronominal paradigms are constrained within hierarchical representations (Harley & Ritter 2002: 482). For Romance languages, the number of combinations of features is generally observed to be less than would be predicted if all combinations were possible. This would suggest that not all combinations are possible within pronominal paradigms. Lastly, in Harley and Ritter's hierarchical model the terminal features are monovalent and thus only appear if they have a positive

value (cf. Harley 1994: 303). By contrast, other theories resort to matrices of binary features, which can potentially overpredict pronominal clitic inventories (cf. Greenberg 1963, Noyer 1992, Grimshaw 1997, 1999).[10]

Heap both modifies and simplifies the feature geometry proposed by Harley & Ritter (2002) in order to apply it to both standard and nonstandard varieties of Spanish (Heap 2005: 90). As shown in Figure 2 below, Heap includes a node for CASE, from Bonet's (1991) hierarchical model (which is absent in Harley and Ritter's model) as a dependent node of their 'CLASS' node. In addition, Heap replaces the node 'Referential Expression' with the node 'CL' (for Clitic) in order to describe clitics such as *se*, which is not a referential expression since it refers to another element (Heap 2005: 90). Lastly, the node 'OTHER' is a simplified version of the node 'Individuation', which represents 'third persons' in Harley & Ritter's (2002) model.

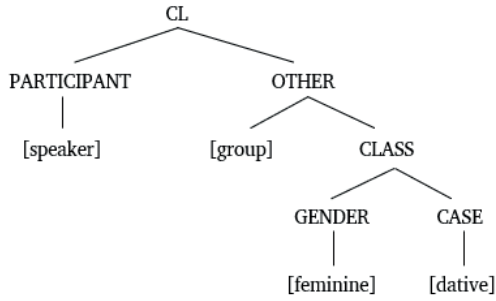


**Figure 2.** Hierarchical representation of clitic pronouns according to Heap (2005: 90).[11]

As with Harley and Ritter's hierarchical model (Harley & Ritter 1998, 2002: 486; cf. Bonet 1991, 1993: 95), in Heap's model, the terminal nodes represent monovalent (i.e. privative) features (Heap 2005: 90). The nodes marked in bold capital letters represent the Major Class categories. Heap's (2005) model would explain why in Romance languages only third person clitic pronouns are marked for Case and, in general, for gender. In Galician, for example, one distinguishes between the direct object pronouns (*o(s)* 3SG/PL.M.ACC, *a(s)* 3SG/PL.F.ACC) and the indirect object pronoms (*lle(s)* 3SG/PL.DAT) (Feixó 2004: 68). The same distinctions are observed for both French and Spanish. However, an exception is noted for Italian (*gli* (3SG.M.DAT) vs *le* (3SG.F.DAT or 3PL.F.ACC) (Vincent 1988: 291), which would require both GENDER and CASE nodes to be specified.

In contrast with first and second person pronouns, which are marked by PARTICIPANT, the third person pronouns are marked by OTHER. The nodes GENDER and CASE are dependants of CLASS, which, in turn, is a dependant of OTHER (Heap 2005: 90). Lastly, the reflexive pronoun, *se*, which is the least specified clitic, is marked only as CL. In order to be interpreted as an anaphora, *se* cannot be specified for PARTICIPANT (Heap 2005: 95). It is also not specified for gender, number, or Case (cf. Grimshaw 1997: 170).

Regarding the morphological model in Figure 2, the person features hierarchy pertains to referential/inherent properties of pronouns such as participant/non participant, singular/plural, or masculine/feminine. These properties relate to an argumental operator. In contrast, Case describes the relation between an argument and a predicate. In other words, whereas phi-features are lexical, Case is syntactic.

In summary, with feature geometry the potential combinations of features results from dependence relations within the hierarchical structure. The potential pronominal inventories are thus more constrained than those based on bundles of features having no structure, such as markedness constraints within the framework of OT (see Grimshaw's *Universal Markedness Hierarchies* for person and grammatical case (Grimshaw 1997: 170)). In addition, the predicted pronominal inventories resemble those generally observed across Romance languages. The hypothesis that follows takes into account the degree of morphological specification of pronouns.

## *4. Least Leafy to the Left Hypothesis*

In some Romance languages, clitic pronouns appear to be ordered from left to right according to increasing structural complexity (i.e. morphological specification) of a hierarchical geometry of features such as person, number, gender, and Case. This observation follows from Harris, who observed that syncretism precedes contrast (Harris 1996: 189).

