Chapter 13

Distinct featural classes of anaphor in an enriched person system

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This paper tackles the fundamental question of what an anaphor actually is – and asks whether the label "anaphor" even carves out a homogenous class of element in grammar. While most theories are in agreement that an anaphor is an element that is referentially deficient in some way, the question of how this might be encoded in terms of deficiency for syntactic features remains largely unresolved. The conventional wisdom is that anaphors lack some or more ϕ-features. A less mainstream view proposes that anaphors are deficient for features that directly target reference. Here, I present different types of empirical evidence from a range of languages to argue that neither approach gets the full range of facts quite right. The role of PERSON, in particular, seems to be privileged. Some anaphors wear the empirical properties of a PERSON-defective nominal; yet others, however, are sensitive to PERSON-restrictions in a way that indicates that they are inherently specified for PERSON. Orthogonal to these are anaphors whose distribution seems to be regulated, not by ϕ-features at all, but by perspective-sensitivity. Anaphors must, then, not be created equal, but be distinguished along featural classes. I delineate what this looks like against a binary feature system for PERSON enriched with a privative [SENTIENCE] feature. The current model is shown to make accurate empirical predictions for anaphors that are *in*sensitive to PERSON-asymmetries for the PCC, animacy effects for anaphoric agreement, and instances of non-matching for NUMBER and PERSON.

1 Overview

The conventional wisdom is that an anaphor like *himself* is anaphoric because it lacks independent reference. At the same time, it differs from a pronoun like *him*

because an anaphor must already be bound in the syntax, in a way that the pronoun need not, and indeed *cannot*, be (Conditions A and B of the Binding Theory, respectively of Chomsky 1981). In Minimalism, this idea is captured by proposing that the anaphor lacks some feature in the syntax. Valuation or checking of this feature under Agree by another element (a nominal or functional head), triggers anaphoric binding at LF. Construing binding in terms of Agree has the advantage that the characteristic distributional properties of local anaphora (Binding Condition A of Chomsky 1981), falls out epiphenomenally (Hicks 2009). What still remains very much an open question, however, is the featural content of what the anaphor and its antecedent Agree for. The mainstream view is that anaphors are ϕ-deficient nominals (Heinat 2008; Kratzer 2009; Reuland 2001; 2011; Rooryck & Vanden Wyngaerd 2011). But there is another, less central view, which proposes to capture the referential dependency of anaphors by arguing that they directly lack referential features (Adger & Ramchand 2005; Hicks 2009).[1]

The goal of this paper is to show that, while these views tell us parts of the story, they crucially obscure others. Once we broaden our field of scrutiny to include a range of empirical phenomena from a number of different languages, a more nuanced pattern emerges. The PERSON-feature, in particular, is shown to play a rather central divisive role with respect to anaphora. Based on their antecedence-taking properties, the Anaphor Agreement Effect (AAE) (Rizzi 1990), and certain types of morphological underspecification and ϕ-matching, some anaphors seem to lack the PERSON feature. However, PERSON-restrictions reflected in anaphoric agreement, sensitivity to PCC effects, and a rarely discussed 1st, 2nd, vs. 3rd asymmetry in anaphoric antecedence (Comrie 1999), suggest that certain other anaphors are inherently specified for PERSON. Running orthogonal to both is a class of perspective-sensitive anaphora (including so-called logophora Clements 1975) whose antecedence is regulated by perspective-holding with respect to some predication containing the anaphor (Sells 1987; Kuno 1987; Koopman & Sportiche 1989; Giorgi 2010; Pearson 2013). Recent work has argued that such relationships must also be implemented in terms of a syntactic dependency between the anaphor and its antecedent (Sundaresan 2012; Pearson 2013; Nishigauchi 2014; Charnavel 2015). If this is correct, then anaphora thus doesn't target a single homogenous class of nominal. Rather, it picks out nominals that all end up being referentially bound by featurally distinct routes. This then begs the question of what an anaphor actually is, and whether it even makes sense to talk about an anaphor as a coherent class of grammatical elements.

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[1]See also Diercks et al. (2020 [this volume]) for a very interesting discussion of the featural make-up of anaphors and their agreement behavior.

Standard theories classify PERSON into three categories: 1st, 2nd, and 3rd. I argue here that such a classification is not fine-grained enough to capture all the referential distinctions the full range of anaphors in language needs recourse to. We need (at least) six referential categories, as illustrated in Table 1.

