



Partially ordered case hierarchies

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Abstract

I argue that patterns of case syncretism across languages can be modelled by partially, rather than totally, ordered case hierarchies. Partially ordered case hierarchies avoid the need for postulating multiple instances of the same case while retaining case contiguity in the representation of case syncretism. I discuss data from three languages in which differential object marking is syncretic with dative and show that partially ordered hierarchies capture these and other patterns of syncretism in line with some of the conclusions reached by Harðarson (2016) and Zompì (2019) about cross-linguistic patterns of case syncretism.

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Caha (2009: 18) proposes that non-accidental case syncretism can be modelled by contiguous stretches on what he calls the “case sequence”, shown in (1) (see also Blake 2001: 89, 155–160; “accidental” syncretisms are the result of phonological processes, for example; see Caha 2009: Ch. 8; Zompì 2019). Caha’s hypothesis is that the sequence or hierarchy in (1) correctly describes that accusative and genitive can be syncretic but nominative and genitive cannot be (Caha 2009: 11). This generalisation is called “case contiguity”.

- (1) The case sequence (Caha 2009: 18)
nominative – accusative – genitive – dative – instrumental – comitative

More abstractly, the generalisation that two syncretic cases cannot be separated by another, non-syncretic case on a sequence such as (1) is an instance of the phenomenon known as *ABA, where “A” refers to the identical exponents of two cases, while “B” refers to an intervening case with a different exponent (see e.g. Bobaljik 2012; Caha 2013; 2017; 2019; Harðarson 2016; Starke 2017; Bobaljik & Sauerland 2018; McFadden 2018; Smith et al. 2019; Zompì 2019; Irimia 2020).

It has become clear, however, that certain patterns of syncretism do not straightforwardly fit the hierarchy in (1). Harðarson (2016), for example, argues for a “weak” version of case contiguity and suggests that languages can order certain cases, in particular genitive, in different ways, without losing too much of the restrictiveness of Caha’s (2009; 2013) approach.

A second type of modification has been proposed by Starke (2017) and is discussed by Caha (2019); Irimia (2020) (see also Caha 2009: 125–130 for an earlier, similar idea). Addressing the position of genitive in the case sequence as well, Starke (2017) proposes that rather than genitive “changing place” with respect to accusative and dative, genitive remains fixed in the sequence but is surrounded by different accusatives and datives, as shown in (2).

- (2) Partial case sequence (Starke 2017: 5)
NOM – SACC – SDAT – ... – GEN – BACC – BDAT

In (2), there are two accusatives and datives, one marked with “S” for “shifted”, “structural”, or “smaller” and one with “B” for “base” and “bigger” (Starke 2017: 4). Positing two accusatives allows Starke to account for syncretism of NOM and SACC as well as syncretism of BACC and BDAT. This maintains case contiguity and avoids an *ABA pattern, but crucially only because there are two accusatives and datives. Part of the empirical motivation for positing two accusatives and datives comes from differential object marking (DOM) in Spanish (Torrego 1998; Aissen 2003; Cuervo 2003; Leonetti 2004; 2008; López 2012; Fábregas 2013; Bárány 2018; Pineda 2020) among many others), where direct objects alternate between zero-marking and being expressed with the marker *a*, which also serves as a dative marker. Neither is syncretic with the genitive preposition *de* ‘of’.

Spanish DOM and dative are illustrated in (3). In (3), an inanimate direct object appears without any case marking. In Starke’s (2017) terms, this means that the form of SACC is identical to that of NOM. In (3b), the definite, animate direct object is preceded by the marker *a*. An identical exponent marks the recipient argument in (3c). In Starke’s (2017) terms, (3b,c) illustrate that BACC is syncretic with BDAT.

- (3) Spanish (Bárány 2018: 1)
- a. Yo veo el libro.
I see the book
‘I see the book.’
 - b. Yo veo a la mujer.
I see the DOM the
‘I see the woman.’
 - c. Yo le doy el libro a la mujer.
I CL.DAT give the book DAT the woman
‘I give the book to the woman.’

Similarly, Irimia (2020) discusses languages in which DOM is syncretic with another case, for example locative in Romanian (*pe*) and dative in Gujarati (*-ne*) and varieties of Basque (*-ri*; Odria 2014; 2019). For Gujarati, Irimia (2020) proposes the hierarchy or sequence in (4) with two absolutive cases (note that while Starke’s hierarchy is still proposed to be universal, with languages making different choices of which cases are spelled out, this is less clear for Irimia’s).

- (4) Proposed case sequence for Gujarati (Irimia 2020: 41)
 ABS₁ – ERG – LOC₁ – GEN – ABS_{2(DOM)} – DAT – ABL – ...

Gujarati is a split-ergative language. In the perfective aspect, subjects of transitive verbs (A) are marked ergative, while intransitive subjects (S) and transitive objects (P) are generally morphologically unmarked, or absolutive (for the labels A, S, and P, see e.g. Comrie 1989; Croft 2003). In the imperfective aspect, case-marking is neutral, meaning that A, S, and P generally appear in the absolutive (Cardona 1965: 168–170). However, in both aspects, the transitive direct object (P) can be marked with the differential object marker *-ne*; direct objects thus alternate between a morphologically unmarked form and DOM.

This DOM marker is syncretic with dative case (*-ne*). The syntactic behaviour of morphologically marked direct objects is distinct from that of true dative objects, however (see Section 2). Irimia (2020) takes this as evidence that DOM and dative objects are merely morphologically identical but represent different syntactic objects. This is the main motivation for positing a second ABS in (4) which is adjacent to DAT, rather than analysing the case of direct objects as dative. In addition, Gujarati also shows syncretism of ergative, locative and instrumental case, all spelled out as *-e* (Mistry 2004).

A third suggestion about how to account for patterns of syncretism in light of counterevidence to (1) is Zompì’s (2019) proposal that the case sequence orders classes of cases, rather than cases themselves, with respect to each other. This is shown in (5), where clausal unmarked cases are nominative and absolutive, clausal dependent cases are accusative and ergative, and inherent cases are all others (apart from genitive). In each class in (5), cases need not be (totally) ordered with respect to each other. The hierarchy in (5) underlies the generalisation in (6).

- (5) Universal containment hierarchy (Zompì 2019: 23)
 CLAUSAL UNMARKED ⊂ CLAUSAL DEPENDENT ⊂ INHERENT

- (6) Zompì (2019: 5)
 A non-accidental syncretism cannot cover both the nominative/absolutive and an oblique case (other than the genitive) without also covering another core structural case (accusative or ergative).