Heap formalizes Harris' observation regarding the linear order of clitic pronouns with a hypothesis he terms 'Least Leafy to the Left' (henceforth **LLL**) (Heap 1998: 240). This constraint is based on a geometric representation in which markedness relates to the number of contrasts in a hierarchy.

For Spanish, the LLL constraint would explain why the reflexive clitic *se*, i.e. the least specified in a hierarchical geometry such as the one in Figure 2, must precede all the other clitics (12) (Heap 2005: 93).

(12) Spanish

| | | | | |
|---|---|---|---|---|
| *Buscó* | *la* | *pala* | *y* | *se* |
| look_for.PST.3SG | ART.F.SG | shovel | and | 3SG.REFL |
| *la* | *trajo* | *a* | *la* | *casa* |
| 3SG.F.ACC | bring.PST.3SG | to | ART.F.SG | house |

'He/She looked for the shovel and brought it home.' (Heap 2005: 93).

In (12) the least specified clitic, *se*, precedes the 3SG.F.ACC clitic, as predicted by the LLL constraint. Figure 3 shows the hierarchical structures for these two pronouns based on the feature geometry proposed by Heap & Kaminskaïa (2001: 103) for these two clitic pronouns.

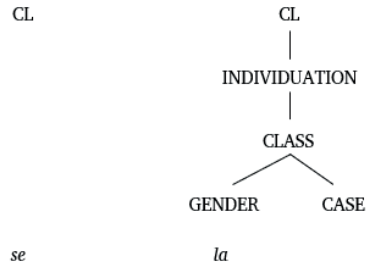


**Figure 3.** Specification of the reflexive pronoun and third person feminine accusative pronouns based on the feature geometry proposed by Heap & Kaminskaïa (2001: 103).

Figure 3 shows the much greater specificity of the 3SG.F.ACC, to the right, as opposed to the least specified clitic, *se*, to the left.

Some varieties of Langue d'oïl show clitic orders that also appear to observe the LLL constraint (see Heap & Kaminskaïa 2001). In (13) the third person accusative pronoun, which receives the default marking for the accusative case, precedes the dative, which would have more morphological specifications. This is because the dative pronoun is specified for 'dative' whereas, due to underspecification, the accusative does not need to be specified since it is the default morphological case (see Heap's hierarchical model in Figure 2).

(13) French

| | | |
|---|---|---|
| *Dis-* | *le-* | *lui* |
| tell.IMP.2SG | 3SG.ACC | 3SG.DAT |

'Tell him.' (Heap & Kaminskaïa 2001: 110).

In (14) we observe what appears to be an unexpected linear order since the first person pronoun would have less morphological speci-

fications than the third person accusative. In Heap's model, all clitics marked PARTICIPANT would have less morphological complexity than pronouns marked 'NON-PARTICIPANT' (Heap 2005: 93). Thus, the 1SG should precede the 3SG.ACC when these two pronouns combine.

(14) French

| | | |
|---|---|---|
| *Dis-* | *le-* | *moi* |
| tell.IMP.2SG | 3SG.ACC | 1SG |

'Tell me.' (Heap & Kaminskaïa 2001: 105).

As shown in Figure 4, the 3SG.ACC pronoun, *le*, has more morphological specifications (i.e. more nodes) than the 1SG pronoun, *me*. On the basis of this hierarchical morphological model, one would thus predict the reverse of the linear order observed above in (14).

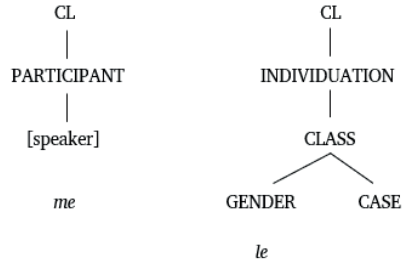


**Figure 4.** Specification of first person singular and third person accusative pronouns according to Heap & Kaminskaïa (2001: 105).

For these dialects of Langue d'oïl, Heap and Kaminskaïa show that the third person dative pronoun can variably precede the third person accusative when the latter pronoun is fully specified for gender (15) (Heap & Kaminskaïa 2001: 110-111).

(15)

| | | |
|---|---|---|
| *Dis-* | *lui-* | *le* |
| tell.IMP.2SG | 3SG.DAT | 3SG.ACC |

'Tell him.' (Heap & Kaminskaïa 2001: 110).