Table 1: Person Cross-Classification

Features	Category	Exponents
[+AUTHOR, +ADDRESSEE, SENTIENCE]	1INCL.	*naam* (Tamil, 1INCL.PL)
[+AUTHOR, −ADDRESSEE, SENTIENCE]	1EXCL.	*naaŋga[* (Tamil, 1EXCL.PL)
[−AUTHOR, +ADDRESSEE, SENTIENCE]	2	*you*
[−AUTHOR, −ADDRESSEE, SENTIENCE]	3	*him, sie* (German), *si* (Italian)
[SENTIENCE]	REFL	Anaphors in Bantu
∅	NULL	*ziji* (Chinese), *man* (German)

Table 1 shows that there is not one, but three, non-1st and non-2nd PERSON-categories. The [SENTIENT] feature is marked on nominals that denote individuals that have the ability to be mentally aware and bear a mental experience, and in turn entails semantic animacy. Categories that are contentful for PERSON, [±AUTHOR] and [±ADDRESSEE], thus automatically bear this feature. Articulated PERSON-classifications involving similar binary features have, indeed, been previously proposed (see e.g. Nevins 2007, Anagnostopoulou 2005, a.o.). The novel contribution of this paper is that it provides empirical support for such a feature system from a relatively untested empirical phenomenon, namely that of anaphora.[2]

Against such a featural system, we have the typology of anaphors given in Table 2. This will be shown to capture the full range of empirical properties demonstrated by anaphors, discussed in the course of the paper.

The model developed here makes testable empirical predictions with respect to the PCC, ϕ-matching, SENTIENCE effects in anaphoric agreement, and the AAE. I show that these are positively confirmed, attesting to the validity of the current approach.

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[2]This said, it should be clarified from the outset that one of the central goals of this paper is to provide empirical evidence from anaphora for the greater articulation of PERSON-features, and not for the claim that such features should necessarily be modelled in terms of a binary feature structure. Put another way, such a level of articulation may well also be modelled through feature hierarchy systems such as Harley & Ritter (2002) or a lattice-based model of PERSON-partitions like Harbour (2016).

Table 2: Four classes of anaphor

Class	PERSON-Features	Exponents
3rd-anaphor	[−AUTHOR, −ADDRESSEE, SENTIENCE]	*taan* (Tamil), *zich (zelf)* (Dutch)
REFL	[SENTIENCE]	Bantu anaphors
NULL-anaphor	∅	*ziji* (Chinese), *zibun* (Japanese)
Class	Non-ϕ-Feature	Exponents
Perspectival anaphors	[DEP]	*taan*, *ziji*, *sig* (Icelandic)

2 Phi-based views of anaphora

In this section, I present an overview of the theoretical and empirical support for approaches that define anaphoricity in terms of ϕ- or referential deficiency in syntax.

2.1 Theoretical background and motivation

One of the main advantages of the ϕ-deficiency approach is its theoretical parsimony. All the approaches predicated on this idea build on the fundamental assumption that an anaphor is defined by its lacking one or more ϕ-features. ϕ-features are independently motivated in language – be it as an inherent property of nominal elements or as an acquired property on verbal ones. Such an approach thus avoids the inelegant pitfall of positing features that are peculiar to anaphors alone. The theoretical motivation for such a view may be traced back (at least) to an observation by Bouchard (1984) that a nominal needs a a full set of ϕ-features to be LF-interpretable. As such, any nominal that lacks a full ϕ-feature specification must get its missing ϕ-features checked in syntax, on pain of being subsequently uninterpretable at LF.

Theories that are based on the ϕ-deficiency view do not form one homogenous class: in fact, they differ significantly with respect to ancillary assumptions regarding the internal structure and overall feature-composition of an anaphor and, in some cases, also the nature of the Agree dependency between the anaphor and its antecedent. A fundamental variation arises with respect to assumptions concerning what ϕ-featural deficiency actually means. For one thing, is