1.1 The proposal in a nutshell

In this paper, I also propose an analysis of patterns of syncretism that does not presuppose a total order on a case hierarchy but which nevertheless retains case contiguity. I suggest that rather than conceiving of a case sequence as a total order, it can be thought of as a **partially ordered set** (or **poset**) such that not *all* elements of the case “hierarchy” need to be ordered with respect to each other (Figure 1; see also Bárány 2016; Graf 2019).

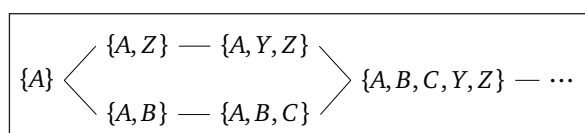


Figure 1 An example of a partially ordered set.

Figure 1 represents a set partially ordered by a subset relation (\subset ; throughout, I use the symbol “ \subset ” to indicate the proper subset relation and “ \subseteq ” to indicate the subset relation). The nodes represent sets of features. The leftmost set, $\{A\}$, is a subset of all other sets in Figure 1, but not all sets are ordered with respect to each other by the subset relation. For example, while neither $\{A, Z\}$ nor $\{A, B\}$ is a subset of the other set, both are (proper) subsets of $\{A, B, C, Y, Z\}$, the rightmost set in Figure 1. Elements that are not ordered with respect to each other, such

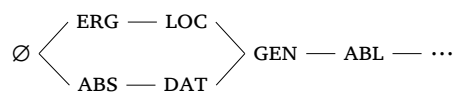
as $\{A, Z\}$ and $\{A, B\}$, are called **incomparable**. Elements that are ordered with respect to each other, such as $\{A\}$ and $\{A, Z\}$, are called **comparable** (Partee, Meulen & Wall 1990: 278).

Partially ordered sets can be used to account for case syncretisms. Rather than duplicating cases on a totally ordered hierarchy, a hierarchy can be “split” into branches. The elements of two distinct branches are incomparable to, that is not ordered with respect to, each other, but they are comparable to, that is ordered with respect to, other elements not on those branches. Again, $\{A, Z\}$, $\{A, B\}$, and $\{A, B, C, Y, Z\}$ in *Figure 1* illustrate this. This allows for maintaining contiguity between syncretic cases by not ordering them with respect to cases that intervene on totally ordered hierarchies. More concretely, rather than ordering Gujarati’s cases as in (4), repeated here, they can be ordered as in (7) to account for the actual case paradigm of Gujarati, maintaining strict contiguity of the empty set \emptyset and ABS on the one hand, and ABS and DAT on the other.

(4) Proposed case sequence for Gujarati (Irimia 2020: 41; repeated)

ABS₁ – ERG – LOC₁ – GEN – ABS_{2(DOM)} – DAT – ABL – ...

(7) Partially ordered Gujarati case sequence (to be revised)



The hierarchies proposed in this paper are an abstract representation of cases and their underlying features which are related to surface forms by spell-out rules. In this system, syncretism arises through underspecification, when one vocabulary item can spell out several sets of features. Underspecification can be part of the system as a whole (e.g. two forms being syncretic in all contexts) or the result of the application of **impoverishment rules**. These two sources of syncretism are not redundant, however, as only syncretism through impoverishment leads to alternations, namely differential object marking in the context of this paper.

This approach naturally models a scenario in which syntactic objects with different morphological forms show identical syntactic behaviour, because they are of the same underlying type. I will argue that this is the case for direct objects in Gujarati, Basque, and Spanish, motivating that they are associated with a single level on a hierarchy.

This contrasts with Starke’s (2017) and Irimia’s (2020) hierarchies. These capture patterns of syncretism and maintain case contiguity, but at the price of positing structural (or dependent) cases in between inherent (or oblique) ones, resulting in hierarchies that do not conform to Zompì’s (2019) universal containment. At least Starke’s (2017) hierarchy also seems to be intended as a (universal) underlying representation (Starke 2017: 1, 4, fn. 2), the levels of which are spelled out differently in different languages (Starke 2017: 5). If so, I believe the data discussed in this paper provide strong evidence against positing two distinct underlying representations of ACC. But even if one takes Starke’s (2017) and Irimia’s (2020) hierarchies to be surface representations, they do not conform to Zompì’s (2019) universal containment because they interleave structural and inherent cases.

The partially ordered hierarchies described below fare better in this respect. First, two distinct morphological forms can be associated with one underlying syntactic object. Second, this approach captures the patterns of syncretism of DOM and dative case in Gujarati, Basque, and Spanish just like approaches based on total orders (see e.g. Bárány 2018), but it also captures ERG = LOC syncretism in Gujarati, while maintaining case contiguity (avoiding *ABA patterns) and universal containment. Finally, by “branching off” certain cases, genitives can be included in partially ordered case hierarchies in a systematic way. While the hierarchies shown below are compatible with Zompì’s (2019) generalisation in (5), they can vary from language to language, based on the respective case paradigm of a language, as in Harðarson (2016).

In the remainder of this paper, I will argue in favour of partially ordered case hierarchies in more detail. The outline of the argument is as follows. The data in Section 2 indicate that morphologically unmarked and DOM objects show identical syntactic behaviour and that they behave differently from other syntactic relations, such as subjects and indirect objects, even if they are syncretic with them.

I take this to mean that both unmarked and DOM objects are direct objects. In Section 3, I therefore analyse morphologically unmarked and DOM objects as representing the same syntactic relation and being associated with the same underlying Case which can be spelled out in different ways. Finally, I show that partially ordered case hierarchies successfully account for these patterns while conforming to Zompì's (2019) universal containment.

2 Data

In a number of languages DOM has the same morphological expression as dative case (see Manzini & Franco 2016; Bárány 2018; Irimia & Pineda 2019). In this section, I discuss Gujarati, Basque and Spanish (in this order). For each language, my aim is to demonstrate that objects in these languages show similar syntactic properties.

I argue that, first, both DOM objects and morphologically unmarked objects show identical syntactic behaviour, independently of their morphological form and, second, that the behaviour of these objects is typical of direct objects and distinguishes them from other syntactic relations such as subjects and indirect objects, even when syncretic.

I will argue in Section 3 that these characteristics motivate identifying both morphologically unmarked and DOM direct objects as relations typically encoded by ABS in ergative-absolutive languages and ACC in nominative-accusative languages. Therefore, they represent the spell-out of ABS or ACC on case hierarchies, respectively.