Such a specification would give the third person accusative pronoun the same amount of morphological specification as the dative pronoun, according to Heap and Kaminskaïa's model (Figure 5).

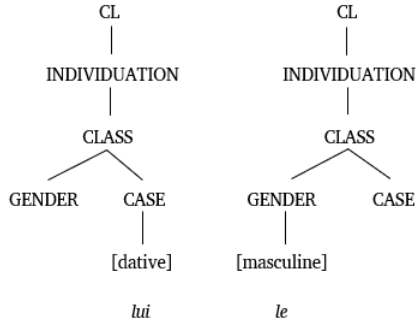


**Figure 5.** Specification of third person accusative and dative pronouns according to Heap & Kaminskaïa (2001: 111).

According to Heap and Kaminskaïa, both the masculine and the accusative would have the default markings for gender and Case, respectively (Heap & Kaminskaïa 2001: 106). Consequently, there would exist some grammars (such as varieties of non standard French) in which the accusative pronoun, *le*, would have the same amount of morphological specification as the 1SG pronoun, *me*. Thus, when there exists morphological underspecification, *le* could interchangeably follow *me/moi* or precede it, as in (16):

(16) *Dis-* *le-* *moi*
tell.IMP.2SG 3SG.ACC 1SG
'Tell me.' (Heap & Kaminskaïa 2001: 107).

In Figure 6 the 3SG.ACC receives the default marking for Case and gender and thus these features are not represented in the morphological structure. This would account for the linear order in (16) since underspecification results in the two structures having the same number of nodes.

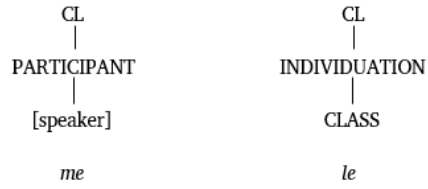


**Figure 6.** Specification of first person singular and third person singular accusative pronouns according to Heap & Kaminskaïa (2001: 107).

Having analyzed examples of pronominal linear orders from dialects of Langue d'oïl in terms of the LLL constraint, I next examine linear orders from closely related Romance varieties.

## *5. Linear orders which may not follow the LLL constraint*

In this section we examine sentences from Romance varieties apart from French in which the LLL constraint would either not apply without resort to morphological underspecification or may not apply at all.

For standard Catalan, Yates (1997) provides examples of sentences with unexpected linear orders. As shown in (17), when an indirect object (dative) pronoun (*li*) is combined with a direct object (accusative) pronoun (*el*, *la*, *els*, *les*) the indirect object precedes the direct object in a pronominal sequence (Yates 1997: 148). However, the pronoun *hi* can substitute for *li*. In this case, the direct object pronoun precedes it (18) according to both combinatorial and spelling rules (Yates 1997: 148-149).[12] Both combinations shown below are acceptable (Yates 1997: 149).[13]

(17) Catalan

| *Li* | *'l* | *donarem* |
|---|---|---|
| 3SG.DAT | 3SG.ACC | give.FUT.1PL |

'We will give it to him / her / you.' (Yates 1997: 149).

(18) Catalan

| *L'* | *hi* | *donarem* |
|---|---|---|
| 3SG.ACC | 3SG.DAT | give.FUT.1PL |

'We will give it to him / her / you.' (Yates 1997: 149).

For the above examples in Catalan where the linear order varies, the locative pronouns would have additional morphological specifications for Case compared with the dative pronoun and would thus appear further to the right in pronominal sequences (Heap 2005: 98, note 11). This could explain the observed inversion in linear order (for example *li 'l* vs *l'hi*). Nevertheless, the underlying sense of the two forms, *li* and *hi*, would be the same. Thus, it remains to be clarified whether these two forms would have distinct hierarchical geometrical representations.

There appears to exist other related languages beyond Catalan in which the LLL constraint may not apply, such as in Nissart, which is a dialect of Occitan. In (19a) the reflexive clitic *si*, which according to some hypotheses (Bruhn de Garavito *et al.* 2002: 47; Heap 2005: 84)

would have the minimum morphological structure, follows the third person accusative clitic pronoun (i.e. the direct object). The example (19a) from Nissart contrasts with what one observes in Spanish (19b) in which *se*, the least specified clitic, must precede all the other clitics.