the anaphor simply unvalued for ϕ-features or does it lack them altogether (and how can we tell)? For another, does it lack some ϕ-features or all (and again, how can we tell)? Kratzer (2009) proposes, for instance, that anaphors are "minimal pronouns" – they lack not just the values, but also the attributes, for all ϕ-features. Agree (or feature unification, in Kratzer's system) allows an anaphor to acquire all and only those features it actually surfaces with, yielding a transparent mapping between syntax and morphology. Rooryck & Vanden Wyngaerd (2011), alternatively, propose that anaphors are merely lacking in ϕ-values, which get valued in the course of the derivation via Agree. An issue that crops up in this context is what formally distinguishes an anaphor from a pronoun bearing identical ϕ-features in the same structural position, once the anaphor's ϕ-features have been valued. Rooryck & Vanden Wyngaerd (2011) suggest a brute-force solution: inherited features must be distinguished from inherent features by their bearing a "*" featural diacritic. Yet others (Heinat 2008; Reuland 2001; 2011; Déchaine & Wiltschko 2012) present independent arguments to distinguish anaphors from other nominals, not featurally, but in terms of their internal structure. Regardless of how this is formalized, however, this is a central problem that *any* account that anaphors are deficient for a feature that is assumed to underlie *all* nominals: the anaphor must continue to be distinguished from other nominals at the interfaces after this deficiency has been "cured" via Agree.

The fundamental motivation of the reference deficiency view, in contrast, is that while the ϕ-features of a nominal restrict its domain of reference (in the evaluation context), they crucially don't exhaust it. ϕ-features introduce presuppositions that restrict, via partial functions, the lexical entry of nominals (Heim & Kratzer 1998), as in (1):

(1) $[\![\text{she}]\!]^{c,g} = \lambda$x: *x is female & x is an atom.x*

Hicks (2009) further notes that, under a ϕ-deficiency view, anaphors that are overtly specified for all their ϕ-features, like reflexives in English, would be predicted to behave like deictic pronouns. While conceding that "One possibility could be that the morphological features are only assigned to the reflexive once they receive a value from the Agree relation", he rightly points out that, "as soon as we allow this we lose the original diagnostic for determining what is an anaphor and what is a pronoun according to their overt ϕ-morphology" (Hicks 2009: 111). Hicks proposes, instead, that anaphoric dependence is built on operator-variable features, along the lines of Adger & Ramchand (2005). An anaphor is a semantically bound variable: this is transparently reflected in its syntactic profile, with an unvalued VAR feature. An R-expression or a (deictic) pronoun, in contrast, is born with an inherently valued VAR, with values being integers or letters that

are arbitrarily assigned in the course of the derivation.[3] Quantifiers, like *all* and *some* have OP features [OP: ∀] and [OP: ∃], respectively, yielding derivations like (2a) and (2b) for (2):

(2) Every toddler injures herself.

    a. Every$_{[\text{OP}:∀]}$ toddler$_{[\text{VAR}:x]}$ injures herself$_{[\text{VAR}:\_]}$
    b. Every$_{[\text{OP}:∀]}$ toddler$_{[\text{VAR}:x]}$ injures herself$_{[\text{VAR}:x]}$

Hicks also assumes that *every* nominal has a VAR feature: this in turn ensures that an anaphor will be bound by the closest c-commanding nominal that has a valued VAR feature, yielding Condition A epiphenomenally.

Below, I discuss some of the empirical properties that may be taken to support the mainstream ϕ-deficiency approach. But the notion of referential defectiveness in an approach like Hicks (2009) is itself crucially predicated on ϕ-defectiveness, given the afore-mentioned idea that ϕ-features presuppositionally restrict nominal reference. As such, many of the empirical properties below may arguably be captured under the referential-deficiency view, as well. I will henceforth use the term "ϕ-based" to subsume both ϕ-deficiency and reference-deficiency approaches to anaphora.

2.2 Anaphora and phi-matching

Anaphors must typically match their antecedents for ϕ-features, a crosslinguistic tendency that has been explicitly noted as a required condition on binding in syntax textbooks and elsewhere (Sag et al. 2003; Carnie 2007; Heim 2008). Thus, (3) is ungrammatical because the anaphor has 1SG ϕ-features which don't match the 3MSG features of its binder:

(3) * He$_i$ saw myself$_i$.

Such ϕ-matching seems to be a restriction on simplex anaphors as well, as illustrated by the ungrammaticality of the German counterpart to (3) in (4):

(4) * Er$_i$ sah mich$_i$.

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[3]This is not a trivial assumption. If Hicks were to assume, instead, that R-expressions and pronouns were lexically distinguished in terms of their VAR-values, a valued VAR would simply reduce to a referential index, in turn violating the Inclusiveness Condition in Chomsky (1995: 381). Hicks assumes, therefore, that a pronoun or R-expression is born with a feature whose value is simply a *pointer* or *instruction* to be converted to an arbitrary integer or letter upon Merge.