2.1 Gujarati

Gujarati (Indo-Aryan) is a split-ergative language with overt markers of ergative (-e), locative (-e), dative (-ne), genitive (-n + AGR), as well as DOM, spelled out as -ne, like dative (see [Table 1](#) and Comrie 1984; Mistry 1997; 2004; Grosz & Patel-Grosz 2014; Irimia 2020). Unmarked noun phrases are often referred to as absolutive.

Case	Suffix
Absolutive	-∅
Ergative	-e
DOM	-ne
Dative	-ne
Genitive	-n-AGR
Locative	-e

Table 1 Case markers in Gujarati (adapted from Mistry 2004: 2).

Gujarati also has a complex agreement system (Comrie 1984; Mistry 1997; Grosz & Patel-Grosz 2014). Addressing it in detail goes beyond the scope of the present paper, but agreement is relevant in two respects. First, it can distinguish the behaviour of different arguments marked with -ne. In contrast to Hindi-Urdu, where only morphologically unmarked noun phrases can control agreement (Saksena 1981; 1985; Comrie 1984; 1985; Mohanan 1990; 1994; Bhatt 2005; Butt 2006), morphologically marked direct objects can control agreement in Gujarati, as shown in (8).

- (8) Gujarati (Comrie 1984: 862)
- a. Svati-e kagəL vāc-y-o.
 Svati(F)-ERG letter(M) read-PFV-M
 'Svati read a letter.'
- b. Raju-e Svati-ne jo-y-i.
 Raju(M)-ERG Svati(F)-DOM see-PFV-F
 'Raju saw Svati.'

Examples (8a,b) are in the perfective aspect, with ergative subjects (-e). In (8a), the direct object is morphologically unmarked and controls gender agreement. The verb references the

object's masculine gender rather than the subject's feminine gender. In (8b), the proper name object *Svati-ne* is morphologically marked but still controls gender agreement. Ergative noun phrases never control agreement (Comrie 1984; Mistry 1997).

The suffix *-ne*, glossed as DOM in (8), is also the exponent of dative. In constructions with dative arguments, as in (9) and (10), the dative cannot control agreement, however, independently of aspect.

- (9) Gujarati (Mistry 2004: 7)
- a. Kišor khub kašTaa-y-o.
Kišor(M) much be.pained-PFV-M
'Kishor was greatly pained.'
- b. Kišor-ne khub kašTa tha-y-ũ.
Kišor(M)-DAT much pain(N) happen-PFV-N
'Kishor was greatly pained.'
- (10) Kutchi Gujarati (Grosz & Patel-Grosz 2014: 230)
- a. Reena-ne kutro gam-th-o.
Reena(F)-DAT dog(M) like-IPFV-M
'Reena used to like a/the dog.'
- b. Reena-ne kutro gam-y-o.
Reena(F)-DAT dog(M) hit-PFV-M
'Reena liked a/the dog.'

The crucial contrast lies in examples such as (8b) versus (9b) and (10). Objects with the DOM suffix *-ne* can control agreement, while datives with *-ne* cannot. Following Mistry (1997; 2004); Grosz & Patel-Grosz (2014), and in particular Irimia (2020), I take this to mean that *-ne* represents the syncretic spell-out of two underlyingly different syntactic objects. In addition, the unmarked object *kagəL* in (8a) can also control agreement on the verb, showing that morphologically unmarked objects ((8a)) and objects with DOM ((8b)) behave alike, to the exclusion of dative-marked arguments (see also Mistry 1997: 432).

The second relevant aspect of agreement is that it also distinguishes between subjects and objects. Grosz & Patel-Grosz (2014: 222) argue that Kutchi Gujarati (and potentially other varieties of Gujarati, too) have two φ -probes, one on T and a second, lower one on *v* or Asp. In (11), the auxiliary spells out agreement with the subject while the participle spells out agreement with the object. Note that it does not matter whether the object shows DOM or not, it triggers the same type of agreement, suggesting that both types of objects are in a relation with *v*. Indeed, Grosz & Patel-Grosz (2014: 241) conclude that DOM "appears to be connected to abstract (accusative) case licensing by *v*".

- (11) Kutchi Gujarati (Grosz & Patel-Grosz 2014: 222, Pritty Patel-Grosz, p.c.)
- Hu chokra(-ne) jo-y-a ha-is.
I boys-DOM see-PFV-PL AUX-FUT.1SG
'I will have seen the boys.'

In sum, Kutchi Gujarati agreement patterns show that direct objects pattern together, independently of DOM, and that both types pattern differently from indirect objects as well as subjects (see Grosz & Patel-Grosz 2014 for more detailed discussion). This is strongly indicative of a distinct type of syntactic relation (direct object) which, independently of its morphology, shows characteristic syntactic behaviour that crucially differs from that of other syntactic relations, even if their expression is syncretic.

Passivisation, another potential test for identifying syntactic relations, is not very productive in Gujarati (Pritty Patel-Grosz, p.c.), so my conclusions here rest on the agreement data. However, I am not aware of any evidence that the morphologically unmarked and DOM objects would represent anything other than direct objects, and so I conclude that they are (in line with the literature). Gujarati thus illustrates the characteristics mentioned in the introduction to this section: morphologically unmarked and DOM objects behave alike, as direct objects, and these direct objects behave differently from other syntactic relations.

Odria (2014; 2019) shows that in some southwestern varieties of Basque, direct objects are either morphologically unmarked (ABS) or appear with the case marker *-ri*. Odria argues that *-ri* is the syncretic expression of DOM and dative case based on the different syntactic behaviour of direct and indirect objects with *-ri*.

One such difference is an argument's ability to control depictive secondary predicates. Odria (2014) points out that indirect objects cannot control depictive secondary predicates while direct objects can. In (12a), the ergative subject *ni-k* 'I-ERG' and the absolutive object *umea* 'child' can control the secondary predicate *pozik* 'happy', but the dative *amona-ri* 'grandmother-DAT' cannot. In (12b), in contrast, the direct object *zu-ri* 'you-DOM' can control the secondary predicate. This difference thus cannot be due to the morphology of *-ri*.

- (12) Southwestern Basque (Odria 2014: 294–295)
- a. Ni-k_i amona-ri_j umea_k pozik_{i/rj/k} eraman
I-ERG grandmother-DAT child.ABS happy carry
d-i-o-t.
TM-(root)-DF-TSG.DAT-1SG.ERG
'I have carried the child to the grandmother [happy].'
- b. Ni-k zu-ri_i pozik_i ikusi d-o-t-zu-t.
I-ERG you-DOM happy see TM-root-DF-2.DAT-1SG.ERG
'I have seen you happy.'