(19) a. Nissart

| *Lou* | *si* | *manja* |
|---|---|---|
| 3SG.ACC | 3SG.REFL (ethical dative) | eat.PRS.3SG |

'He/She eats it.' (Gasiglia 1984: 157).

b. Spanish

| *Se* | *lo* | *come* |
|---|---|---|
| 3SG.REFL (ethical dative) | 3SG.ACC | eat.PRS.3SG |

'He/She eats it.' (Mooney 2019: 122).

In Figure 7 the hierarchical structures of the two pronouns *si* and *lou in* (19a) are shown based on the models proposed by Heap & Kaminskaïa (2001: 103-105).

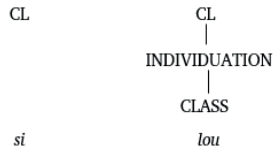


**Figure 7.** Hierarchical morphological specification of the reflexive pronoun and the third person singular accusative pronoun. Mooney (2019: 123).

The 3SG.ACC pronoun, *lou*, has more morphological specifications than the reflexive pronoun, *si*, and should therefore follow it according to the LLL constraint. Nevertheless, we observe the reverse order in (19a).

In Provençal Varois[14] the indirect object pronoun precedes the direct object pronoun (i.e. DAT + ACC) (20) (Domenge 1999: 72-73). This same linear order also applies to enclitic pronouns. For example, in the imperative where the two pronouns follow the verb (21) (Domenge 1999: 73).

(20) Provençal Varois

| *Mi* | *la* | *rendras* |
|---|---|---|
| 1SG | 3SG.F.ACC | return.FUT.2SG |

'You will return it to me.' (Domenge 1999: 73).

(21) Provençal Varois

| | | |
|---|---|---|
| *Pouarto-* | *mi-* | *la* |
| carry.IMP.2SG | 1SG | 3SG.F.ACC |

'Carry/bring it to me.' (Domenge 1999: 73).

For both sentences in Provençal Varois (examples (20-21)), the linear order of the object clitic pronouns follows the LLL constraint. By contrast, in Nissart (one of the dialects of our own study), the direct object pronoun normally precedes the indirect object pronoun (i.e. ACC + DAT) (cf. (22a)) (Gasiglia 1984: 157). In (22a-b) from Nissart a clitic pronoun which would have greater morphological (or structural) complexity, *lou* or *li*, respectively, precedes a clitic which would be less complex according to Heap's hierarchical model (Heap 2005: 90), *mi*.

(22) a. Nissart

| | | |
|---|---|---|
| *Lou* | *mi* | *douna* |
| 3SG.ACC | 1SG | give.PRS.3SG |

'He gives it to me.' (Gasiglia 1984: 157).

b. Nissart

| | | |
|---|---|---|
| *Li* | *mi* | *douna* |
| 3PL.ACC | 1SG | give.PRS.3SG |

'He gives them to me.' (Gasiglia 1984: 157).

For the sentence in (22b), the linear order of the pronouns does not follow the LLL constraint, even if there exists morphological underspecification, because the plural accusative pronoun *li* is specified for [group] (Figure 8). As a result of this additional specification, the hierarchical structure of the pronoun *li* contains more nodes.

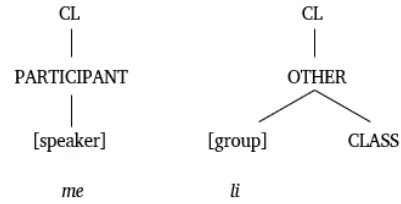


**Figure 8.** Hierarchical morphological representation comparing the first person singular pronoun with the third person plural accusative pronoun (using Heap's 2005 model). Mooney (2019: 161).

Since the accusative pronoun, *li*, would have greater morphological specification, it should follow rather than precede the 1SG pronoun, *me*, according to the LLL constraint. Thus, the LLL constraint in combination with feature geometry enables us to describe most linear orders, but not all.

## *6. Linear orders from our own data which may not follow the LLL constraint*

As is the case for other Romance varieties, there are also examples from our own data which do not appear to follow the LLL constraint. In contrast with the linear order in sentence in example (9) from section 2 (repeated below as (23)) (i.e. 2SG + 3SG.ACC), the linear order in (8) (repeated here as (24)) (i.e. 3SG.ACC + 2SG) would not be predicted by the LLL constraint even with underspecification of features (i.e. the masculine is the default gender as illustrated in Figure 9 below), because the 2SG pronoun is not specified for [speaker] in Heap & Kaminskaïa's (2001) model. In Figure 9, we observe that the 2SG, *te*, has less morphological specifications than the 3SG.M.ACC, *le*.