Under a ϕ-deficiency approach, this falls out for free. If an anaphor must have one or more unvalued ϕ-features and anaphoric binding is triggered by the anaphor having its ϕ-features valued, via Agree, then such ϕ-matching is, indeed, precisely what is predicted. But this arguably also falls out naturally under a reference-deficiency approach as in Hicks (2009) (or Adger & Ramchand 2005). The difference is that, here, such a restriction would be the result of a *semantic* incompatiblity between the projected presuppositions of the individual nominals in the binding relation.

There are, of course, cases where no ϕ-matching can be discerned, as in Albanian, Chinese, Yiddish or Russian. This is illustrated for the Albanian examples below (Woolford 1999: 270–271, see also Hubbard 1985: 91):

(5) Drites$_i$ dhimset   vetja$_i$.
     Drita.DAT=3SG.DAT pity.3SG.PAST.NACT ANAPH.NOM
     'Drita$_i$ pities herself$_i$.'

(6) Vetja$_i$=me$_i$ dhimset.
     ANAPH.NOM=1SG.DAT pity.3SG.PRS.NACT
     'I$_i$ pity myself$_i$.'

However, what such examples show is the *absence* of overt ϕ-matching, not the *presence* of overt *non*-matching. Under Kratzer (2009), a minimal pronoun (or anaphor) is bound by a dedicated reflexive *v* which, in addition to its ϕ-features, will transmit its "signature" reflexive feature to the anaphor. This means that "sometimes the signature feature is all that is ever passed on to a minimal pronoun" (Kratzer 2009: 198). It is when this happens, Kratzer proposes, that the anaphor is spelled out as an invariant form, as in the Albanian examples above. Note, however, that this is already a deviation from a purely ϕ-deficient approach to anaphora. An alternative that stays truer to its ϕ-deficiency premise might be to posit that there is a single anaphoric form that is syncretic for all PERSON, NUMBER, and GENDER combinations. In contrast, far from posing a problem for the reference-deficiency view, such patterns might be taken to be evidence in favor of it. Under an analysis like Hicks (2009), such invariant forms might simply be taken to be the transparent spell-out of anaphors that have a VAR feature (that has been valued under Agree) and nothing else.

Explicit cases of non-ϕ-matching could involve some sort of mismatch between the semantic and grammatical ϕ-features on the antecedent and the anaphor. Such a situation obtains in the minimal pair (7) and (8), involving so-called "imposters"[4] (Collins & Postal 2012: 97, 15–17):

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[4]Collins & Postal (2012: 5, Ex. 10) define an imposter as "a notionally X person DP that is grammatically Y person, X ≠ Y."

(7) [The present authors]$_i$ are proud of ourselves$_i$.

(8) [The present authors]$_i$ are proud of themselves$_i$.

As Collins & Postal (2012) show, a sentence like (7) is only grammatical when *the present authors* has a notional 1st-person feature, i.e. is used by the speaker to refer to themselves in the 3rd-person. This indicates that (7) doesn't really involve a ϕ-mismatch at all: rather, the antecedent has two distinct types of PERSON-feature, a grammatical one that is 3rd-PERSON, and a semantic one that is 1st-PERSON, and the anaphor is free to Agree with either.

To sum up then, antecedence ϕ-matching for anaphora falls out for free under ϕ-based views – albeit syntactically in the ϕ-deficiency view, and semantically in the reference-deficiency one. One might take this to mean that ϕ-matching doesn't by itself constitute a particularly strong empirical argument for either approach.[5] Yet, whereas ϕ-featural matching entails strict ϕ-feature identity, semantic matching yields ϕ-feature identity in the *default case*, but crucially not always. The requirement in the case of the latter is ϕ-feature consistency, not ϕ-feature matching. In Section 5.1, I discuss a case where there is featural consistency in the absence of feature-matching: this could only have been achieved via a semantic route.

2.3 Morphological underspecification of anaphors

Going by restrictions placed on their antecedence, a remarkable number of anaphors crosslinguistically seem to fail to mark the full range of ϕ-distinctions in the given language. The identity and range of these features is parametrized. Thus, Korean *caki* and Dravidian *taan* are underspecified for gender alone: i.e. can take antecedents of any gender, but these must be 3SG; German *sich* (and its Germanic relatives) seem to be underspecified for both gender and number; Japanese *zibun* is unmarked for person and gender; and Chinese *ziji* seems to be maximally underspecified.