Other arguments for treating *-ri* as DOM rather than dative case come from its sensitivity to person in certain varieties and its behaviour in ditransitive constructions. Odria (2014: 297–300) shows that in Zumaia Basque first and second person direct objects are marked with *-ri*, (13), but third person objects are not. In other varieties, third person objects can be marked with *-ri* as well, as long as they are human and definite. These patterns are typical of DOM, but not of datives.

- (13) Zumaia Basque (Odria 2014: 297–298)
- a. Zu-k ne-i ekarri d-i-a-zu.
you-ERG I-DOM bring TM-(root)-DF-1SG.DAT-2.ERG
'You have brought me.'
- b. Ni-k zu-ri ekarri d-i-zu-t.
I-ERG you-DOM bring TM-(root)-DF-2.DAT-1SG.ERG
'I have brought you.'

In ditransitives, where the recipient argument is marked with dative *-ri*, however, the same direct objects that are marked in (13) lose DOM, as shown in (14).

- (14) Southwestern Basque (Odria 2014: 304)
- a. Traidori-k ni etsaia-ri saldu n-a-u-te.
traitor-ERG I.ABS enemy-DAT sell 1SG.ABS-EP-root-3PL
'The traitors have sold me to the enemy.'
- b. Traidori-k zu etsaia-ri saldu z-a-itx-u-zte.
traitor-ERG you.ABS enemy-DAT sell 2.ABS-EP-root-3PL
'The traitors have sold you to the enemy.'

This behaviour of DOM objects is also found in Hindi and Spanish (Bhatt & Anagnostopoulou 1996; Ormazabal & Romero 2013; Odria 2014). Crucially, in all of these languages, it is the direct object that loses its case marker, never the indirect object. This distinguishes the direct from the indirect object syntactically and again shows that direct objects can be morphologically marked or unmarked. In addition, in varieties of Spanish, Hindi and Basque, DOM is optional in ditransitive constructions even on direct objects that would otherwise require DOM. I will not provide an analysis of this phenomenon here, but it could be captured by Richard's (2010) "distinctness".

In sum, the data shown here suggest that DOM objects in Basque do not pattern syntactically with dative objects but rather with unmarked absolutive objects (Odria 2014: 310). I concur

with Odria's (2014) assessment that both absolutive and DOM objects are syntactically canonical direct objects.

Thus Basque shows the same characteristic properties as Gujarati with respect to DOM and dative case. Morphologically unmarked and DOM objects that behave alike syntactically. They are direct objects whose syntactic behaviour can be distinguished from that of other syntactic relations, for example with respect to person sensitivity and being able to control secondary predicates.

2.3 Spanish

It has been argued that the marker *a* is the syncretic spell-out of distinct underlying structures representing DOM and dative objects, respectively, rather than a single type of syntactic structure (see e.g. Bresnan 1982; Odria 2014; Bárány 2018; López 2018; Irimia 2020; Muñoz Pérez 2020; see Manzini & Franco 2016 for a dissenting view). Odria (2014); Bárány (2018) in particular argue that not only is DOM in Spanish not dative, but that DOM patterns syntactically with morphologically unmarked direct objects.

A clear illustration of this comes from passivisation. Examples (15a–c), the passive counterparts of (3a–c), show that passivising direct objects with or without DOM is possible, (15a,b), while passivizing dative objects is not, (15c).

- (15) Spanish (Bárány 2018: 4)
- a. Theme passive
El libro fue visto.
the book was seen.M
'The book was seen.'
 - b. Theme passive
La mujer fue vista.
the woman was seen.F
'The woman was seen.'
 - c. *Recipient passive of a ditransitive
*La mujer fue dada el libro.
the woman was given.F the book
intended: 'The woman was given a book.'

In addition to Bárány's (2018) data in (15), (16) shows that a theme passive of a ditransitive is also possible (in contrast to the recipient passive in (15c)). (16) is modeled after the active examples (52) and (53) in Ormazabal & Romero (2007) in which DOM is obligatory for the direct object *a los sospechosos*.

- (16) Spanish (V́ctor Acedo-Matellán, p.c.), Theme passive of a ditransitive
Los sospechosos fueron entregados a la polića.
the suspects were handed.over.M.PL DAT the police
'The suspects were handed over to the police.'

Passives therefore distinguish DOM objects from dative objects and group morphologically marked and unmarked direct objects together.

Demonte (1987; 1988); Odria (2014; 2019); Bárány (2018); López (2018) provide further evidence that morphologically unmarked and DOM objects differ from DAT objects. Demonte (1987; 1988); Odria (2014; 2019) show that direct objects (with or without DOM) can control secondary predicates (like in Basque), and López (2018) shows that dative case is retained in nominalisations while both unmarked and DOM direct objects are marked by the genitive *de*. Finally, Bárány (2018) argues that passivisation and controlling secondary predication are not tied to thematic roles: the verb *armar* 'to arm' takes a recipient direct object which behaves just like other direct objects in that it can be morphologically unmarked or appear with DOM ((17)), control secondary predication ((18a)), and be passivised ((19)), in contrast to dative recipients in ditransitives.

- (17) Spanish (Bárány 2018: 28)
- a. El gobierno armó el ejercito con pistolas.
 the government arm.PST.3SG the army with pistols
 ‘The government armed the army with pistols.’
 - b. El gobierno armó a los soldados con pistolas.
 the government arm.PST.3SG DOM the soldiers with pistols
 ‘The government armed the soldiers with pistols.’
- (18) Spanish (Bárány 2018: 29)
- a. El capitán armó a María_i borracha_i.
 the captain armed DOM María drunk
 ‘The captain armed Mary_i drunk_i.’
 - b. *El capitán dió armas a María_i borracha_i.
 the captain gave weapons DAT María drunk
 intended: ‘The captain armed Mary_i drunk_i.’
- (19) Spanish (Bárány 2018: 28)
- Los soldados fueron armados por el gobierno con pistolas.
 the soldiers were armed.PL.M by the government with pistols
 ‘The soldiers were armed by the government with pistols’.

Like Gujarati and Basque, Spanish shows characteristic properties of languages with DOM/DAT syncretism. The language has DOM and morphologically unmarked and DOM objects which behave alike syntactically, like direct objects. These direct objects behave differently from other, syncretic, syntactic relations.

2.4 Interim summary

In this section, my aim was to show that Gujarati, Basque and Spanish all show similar properties, characteristic of languages with DOM and dative syncretism. All have a syntactic relation that corresponds to direct objects which can be morphologically unmarked or be spelled out as DOM and in all three languages these objects show strikingly different syntactic behavior from other syntactic relations such as subjects or objects even when syncretic. The properties I discussed are summarised in [Table 2](#).