(23) La Brigue

[dˈi ɻu mˈe]
tell.IMP.2SG 3SG.ACC 1SG
'Tell me.'

(24) La Brigue

[ər te dizijavˈama]
3SG.ACC 2SG tell.IPFV.1PL
'We told you.'

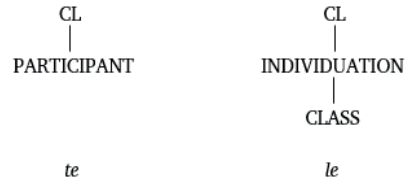


**Figure 9.** Morphological specification of the second person singular and the third person singular accusative pronouns according to Heap & Kaminskaïa (2001: 105).

In Figure 6 (repeated below as Figure 10) the hierarchical structure of the 1SG pronoun is compared with the 3SG.M.ACC.

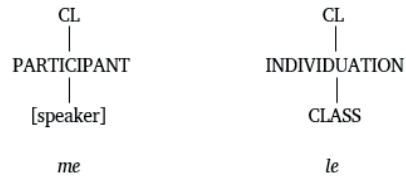


**Figure 10.** Morphological specification of the first person singular and the third person singular accusative pronouns according to Heap & Kaminskaïa (2001: 105).

In contrast with Figure 9, the two structures in Figure 10 have the same amount of morphological specification. Since the masculine and the accusative would receive the default gender and Case (Heap & Kaminskaïa 2001: 15), the 3SG.ACC pronoun, *le*, would have the same amount of morphological specification as the 1SG pronoun. Thus, in the case of morphological underspecification, *le* could interchangeably precede or follow *me* (Heap & Kaminskaïa 2001: 15).

The linear order (DAT + ACC) in (10) (repeated as (25)) would be predicted by the LLL constraint. This order is the reverse of what we observe in the following sentence from Malaussène, which, as mentioned, is located in a more central region of Alpes-Maritimes (example (11), repeated as (26)) (ACC + DAT).

(25) St-Étienne

| | | |
|---|---|---|
| [dˈuna | me | lus] |
| give.IMP.2SG | 1SG | 3PL.ACC |

'Give them to me.'

(26) Malaussène

| | | |
|---|---|---|
| [dunˈa | li | mi] |
| give.IMP.2SG | 3PL.ACC | 1SG |

'Give them to me!'

The linear order in (26) would not be predicted by the LLL constraint, even with underspecification of features. This is because the plural accusative pronoun, *li*, would also be specified for number, which

is represented by [group] in Heap's model (Heap 2005: 90) (see Figure 8 repeated below as Figure 11).[15]

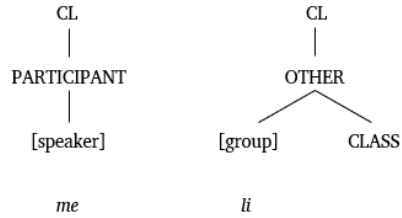


**Figure 11.** Hierarchical representation comparing the first person singular pronoun with the third person plural accusative (using Heap's 2005 model). Mooney (2019: 161).

As shown in Figure 11, even if the 3PL.ACC *li* is not marked for either gender or Case, it is still marked for plural by [group]. Thus, the pronoun *li* has more morphological specifications than the 1SG, *me*, and should follow it according to the LLL constraint. Similarly, for the sentence in (27) the linear order would not be predicted by the LLL constraint, even assuming underspecification of features, because the accusative pronoun would also be specified for gender [feminine] (see Figure 12).

(27) Malaussène

| | | | |
|---|---|---|---|
| [la | mi | sjew | manʤˈa] |
| 3SG.F.ACC | 1SG | be.PRS.1SG | eat.PST.PTCP |

'I ate it.'

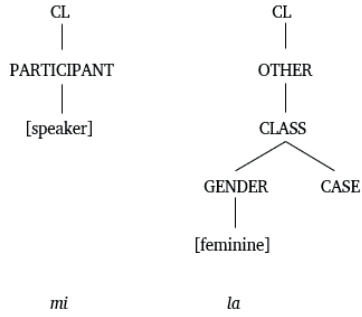


**Figure 12.** Hierarchical representation comparing the first person singular pronoun to the third person singular feminine accusative pronoun. Mooney (2019: 162).

As shown in Figure 12, for the sentence in (27) the accusative pronoun *la* would be marked for feminine and thus would have more morphological specifications than the first person pronoun, *mi*. Thus, according to the LLL constraint, the pronoun *la* should appear further to the right than *mi*. This sort of unexpected linear order is addressed in the next section.