Under a ϕ-deficiency view, these distinctions can be captured in one of two ways. Assuming that a bound variable starts out ϕ-minimal (Kratzer 2009), we could propose that an anaphor acquires all and only those ϕ-features it actually surfaces with. Concretely, then, Tamil *ta(a)n* or Korean *caki* would receive PERSON and NUMBER features alone but not GENDER; Japanese *zibun* would receive NUMBER alone, while *ziji* would receive "signature" feature [reflexive] and thus remain unspecified for all ϕ-features. The morphology, then, straightforwardly spells out this featural state-of-affairs. Of course, this implies that an anaphor be born, not just lacking values for ϕ-features, but lacking the relevant ϕ-attributes

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[5]I thank an anonymous reviewer for bringing up this point.

themselves. Notice, incidentally, that such a solution is not obviously available for the reference-deficiency view since the relationship to ϕ-features is not encoded directly in the syntax.

Nevertheless, under both views, morphological underspecification could simply be relegated to the morphological component, in particular to rules of exponence for the anaphors in question. Let us assume that the anaphor has all its ϕ-features valued at the time of SpellOut. The Vocabulary Insertion rule for the exponent *ta(a)n* in Tamil might then look like that in (9):

(9)   [3, SG, D] ↔ *ta(a)n*

Under (9), all *m, f, n* GENDER combinations that are 3SG will be spelled out syncretically as *ta(a)n*. Chinese *ziji*, in contrast, might have a maximally underspecified SpellOut rule, as in (10):

(10)   [D] ↔ *ziji*

Since (10) makes reference to no ϕ-features whatsoever, we would get syncretism across all PERSON, NUMBER, and GENDER categories for this anaphoric form.[6]

While a system like Kratzer's can directly capture the crosslinguistic robustness of morphological underspecification, a purely morphological solution would have to seek independent explanations, e.g. a functionalist explanation (Rooryck & Vanden Wyngaerd 2011), for its universality.[7] Finally note that, under a ϕ-valuation approach, it is perfectly possible for an anaphor to be exponed with all its ϕ-features (as in Zapotec, Thai, or even English), as well. Such an anaphor would have to satisfy the condition that it have *all* its ϕ-features valued at the time of SpellOut; additionally, it would have to be ensured that the SpellOut rule itself not be underspecified for any ϕ-feature. Such data, of course, don't pose a challenge for the reference-deficiency view either.

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[6]Of course, the anaphor would still need to be distinguished from a deictic pronoun with the same features in that position: e.g. either via featural diacritics (Rooryck & Vanden Wyngaerd 2011) or structurally (Heinat 2008; Déchaine & Wiltschko 2012), as discussed.

[7]"The more specific a form is in terms of its feature makeup, the more restricted (i.e. effective) its reference. The situation is quite different for reflexive forms: since they have a local antecedent by definition and derive their reference from that antecedent, there is no need for them to be referentially restricted themselves. This does not exclude a situation where a reflexive has a rich set of distinctions …but it does predict that underspecified forms, if they occur, will be found in the reflexive paradigm rather than in the nonreflexive one" (Rooryck & Vanden Wyngaerd 2011: 45).

2.4 Anaphor Agreement Effect (AAE)

One of the strongest arguments for the ϕ-deficiency view is, perhaps, the Anaphor Agreement Effect (AAE). This refers to the observation, going back to Rizzi (1990), and revised periodically since Woolford (1999), Tucker (2011), Sundaresan (2016), that anaphors cannot trigger "normal" (i.e. covarying) ϕ-agreement. Rizzi's original observation was motivated by minimal pairs like the one below, from Italian (Rizzi 1990: 3):

(11) A loro interess-ano solo i   ragazzi.
      to them interest-3PL only the boys.NOM

      'They$_i$ are interested only in the boys$_i$.'