	∅-object	DOM object	DAT object
Gujarati			
• object agreement	✓	✓	*
Basque			
• controlling secondary predicates	✓	✓	*
• person sensitivity	✓	✓	*
• loss of case in ditransitives	N/A	✓	*
Spanish			
• passivisation	✓	✓	*
• controlling secondary predicates	✓	✓	*
• loss of case in ditransitives	N/A	✓	*
• <i>de</i> in nominalisations	✓	✓	*

Table 2 Properties of morphologically unmarked (∅), DOM, and dative objects in Gujarati, Basque and Spanish. ✓ indicates participating in an operation, * indicates failure to do so. “N/A” indicates that ∅-objects, being morphologically unmarked, cannot lose their morphological case.

I am not aware of any evidence that would suggest that these direct objects differ in their syntax from typical absolutive or accusative objects in ergative-absolutive and nominative-accusative

languages.¹ This view is widely held in the literature. Starke (2017); Bárány (2018) refer to both morphologically unmarked and DOM objects as accusative (small and big in Starke 2017), while Odria (2014; 2019) and Irimia (2020) characterise both as being like absolutive direct objects.

In the following section, I develop an analysis that retains case contiguity and case containment while capturing both the identical syntactic behaviour of morphologically unmarked and DOM objects and their patterns of syncretism.

3 Analysis

In this section, I show how partially ordered case hierarchies can capture the patterns of syncretism reviewed in Section 2 while maintaining case contiguity and conforming to Zompì's (2019) universal containment hypothesis.

The hierarchies proposed here represent underlying sets of case features, from which patterns of syncretism are derived at spell-out. This means that a single case, for example accusative, can underlie two distinct morphological forms. The distinct exponents of morphologically unmarked and DOM objects are a result of impoverishment rules which modify the underlying features before these are spelled out. As I will show, this allows the hierarchies to conform to universal containment and case contiguity and to naturally account for the syntactic behaviour of morphologically unmarked and DOM objects.

I first lay out how partially ordered case hierarchies can account for the data just discussed (Section 3.1) before arguing in more detail that both DOM objects and morphologically unmarked objects represent the same type of object (Section 3.2).

3.1 Modelling partially ordered case hierarchies

The starting point for my proposal is **case decomposition**. Rather than treating “nominative”, “ergative” etc. as atomic, it has often been suggested that these categories are bundles of features. Many analyses of this type, for example those by Bierwisch (1967); Wunderlich (1997); Müller (2002); McFadden (2004), rely on bivalent features, such as [\pm oblique], to distinguish nominative and accusative ([–oblique]) from dative and genitive ([+ oblique]).

Caha (2009: 19–25; 2013: 1024), in contrast, proposes a “cumulative classification” of cases, in which each case in (1) is represented by a set of (abstract) features, as in (20).

- (20) Cumulative classification (adapted from Caha 2009: 21)
- a. NOM = {A}
 - b. ACC = {A, B}
 - c. GEN = {A, B, C}
 - d. DAT = {A, B, C, D}

If each case is a set of features, a case hierarchy can be stated as a total order of sets ordered by the subset relation (\subset). Such sets of features are straightforwardly implemented in the spell-out rules used in Distributed Morphology (DM; Halle & Marantz 1993; Halle 1997; Harley & Noyer 2003; Embick & Noyer 2007; Bobaljik 2011). This is true both when each case is spelled out by a distinct vocabulary item and when two or more cases are syncretic. Consider the two sets of spell-out rules in (21) referring to the case features in (20). In the absence of another spell-out rule referring to DAT in (20), (21a) describes a situation in which the marker *-er* would be inserted for both GEN and DAT. This is due to DM's **subset principle**, which states that a vocabulary item, for example *-er* in (21a), must have a subset of the features of the terminal node it is inserted in (see e.g. Halle & Marantz 1993: 121–122). The single marker *-er* in (21a) thus syncretically spells out GEN and DAT. Note that no impoverishment is necessary here; the set of vocabulary items is merely underspecified. (21b), in contrast, describes two distinct markers for GEN and DAT.

¹ López (2018) discusses different positions of morphologically unmarked and DOM objects in Spanish. He does not take this as an argument that they are not both direct objects, however.

- (21) a. $\{A, B, C\} \leftrightarrow -er$
 b. $\{A, B, C\} \leftrightarrow -es$
 $\{A, B, C, D\} \leftrightarrow -em$

Cumulative classification, as shown in (20), gives rise to a hierarchy totally ordered by the subset relation \subset . As mentioned in Section 1, this order has been argued to be empirically inadequate: taking Spanish as an example, where *a* spells out both DOM and dative but *de* spells out genitive, the syncretism of DOM and dative violates case contiguity if DOM represents accusative.

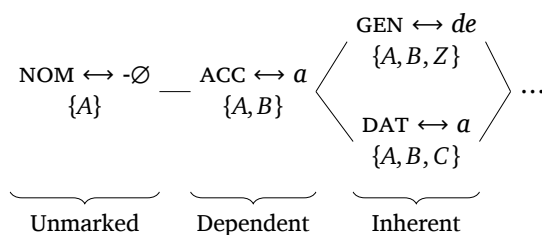
Instead of giving up cumulative classification and ordering by \subset , or adding several instances of accusative and dative, I propose to give up the total ordering of (20), within limits. To restrict the expressive power of the partially ordered hierarchies, I will maintain the general idea behind Zompì's (2019) (5), namely that unmarked cases (NOM, ABS) are ordered before dependent cases (ACC, ERG), which are in turn ordered before inherent cases. More specifically, my hierarchies implement Zompì's (2019) generalisation as stated in (22). This allows for unmarked cases to be subsets of dependent cases, but crucially also for (some) dependent cases to be incomparable to (some) inherent cases.

- (22) Partially ordered hierarchies and universal containment
 Unmarked cases are subsets of dependent cases. No inherent case is a subset of a dependent case.

As for possible DOM syncretisms, this system correctly accounts for syncretism with DAT (as discussed in this paper) but also with INS (as in Kolyma Yukaghir, Maslova 2003; Keine 2010) or GEN (as in Finnish, Kiparsky 2001; Vainikka & Brattico 2014; Poole 2015). In principle, like on Zompì's (2019) approach, DOM could be syncretic with any inherent case, although cross-linguistically DAT seems to be the most frequent choice (Bossong 1991). By maintaining case contiguity the system rules out syncretism of an inherent case with an unmarked case, unless a dependent case is also syncretic (*ABA configurations). In this respect, it is at least as powerful as Starke's (2017) and Irimia's (2020) hierarchies, with the benefit of conforming to Zompì's (2019) universal containment.