## *7. Combining the LLL constraint with alignment constraints that are based on Case*

We observe that at times the LLL constraint applies, but sometimes it does not, even with underspecification of features. Thus, an additional mechanism is required to account for the linear orders observed in our data. When the LLL constraint does not account for a given linear order, OT would apply. More specifically, the LLL constraint can be used in combination with alignment constraints for either Case or person (Grimshaw 1997, 1999). Combining the two allows one to account for variable linear orders. In other words, one can apply floating (i.e. variably ranked) constraints (Reynolds 1994, see also Anttila 1995)[16] to account for our data (Mooney 2019: 164). There are two constraints, the LLL constraint and an alignment constraint based on Case. The relative ranking of these two constraints can vary.

An analysis for linear orders based on freely reranking alignment constraints would allow for all combinations of linear order, which is not observed (see Heap 2005: 93). A more constrained approach is thus required. In this proposed analysis, when an alignment constraint for grammatical case is ranked higher than the LLL constraint, such a ranking would account for unexpected linear orders such as those observed in (26-27). For these sentences, an alignment constraint for Case (i.e. dative to the right) would have a higher ranking than a constraint stipulating that the LLL constraint be followed (see Grimshaw 1999: 223-225). In (26) such a ranking would allow the 3PL.ACC pronoun, *li*, to precede the 1SG pronoun, *mi*. Similarly, in (27) this same ranking would allow the 3SG.F.ACC, *la*, to precede the 1SG pronoun, *mi*.[17]

For a commune such as Malaussène we observe that the linear orders vary (see examples (1-6)).[18] This represents a transition zone between the linear orders ACC + DAT and DAT + ACC (see Figure 1) and thus these rankings could vary according to the dialect or even for a given speaker.

In Tables 1 and 2 below, the rankings which would produce the linear orders shown in (26) and (27), respectively, are shown. In both

sentences, a ranking stipulating that the dative pronoun must be placed to the right has a higher ranking than one stipulating that the LLL constraint must be followed.

| INPUT: [1DAT +3PL.ACC] | DATIVE TO THE RIGHT | LLL |
|---|---|---|
| a. 1SG + 3PL.ACC<br>*mi li* | *! | |
| b. ☞3PL.ACC + 1SG<br>*li mi* | | * |

**Table 1.** Selection of linear order using an alignment constraint and the LLL constraint: 1SG with 3PL.ACC. Mooney (2019: 165).

| INPUT: [1DAT + 3SG.F.ACC] | DATIVE TO THE RIGHT | LLL |
|---|---|---|
| a. 1SG + 3SG.F.ACC<br>*mi la* | *! | |
| b. ☞3SG.F.ACC + 1SG<br>*la mi* | | * |

**Table 2.** Selection of linear order using an alignment constraint and the LLL constraint: 1SG with 3SG.F.ACC. Mooney (2019: 165).

One could equally have an alignment constraint for grammatical person (see Grimshaw 1999: 223-225). Such a constraint would stipulate that the first or second person pronoun (i.e. the pronoun marked for person) must be placed to the right. As with an alignment constraint for grammatical case, the 1SG pronoun should be placed to the right since the alignment constraint for person would be ranked higher than a constraint stipulating that the LLL constraint must be followed. In both cases, our rankings would produce the same result: The effect of the LLL constraint would be blocked by another constraint having a higher rank.

In this model variable OT would function as an output filter that applies after both the syntactic operations and subsequent morphological operations involving delinking (and insertion) of morphological features (see Bonet 1991, 1993: 93, 1995: 76). These morphological operations would determine a pronoun's morphological complexity. For example, for the 1SG or 2SG pronoun, grammatical case would be represented in the syntax, but not in the morphological form. Variable OT would ultimately determine the linear order of pronouns. As illus-

trated in Table 2, for the linear order in (27), an alignment constraint for grammatical case would rank higher than a constraint indicating that the LLL constraint must be followed. Consequently, the observed linear order ACC + DAT would be chosen.

Sometimes linear orders vary even for a given speaker. For example, for St-Sauveur, we observe an example where the linear order varies between ACC + DAT and DAT + ACC (28). We note that St-Sauveur is located in a region of Alpes-Maritimes where linear orders vary (see Figure 1).