(12) * A loro   interess-ano solo se-stessi.
      to them interest-3PL only them-selves.NOM

      'They$_i$ are interested only in themselves$_i$.' (Intended)

Italian has a nominative-accusative case system: ϕ-agreement is triggered by a nominative argument. Thus, in (11), the nominative object 'the boys' triggers 3rd-person plural agreement on the verb. But if we replace this object with a plural nominative anaphor, as in (12), the sentence becomes ungrammatical. In contrast, a sentence like (13) (Rizzi 1990: 33) where the anaphor appears in the genitive such that the co-occurring verb surfaces with default 3rd-person singular agreement, is fully licit:

(13) A loro import-a   solo di se-stessi.
      to them matters-3SG only of them-selves

      'They$_i$ only matter to themselves$_i$.'

A key difference between (12) and (13) is that the anaphor triggers verb agreement in the former, but doesn't do so in the latter. Strikingly, the grammaticality of these sentences seems to be directly conditioned by this contrast: (12), where the anaphor should trigger agreement is ungrammatical whereas (13) where the anaphor doesn't trigger agreement is fine. Patterns such as these suggest that languages avoid structures where an anaphor directly triggers agreement on its clausemate verb. As such, Rizzi (1990: 28), proposed that "[T]here is a fundamental incompatibility between the property of being an anaphor and the property of being construed with agreement." Subsequent analyses (Woolford 1999; Haegeman 2004; Tucker 2011) have tested the validity of the AAE against a wider range of languages.

These investigations reveal that languages may choose to circumvent an AAE violation in a number of additional ways. Some, like Inuit, may simply detransitivize the predicate in question (Woolford 1999; Bok-Bennema 1991). Others, like the Malayo-Polynesian language Selayerese, Modern Greek and West Flemish have been reported to "protect" the anaphor from triggering agreement by embedding it inside another nominal (Woolford 1999; Haegeman 2004). In Sundaresan (2016), I argue that Tamil adopts an "agreement switch" strategy. When the anaphor occurs in the agreement-triggering case (nominative), co-varying ϕ-agreement is exceptionally triggered by *some other nominal* with valued ϕ-features in the local domain. Such a strategy is arguably also reported for Kutchi Gujarati in Patel-Grosz (2014) and Murugesan & Raynaud (to appear). Based on such patterns, I update Rizzi's AAE as follows in Sundaresan (2016: 23): "Anaphors cannot directly trigger covarying ϕ-agreement which results in covarying ϕ-morphology."

While it remains far from clear why a particular language adopts the particular repair strategy it does, the AAE itself emerges as a crosslinguistically robust constraint. It should be obvious that the AAE is a clear argument in favor of any analysis that defines anaphora in terms of ϕ-feature deficiency. If an anaphor itself lacks ϕ-features, then such an anaphor should not be able to serve as a Goal to value the ϕ-features on a probing T or *v*, yielding the AAE (as argued by Kratzer 2009). Under the reference-deficiency approach, ϕ-feature defectiveness is presupposed but not featurally encoded. Given that agreement is a featural dependency, however, the AAE doesn't come for free under such a view.

3 Complicating the picture

The previous section has presented two main ideas regarding the feature composition of anaphora. We have also seen the anaphoric phenomena that constitute the main empirical arguments, to a greater or lesser degree, for these views. Here, I bring arguments to bear showing that the anaphoric landscape is actually more nuanced and complex, in a way that neither view can adequately capture by itself. To this end, I present two main types of evidence:

(i) Perspectival anaphora which are defined by a deficiency of a perspectival feature.

(ii) Anaphors that are sensitive to PERSON asymmetries.

The first type of evidence shows that ϕ-features (or features that are built on ϕ-features, like referential features) are not enough to capture the full range of

anaphoric patterns in language. The second shows that the PERSON feature is privileged over other types of ϕ-feature for purposes of anaphora – something that a simple ϕ- (or reference) deficiency view is not articulated enough to handle.

3.1 When phi-features aren't enough: Perspectival anaphora

Perspectival anaphora have been reported for a number of languages, e.g. Malayalam (Jayaseelan 1997), Japanese (Kuno 1987; Nishigauchi 2014), Icelandic (Hellan 1988; Sigurðsson 1991), French (Charnavel 2015), Italian (Giorgi 2010), Abe (Koopman & Sportiche 1989), and Ewe (Pearson 2013), a.o. Such anaphors are defined by their sensitivity to grammatical perspective, as noted. Concretely, the antecedent of such an anaphor must denote a perspective holder, mental or spatial, towards some predication containing the anaphor.