Consider (23), a partially ordered hierarchy for Spanish annotated with Zompì's (2019) categories. Since NOM is ordered before ACC and both are ordered before GEN and DAT, (23) conforms to Zompì's (2019) hierarchy, as do all other case hierarchies I propose (see e.g. (25) below). Note finally that, again conforming to Zompì's proposal, different cases in one group such as GEN and DAT in (23), do not have to be comparable to each other.

- (23) Partially ordered Spanish case hierarchy and universal containment



In line with the data in Section 2 and the subsequent discussion, I argue that both morphologically unmarked and DOM objects represent direct objects which typically correspond to ABS or ACC in languages without differential marking. Recall also that the cases on (23) are underlying representations, the features of which can be subject to impoverishment before spell-out.²

² A reviewer points out that impoverishment could lead to *ABA patterns in certain cases. Consider a hierarchy of $\text{NOM} = \{A\} \subset \text{ACC} = \{A, B\} \subset \text{GEN} = \{A, B, C\}$ etc. An impoverishment rule deleting B in the context of C would lead to GEN being represented as $\{A, C\}$. A vocabulary item spelling out $\{A\}$ could then be inserted for both $\text{NOM} = \{A\}$ and $\text{GEN} = \{A, C\}$. If a distinct vocabulary item spells out ACC, the result is an *ABA violation. To avoid such violations, the present proposal provides the solution that a learner confronted with a language exhibiting a non-accidental syncretism of this sort would posit a branching, partially ordered hierarchy, where GEN and ACC are incomparable. This way, non-accidental syncretism through impoverishment would always involve deleting a single case feature and targeting adjacent sets (restricting its power). If a language were to exhibit accidental syncretism of unmarked and oblique cases, impoverishment could derive this, but with more complex rules.

For Spanish, the spell-out of NOM, ACC, GEN, and DAT on the hierarchy in (23) can be analysed as follows. ACC and DAT are now contiguous, without positing two instances of each case, as GEN does not intervene between them. By assigning the cases the features shown in (23), syncretism of ACC and DAT can be straightforwardly implemented in spell-out rules.

The spell-out rules for *de*, the genitive, and *a*, the syncretic form of DOM and dative, are shown in (24).

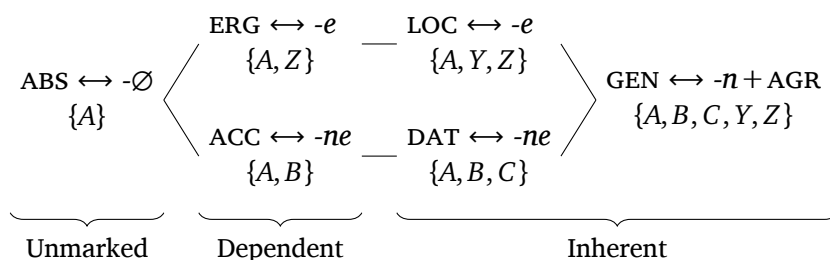
- (24) Vocabulary items for Spanish case markers based
- a. $\{A, B, Z\} \leftrightarrow de$
 - b. $\{A, B\} \leftrightarrow a$

By the subset principle, *a* in (24b) can be inserted for both ACC with the feature set $\{A, B\}$ and DAT with the feature set $\{A, B, C\}$. $\{A, B\}$ is of course also a subset of GEN with $\{A, B, Z\}$, but there is a more specific marker, *de*, which takes precedence over *a*. By giving up the total order of case sequence, this approach to Spanish ACC, DAT, and GEN retains case contiguity, that is it does not derive non-linear case syncretisms (*ABA patterns).

The same approach can account for the more complex patterns in Gujarati and (varieties of) Basque as well. Recall that Gujarati is split-ergative, while Basque is ergative. Both have morphologically unmarked ABS direct objects as well as morphologically marked DOM that is syncretic with dative. Having a morphologically marked direct object case in ergative languages is not very common; such case systems are referred to as “tripartite” because A, S, and P all have distinct morphological forms (see e.g. Deal 2010; Comrie 2013; Baker 2015). Comrie (2013) refers to Hindi–Urdu as a tripartite language because, like Gujarati and Basque, it has DOM in ergative contexts such that both the transitive subject and the object have morphological case-marking. In this respect, Gujarati and Basque differ from Spanish: Spanish only spells out one dependent case (in Zompì’s terminology), ACC. Gujarati and Basque can spell out *two* dependent cases, ERG and ACC. This motivates the inclusion of ABS, ERG, and ACC in the hierarchy in (25) (see Section 3.2) for further discussion).

In Gujarati, ergative and locative are also syncretic. A partially ordered Gujarati case hierarchy is shown in (25), annotated with the spell-out of each marker, its features and Zompì’s (2019) categories.

- (25) Partially ordered Gujarati case hierarchy and universal containment



In (25), not all cases are comparable, or ordered with respect to each other by \subset , hence it represents a partial order. ERG and LOC are incomparable to DAT, while both groups are comparable to ABS and GEN. Crucially, ERG, a dependent case, is ordered before LOC, an inherent one, and DAT does not intervene between ACC and ERG, as ERG and DAT are incomparable. Therefore, no inherent case precedes a dependent case and no dependent case precedes an unmarked case.

The vocabulary items spelling out these cases are shown in (26).

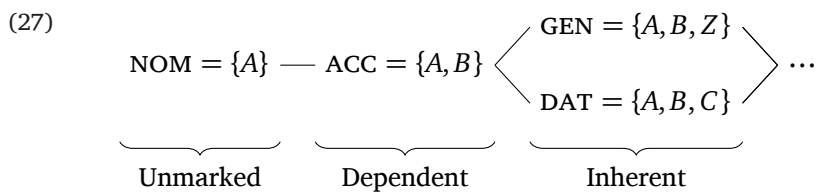
- (26) Vocabulary items for Gujarati case markers based on (25)
- a. $\{A\} \leftrightarrow -\emptyset$
 - b. $\{A, Z\} \leftrightarrow -e$
 - c. $\{A, B\} \leftrightarrow -ne$
 - d. $\{A, B, C, Y, Z\} \leftrightarrow -n + \text{AGR}$

Again, because of the subset principle, the marker *-e*, specified for $\{A, Z\}$, spells out both ERG and LOC, while the marker *-ne*, $\{A, B\}$, spells out both ACC (corresponding to DOM) and DAT.