(28) St-Sauveur

| | | | | | | |
|---|---|---|---|---|---|---|
| [lu | li | d'iw | / | i | lu | d'iw] |
| 3SG.ACC | 3SG.DAT | tell.PRS.1SG | | 3SG.DAT | 3SG.ACC | tell.PRS.1SG |

'I tell him.'

For the sentence in (28) we observe the reverse order (DAT + ACC) when using the locative form, [i]. Nevertheless, we note that throughout Alpes-Maritimes there is free variation between the form of the locative, *i,* and that of the 3SG.DAT, *li*. According to the LLL constraint, in the case where the accusative pronoun follows the dative it must be fully specified for gender (Figure 13; see also Figure 5).

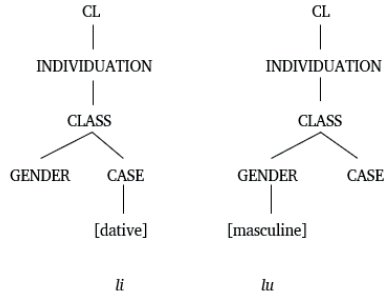


**Figure 13.** Morphological specification of the third person accusative and dative pronouns according to Heap & Kaminskaïa (2001: 111).

It remains to be seen whether the two forms, *i* and *li*, would be represented by the same feature geometry. If so, the LLL hypothesis would predict either linear order, i.e. variation between the two. As noted following examples (17-18), adverbial pronouns such as the locative *y* (or *hi* in Catalan) as well as the partitive *en* should have additional features for Case and should thus be placed further to the right in pronominal sequences than the 3.DAT (Heap 2005: 98, note 11). However, for the

sentence in (28) we find the reverse order: it is the form *i* which precedes the 3SG.ACC, *lu*, while the form *li* follows it. Thus, one cannot account for the reverse linear order in the second sentence (*i lu*) using the LLL constraint.

It would also not be possible to account for the linear order of example (19a), repeated here as (29):

(29) Nissart

| *Lou* | *si* | *manja* |
|---|---|---|
| 3SG.ACC | 3SG.REFL (ethical dative) | eat.PRS.3SG |

'He/She eats it' (Gasiglia 1984: 157).

Being the least specified clitic, the reflexive pronoun is only marked as 'clitic' and is not marked for Case (see Figure 3 as well as the description following Figure 2). An OT model which relies upon Case would thus not be able to account for the linear order in (29).

To summarize, within the framework of variable OT, one can use feature geometries (including feature underspecification) in combination with the LLL constraint to account for variable and invariable linear orders in most cases, but not for all of the examples observed in our data.

## *8. Conclusions*

We analyzed the pronominal systems in Alpes-Maritimes in terms of pronominal linear orders (ACC + DAT, DAT + ACC, or variable) for the communes investigated and observed that our results are mostly similar to those of Dalbera (1991). Within the framework of OT, I proposed a model to account for linear orders which is based on grammatical case. This model uses feature geometries in combination with Heap's LLL constraint (Heap 1998: 240) to account for linear orders, including variable linear orders. These feature geometries are based on Heap's (2005) model, which, in turn, draws partially upon the models of Harley & Ritter (1998, 2002) and Bonet (1991, 1993). When the combination of feature underspecification and the LLL constraint cannot account for orders that vary, one can resort to variable Optimality Theory (Reynolds 1994; Anttila 1995). In this model, variable OT works as an output filter that is applied after both syntactic transformations and morphological operations. Within the framework of variable OT, constraints such as both the LLL constraint and alignment constraints can have variable rankings. Based on these variable rankings, it is possible to describe most of the linear orders observed in our data. In order to better account for

all of the data we observe, it is possible that additional changes would still be required to either the hierarchical models employed, to the OT model, or to both. In addition, as mentioned in section 2, in order to also account for clitic position, we would require more sample sentences containing pronouns in both the enclitic and proclitic positions.

*Abbreviations*

1, 2, 3 = first, second, third person; ACC = accusative; ART = article; COND = conditional; DAT = dative; F = feminine; FUT = future; IMP = imperative; INF = infinitive; IPFV = imperfective; LLL = Least Leafy to the Left; M = masculine; PL = plural; PRS = present; PST = past; PTCP = participle; REFL = reflexive; SBJ = subject; SG = singular.

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*Notes*

[1] I would like to thank Professor Michèle Oliviéri and Dr. Philippe Del Giudice from the University of Nice Sophia-Antipolis / Centre National de la Recherche Scientifique UMR 6039, 'Bases, corpus, langage'.

[2] See Mooney (2019).