Evidence showing that such perspective-holding is syntactically regulated – which I discuss below – suggests that perspective-sensitivity must be directly encoded in the featural make-up of such anaphors. For instance, I propose in Sundaresan (2012; 2018) that a perspectival anaphor is born with an unvalued "DEP" feature, the valuation of which feeds semantic binding. The DEP-feature is formally identical to Hicks' VAR: it is an attribute-value pair that takes arbitrarily assigned integers/letters as value. The fundamental difference from Hicks' system lies in the notion that not every deictic pronoun and R-expression is born with a *valued* DEP-feature. Rather, in a given phase, only one other nominal, by virtue of its dedicated structural position in the specifier of a Perspectival Phrase, is born with a valued DEP.

3.1.1 Sentience, sub-command, subject-orientation

In cases of perspectival anaphora, certain nominals are systematically excluded from potential antecedence. Non-sentient antecedents are ruled out, for instance, as illustrated below for the Chinese anaphor *ziji* (Huang & Liu 2001):

(14)   Wo bu xiaoxin dapo-le   ziji   de   yanjing.
          I   not careful break-ASP ANAPH POSS glasses

        'Not being careful, I broke my own glasses.'

(15)   * Yanjing$_i$ diao-dao dishang dapo-le   ziji$_i$.
          glasses drop-to floor   break-ASP ANAPH

        '[The glasses]$_i$ dropped to the floor and broke themselves$_i$.' (Intended)

Under a simple ϕ-deficiency view, both 'the glasses' with 3PL features in (15) and 'I' with 1SG features in (14) should qualify as potential Goals for valuing the ϕ-features on the anaphor, thus both (14) and (15) should be grammatical. A possible way out might be to propose that the sentience restriction applies only later, at LF. The syntax would thus *overgenerate*; at LF, non-sentient nominals involved in the Agree relation would be systematically filtered out, leaving only sentient nominals as potential antecedents behind.

While this initially looks promising, we have nevertheless weakened the link between ϕ-features and reference by bringing in sentience through the back door. Second, the fact that the English counterpart to (15) is perfectly grammatical suggests that a proposal that is predicated on the notion that the anaphors in both languages are featurally identical may be misguided. Finally, patterns of so-called "sub-command", like those in (16–17), reported also for Italian (Giorgi 2006) and Malayalam (Jayaseelan 1997), suggest that the LF filtering account is too simple. The contrast between Chinese (16) vs. (17) shows that a sentient nominal, that is itself embedded inside another nominal, may antecede *ziji* (despite clearly not c-commanding it), just in case the embedding nominal is itself *non*-sentient:

(16)   Wo de jiaoao hai-le   ziji.
       I   's pride   hurt-ASP ANAPH
       '[My$_i$ pride]$_j$ hurt self$_{i/*j}$.'

(17)   Wo de meimei hai-le   ziji.
       I   's sister   hurt-ASP ANAPH
       '[My$_i$ sister]$_j$ hurt self$_{j/*i}$.'

To deal with such data, non-sentient nominals that have Agreed with *ziji* can no longer be filtered out blindly. Rather, the system must now have a way to look *inside* the nominal, at another nominal in a particular structural position, and evaluate the sentience of this inner nominal – a messy state-of-affairs. But if such anaphors are defined in terms of something other than ϕ-features – e.g. in terms of a feature that presupposes sentience (like the perspectival DEP-feature or an animacy feature itself), the account becomes considerably simpler. The antecedent can simply be the closest visible nominal in the search domain of the anaphor that bears this feature.

A different sort of problem has to do with the so-called "subject orientation" of anaphora. Perspectival anaphors typically only take subjects, not objects, as antecedents. While this initially looks like evidence in favor of a syntactic treatment, there are systematic exceptions in both directions. What really matters for antecedence is perspective-holding: it just so happens that subjects tend to denote

perspective-holders more than objects do. Here, again, an account in terms of ϕ-feature deficiency would find it much harder (than one that encodes perspective-sensitivity directly) to deal with the problem of how certain nominals can be systematically "skipped" in this manner.

3.1.2 One language, two anaphors

In Sundaresan (2012: 85, 84a–b), I reported that, in certain Tamil dialects, (local) reflexivity may be expressed either with a dedicated anaphoric form *ta(a)n*, as in (19), or with a pro-form *avan*, that is syncretic with a 3MSG deictic pronoun, as in (18):

(18) Raman-ŭkkŭ$_i$ avan-æ-yee$_{\{i,j\}}$ piḍikka-læ.
Raman-DAT   he-ACC-EMPH   like-NEG

'Raman$_i$ didn't like (even) himself$_i$/him$_j$.'