The Basque syncretism of DOM and dative can be captured in essentially the same way as the Gujarati one: ACC \subset DAT, but both are incomparable to ERG. This makes it possible for a single vocabulary item *-ri* to spell out both DOM and DAT.

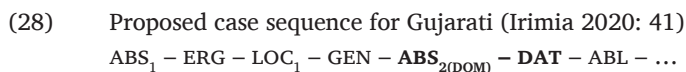
The present implementation of partially ordered case sequences is similar in some respects to Harðarson’s (2016) proposal that case contiguity is weak, Zompì’s (2019) proposal that classes of cases, rather than individual cases, are comparable, as well as Bárány’s (2016) and Graf’s (2019) partial orders. Harðarson’s (2016) hierarchies represent total orders, which may, however, differ across languages. Zompì’s (2019) hierarchy in (5) is universal, but refers to classes of mutually unordered cases. Similarly, Graf (2019) posits different levels on which cases are incomparable.

Partially ordered hierarchies capture the benefits of both Harðarson’s (2016) and Zompì’s (2019) proposals. GEN can appear to be in different orders with respect to ACC and DAT by being unordered relative to DAT, as in (27) (repeated from (23)).



Different vocabulary items can determine whether, for example, ACC and DAT are syncretic (as in Spanish) or ACC and GEN are syncretic (see Caha 2009 on some Russian inflection classes). Both types can be captured by the same sequence.

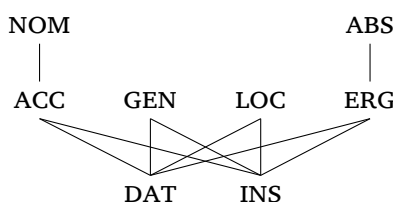
At the same time, partially ordered hierarchies are compatible with Zompì’s (2019) generalisations about classes of cases and syncretism in (5) and (6), in contrast to Starke’s (2017) and Irimia’s (2020) hierarchies. Consider Irimia’s hierarchy for Gujarati again (repeated from (4)):



(28) has a stretch of interleaved dependent and oblique cases and therefore does not conform to Zompì’s (5). The partially ordered hierarchy in (25), in contrast, implements Zompì’s universal containment and retains the restrictive power of Zompì’s generalisation.

An earlier version of Zompì’s proposal, based on the data in Zompì (2017), is characterised by Graf (2019: 19) as being “both too permissive and too restrictive”. Graf (2019: 20–21) instead proposes a partial order with groups of incomparable cases organised on three levels, crucially not ordering ACC, ERG, GEN, and LOC with respect to each other (note that Graf includes NOM, ABS, as well as ACC and ERG). These layers are shown in (29). Graf (2019) proposes the generalisation in (30), banning certain “parallel” syncretisms between the second and third layers of (29).³

(29) Case layer hierarchy (Graf 2019: 20)



(30) Ban against multiple cross-level case syncretisms (Graf 2019: 22)
 No case paradigm may display two distinct syncretism patterns A–X and B–Y such that A and B belong to the second case layer and X and Y to the third.

³ I am focusing on Graf (2019) because Bárány’s (2016) proposal does not go into any detail about the general structure of partial hierarchies; Bárány simply raises the possibility that they could allow for modelling certain instances of DOM/DAT syncretism.

Graf (2019: 22) correctly points out that (29) and (30) restrict the power of partial orders. My proposed hierarchies are as permissive as Graf's layers; they could also be supplemented by a ban such as (30).

Finally, another potential advantage of the present proposal lies in the mapping of cases on the hierarchy to their morphological expression. In the case of Spanish, a single ACC case underlies two different morphological forms of direct objects, in contrast to Starke's (2017) two. This is advantageous, because, as Zompì (2019: 15) points out, Starke's (2017) hierarchies both over- and undergenerate. In addition, being associated with a single underlying case makes sense in light of the syntactic behaviour of direct objects with and without DOM in Spanish.

The situation is somewhat different in Basque and Gujarati, for which I argued that both ABS and ACC can be motivated on the hierarchies. I turn to this point now.

3.2 Direct objects, accusative, and absolutive

In this section, I return to the question of the syntactic relations and the underlying case of the objects discussed in Section 2. I will argue that the relevant objects, be they morphologically marked or not, all represent direct objects and are the (potentially modified) spell-out of an underlying ACC.

The overall logic of my argument is as follows (I am grateful to two reviewers for pushing me to clarify this reasoning). First, if certain syntactic arguments show identical behaviour, it is reasonable to treat them as representing one syntactic relation. Second, if this syntactic behaviour is that of typical direct objects, it is reasonable to assume that the arguments represent that grammatical function and have abstract Case associated with direct objects (ACC). Therefore, third, if morphologically unmarked direct objects and DOM show the same syntactic behaviour, they can be classified as the same syntactic relation and as having the same abstract Case — even if DOM objects are syncretic with another case, namely DAT. I will address these points in turn.

I have interpreted the data in Section 2 as evidence that subjects (morphologically unmarked or ergative) can be distinguished from direct objects (morphologically unmarked or DOM) and indirect objects (dative) in Gujarati, Basque, and Spanish, based on their syntactic behaviour. Unmarked and DOM objects are able to control agreement in Gujarati, they control depictive secondary predicates and show sensitivity to person and animacy in Basque, and they can be passivised and control depictive secondary predicates in Spanish ([Table 2](#)). Recall also that, at least in Spanish, these properties are independent of the thematic role of the object (cf. (17), (18), (19)).

This behaviour is typical of direct objects (although there is some cross-linguistic variation; see Haspelmath 2018 on difficulties of comparison of this sort). For example, passives generally promote a direct (or primary) object to subject (Oehrle 1976; Perlmutter & Postal 1983); in languages with object agreement, direct (or primary) objects are always potential agreement controllers in monotransitive sentences (Faltz 1978; Bárány to appear). The situation with secondary predicates seems to vary more across languages. While Bárány (2018) shows that in Spanish, recipient direct objects (of the verb *armar* 'to arm') can control secondary predicates, this is not true of goal or recipient arguments in English and German in many cases (Williams 1980; Maling 2001). Nevertheless, it is clear from Odria's (2014) data that DOM objects, even though they are syncretic with dative, behave like morphologically unmarked objects, and *not* like datives. Thus, depictive secondary predicates do work as a diagnostic for whether morphologically unmarked and DOM objects behave alike, as typical direct objects.

What about the (abstract) Case of these objects? In nominative–accusative languages, ACC is taken to be the abstract Case associated with direct objects ("objective" in Chomsky 1981: 170; accusative assigned by *v* in Chomsky 2001: 6). Legate (2008), among many others, also adopts this idea and adds that *v* assigns abstract Case to the same class of object in ergative–absolutive languages of the type discussed in this paper.