[3] The transcribed oral interviews used as our source of data come from the PAM (Parlers des Alpes-Maritimes, Dalbera 1994) notebooks. These interviews were performed between 1972 and 1981.

[4] The handwritten notebooks were transcribed into a database using Doulos SIL characters. We used an optical scan of typed questionnaires and hand-transcribed material. The transcriptions were checked five times and each transcription was also verified by videoconference between David Heap, Michèle Oliviéri (specialist in Occitan syntax), Philippe del Giudice (native speaker and lexicographer of Occitan), and Robert Mooney to discuss the handwritten data.

[5] For examples (1-3) it remains to be determined if the form [ɔw] actually represents the neuter clitic. If so, one would expect that the order with respect to the dative clitic be the reverse of the order with other third person clitics. In Mallorcan Catalan, 3rd person accusative clitics precede the dative clitic whereas the neuter (accusative) clitic follows it (Bonet 1991: 74).

[6] Malaussène represents one of twenty-three communes that Dalbera (1994) investigated. As noted, we have data for nineteen of these communes.

[7] Brackets are included for our own transcribed data, which uses IPA phonetic symbols.

[8] The linear order in Menton differs from other communes in the region. Mentonnais differs in that it is a sub-dialect of Ligurian (Michèle Oliviéri, personal communication).

[9] The original sentence in French that the participant was asked to translate into the local dialect of Occitan was *Nous te le dirions* (example (a)). However, according to Michèle Oliviéri and Philippe del Giudice, the participant's response in (8) would better translate back to French as *Nous te le disions* (example (b)).

| | | | | | |
|---|---|---|---|---|---|
| *a.* | *Nous* | *te* | *le* | *dirions.* | (French) |
| | SBJ.1PL | 2SG | 3SG.ACC | tell.COND.1PL | |
| | 'We would tell you.' | | | | |
| b. | *Nous* | *te* | *le* | *disions.* | (French) |
| | SBJ.1PL | 2SG | 3SG.ACC | tell.IPFV.1PL | |
| | 'We told you.' | | | | |

[10] Heap (2002) proposes a hierarchical model to account for pronoun paradigms of object clitic pronouns in Spanish. He argues that any theory seeking to eliminate unobserved combinations of features would require hierarchical relations between monovalent features. In contrast with analyses using binary matrices, Heap's (2002) proposal avoids a potential overestimation of pronominal inventories.

[11] As with Harley & Ritter (2002: 482), in Heap's geometrical model:

i. The interlinguistic variation, gaps in pronominal paradigms, and syncretisms are constrained by the hierarchical organization of features (Heap 2005: 90).

ii. The interpretation of sub branches of the geometry can be 'relativized' in a restricted way such that the interpretation of a language specific feature depends in part on the contrasts existing within the feature system of that language (Heap 2005: 90; Heap 1998: 1; Heap 2002: 482).

[12] Bonet also observes that for standard Catalan the order is the reverse with the opaque form *hi*: *els les* (DAT + ACC) vs *les hi* (ACC + DAT) (Bonet 1993: 88). As Bonet notes, "while in combinations with a third person dative plural clitic the surface order is dative > accusative, when the third person dative clitic is singular (when the opaque forms arise), the order is accusative > dative" (Bonet 1993: 88).

[13] Examples (17-18) correspond to the standard version of different dialects (ex. Valencian and Mallorcan). They are both only acceptable in the standard language, to which Yates is referring (see Bonet's morphological templates for standard Catalan vs Mallorcan and Valencian; Bonet 1991: 74).

[14] Provençal Varois is not one of the dialects in our study. Domenge (1999) analyzes Provençal Maritim grammar in his book entitled *Grammaire du provençal varois*. This refers to the variety spoken in Le Var, which is located immediately to the west of the department of Alpes-Maritimes (the region of our study).

[15] For the sentence in (26) the form of the 3PL.ACC, *li*, resembles that of the 3.DAT as well as the form of the locative pronoun.

[16] In the context of floating constraints, it is possible that a particular constraint may be used within a certain range between W and Z, without specifying its exact ranking relative to another Y constraint (or Y1, Y2 constraints etc.) which also lies between W and Z (Reynolds 1994: 116).

[17] The ranking constraints would function equally well for an alignment constraint stipulating that the accusative must be placed on the left.

[18] "Currently, in the spoken language, the village's niçois is evolving quite a bit towards DAT + ACC. The order varies." (Del Giudice, personal communication).

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