Linking this to the case hierarchies proposed here, I assume that *v* assigns to the direct object the set of features associated with ACC on the hierarchy. In NOM–ACC languages with morphological case, but without DOM, this is spelled out as ACC (e.g. in German or Hungarian).

In ERG–ACC languages with morphological case, but without DOM, this is spelled out as ABS, i.e. as an unmarked case (Legate’s 2008 ABS = DEF(ault) languages). In languages with DOM, be they NOM–ACC or ERG–ACC, the underlying features of ACC can be spelled out as DOM or they can undergo impoverishment and be spelled out differently (Keine & Müller 2015), for example as unmarked case in Gujarati, Basque, and Spanish.

The association of two distinct morphological forms with one underlying Case is compatible with the identical syntactic behaviour of morphologically unmarked and DOM objects *and* the distinct behaviour of true dative objects, which are assigned a different set of case features.

In sum, I argued that, first, morphologically unmarked and DOM objects show the same syntactic behaviour and that this supports treating them as the same type of syntactic relation. Second, this syntactic relation is that of typical direct objects, which are generally assumed to be assigned ACC (or ABS) in frameworks adopting abstract Case. Third, I showed that the behavior of these objects distinguishes them from that of other syntactic relations, such as indirect objects, even if these are syncretic with DOM objects.

3.3 Summary

Summarising this section and the proposal, I have argued that Harðarson’s (2016) and Zompì’s (2019) arguments about case contiguity can be implemented by adopting partially ordered case hierarchies. By restricting partial orders to respect Zompì’s (2019) generalisations about classes of cases in (5) and syncretism in (6) as stated in (22), this proposal accounts for at least the languages covered by those approaches and, crucially, avoids Starke’s (2017) multiple instances of the “same” dependent case. The analysis presented here is similar to Graf’s (2019), but corresponds to Zompì’s (2019) universal containment more directly. The hierarchies are partially ordered by a subset relation (\subset). Syncretism can be modelled in the same way as on totally ordered hierarchies.

4 Open questions

Before concluding, I will briefly address open questions. First, like in Harðarson (2016); Starke (2017); Zompì (2019), the placement of genitive with respect to other cases is not generalised in this paper. Harðarson (2016) suggests that languages can reorder dative and genitive in particular and Zompì (2019) notes that the genitive does not fit any of the three classes of cases he identifies. Starke’s (2017) multiple accusatives and datives are placed on either side of genitive. My proposal does not shed any new light on why genitive behaves the way it does, but it allows for a simpler modeling of “alternating orders” of accusative, dative, and genitive by removing the need for total orders among these cases. The same stretch of a partially ordered hierarchy, as in (27), could underlie different patterns of syncretism across languages, while still only using one instance of each case.

Second, the features used in the partially ordered hierarchies presented here are abstract and meaningless. While this is sufficient for the purposes of this paper, I proposed particular hierarchies fitted to the three languages under discussion. But how are they restricted more generally? On the one hand, they conform to Zompì’s (2019)’s (5) (see also (22)). This restricts expressive power of the hierarchies under discussion.

On the other hand, Harðarson (2016: 1339–1342) argues that if certain features are dependent on others, such that a particular feature [oblique] depends on a feature [dependent], hierarchies in which “oblique” cases precede “dependent” ones can be ruled out (see also Smith et al. 2019). An approach along these lines is also in line with Zompì’s (2019) observations that dependent cases must precede (be subsets of) oblique cases on case hierarchies as well.

The order of features could reflect their frequency, the way they are acquired, and in turn their morphological expression. Morphologically unmarked cases, nominative and absolutive, as intransitive and transitive subjects or intransitive subjects and transitive objects, respectively, are frequent and have a wide distribution. “Dependent” cases, accusative and ergative, are by the definition the first that are distinguished from morphologically unmarked cases (see e.g. Yip, Maling & Jackendoff 1987; Marantz 1991; Baker 2015), for example by an additional feature (say [dependent]). Harðarson (2016) relates this idea of contrastive feature hierarchies

in the domain of case explicitly to Dresher's (2009) work on phonology. This suggests that general mechanisms of acquiring featural distinctions could lead to "emergent" case hierarchies in line with Zompì's (2019) generalisations.

Third, Caha (2017) discusses Blansitt's (1988) generalisation: DAT–ALL–LOC case can only show contiguous syncretisms, that is DAT and LOC are never syncretic to the exclusion of ALL. However, in Tigrinya the markers corresponding to these cases are *ne*, *nab* (< *ne ab*) and *ab* (Blansitt 1988: 174), indicating that ALL contains (features of) both DAT and LOC. This is a problem for approaches assuming containment and a total order of cases. Caha (2017) proposes that ALL has features of both DAT and LOC (see also Bobaljik & Sauerland 2018). With partial orders, the same result can be achieved if DAT and LOC are incomparable to each other but comparable to ALL (and other cases, such as ACC). This derives the syncretism and retains the benefits of contiguity and containment, but potentially overgenerates, suggesting that some additional restriction is necessary.

Finally, I have not considered whether the feature-based analysis of partially ordered case hierarchies presented here could equally well be expressed in a framework where each case feature represents a nominal projection, such as Nanosyntax. I refer the reader to the comparison of case hierarchies in DM and Nanosyntax in Zompì (2019).

5 Conclusions

In this paper, I proposed that case syncretism can be modelled by case hierarchies which are not totally, but only partially ordered. In analyzing patterns of syncretism involving DOM and dative case in Spanish, Gujarati, and Basque, I showed that this approach need not posit multiple instances of single cases on a hierarchy and, importantly, that the resulting partially ordered hierarchies maintain case contiguity and universal containment, in line with suggestions by Harðarson (2016) and Zompì (2019).

Abbreviations

1 = first person, 2 = second person, 3 = third person, A = agent-like argument of a canonical transitive verb, ABL = ablative, ABS = absolutive, ACC = accusative, AGR = agreement, ALL = allative, AUX = auxiliary, CL = clitic, DAT = dative, DF = dative flag, DM = Distributed Morphology, DOM = differential object marking, EP = epenthetic vowel, ERG = ergative, F = feminine, FUT = future, GEN = genitive, INS = instrumental, IPFV = imperfective, LOC = locative, M = masculine, N = neuter, NOM = nominative, P = patient-like argument of a canonical transitive verb, PFV = perfective, PL = plural, PST = past, S = single argument of a canonical intransitive verb, SG = singular, TM = tense–mood.

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Competing interests

The author has no competing interests to declare.

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