(19) Raman$_i$ tann-æ-yee$_{\{i,*j\}}$ piḍikka-læ.
Raman[NOM] ANAPH-ACC-EMPH like-NEG

'Raman$_i$ didn't like (even) himself$_{\{i,*j\}}$.'

Many languages have dedicated reflexive forms, simplex or complex. Others, like Frisian, Old English, and Brabant Dutch, use a reflexive form that is syncretic with the deictic pronominal one (see Rooryck & Vanden Wyngaerd 2011 for discussion). However, for a single language to allow both types of anaphor in the same position is more peculiar. Such differences correlate with systematic differences in interpretation. The use of *ta(a)n* in (19) favors an interpretation from the perspective of the antecedent, whereas the use of the pronoun doesn't.

The challenge for the ϕ-deficiency view is this: If *ta(a)n* and *avan* are purely ϕ-deficient elements, why are they spelled-out differently, and interpreted in distinct ways? One might posit that they are both deficient for different ϕ-features. But this then doesn't explain why the interpretive difference between them has to do with something that putatively has nothing to do with ϕ-features, namely perspective-holding. Note, too, that we cannot claim, as before, that the two anaphors start out featurally identical in syntax and are distinguished only later, at LF, since the anaphors have different morphological forms as well. Under a reference deficiency view like Hicks (2009), we would face essentially the same problems, since it would be assumed that *ta(a)n* and *avan* would have identically valued VAR features at the point of spell-out.

Such data thus show that we need a distinct featural class for perspectival anaphors. We could then say that *avan* is ϕ- or reference-deficient while *ta(a)n*

is DEP-deficient, this then accounting for its perspectival nature. There is, indeed, nothing to prevent a single language from having both types of anaphor in its lexicon. We will see, however, that the class of perspectival anaphora runs orthogonal to others: i.e. perspectival anaphors may also be deficient for certain types of ϕ-features and vice-versa.

3.2 PERSON-asymmetries in anaphora

A different kind of evidence involves data showing that anaphors in certain languages are sensitive to 1st/2nd vs. 3rd-PERSON asymmetries.

3.2.1 PCC effects

The PCC,[8] both Strong and Weak, has been shown to apply to a wide range of languages. For instance, Bonet (1991) discusses this effect for Arabic, Greek, Basque, Georgian, English, Swiss German and many Romance languages. Additional languages such as Georgian, Kiowa, Bantu languages like Chambala, the Malayo Polynesian language Kambera, Warlpiri, Passamaquoddy and many Slavic languages are reported in Haspelmath (2004), Béjar & Řezáč (2003), Doliana (2013), among others.

(20a–20b) show the Strong PCC at work in French (all French examples below are taken from Raynaud 2017):

(20)   Strong PCC (French):

    a.   ✗ 1/2ACC > 3DAT

        * Ils   me   lui   présentent.
        3PL.NOM 1SG.ACC 3SG.DAT introduce.3PL

        'They introduce me to him/her.'

    b.   ✗ 1/2ACC > 1/2DAT

        * Ils   me   te   présentent.
        3PL.NOM 1SG.ACC 2SG.DAT introduce.3PL

        'They introduce me to you.'

PCC effects are revealing for the purposes of anaphora because, in certain languages, anaphors pattern just like 1st- and 2nd-person pronouns with respect to

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[8]"*Strong PCC:* In a combination of a weak direct object and an indirect object [clitic, agreement marker, weak pronoun], the direct object has to be 3rd person.

Weak PCC: In a combination of a weak direct object and an indirect object [clitic, agreement marker, weak pronoun], if there is a third person it has to be the direct object." (Bonet 1991: 182)

both Strong and Weak PCC effects (Kayne 1975; Herschensohn 1979; Bonet 1991; Anagnostopoulou 2003; 2005; Rivero 2004; Nevins 2007; Adger & Harbour 2007). Compare French (21a) (originally from Kayne 1975: 173), with French (20a), and (21b) with (20b):

(21)   Strong PCC with reflexives (French):

   a.   ✗ REFL ACC > 3DAT
      * Elle$_i$ se$_i$ lui   est donnée   entièrement
        She   REFL.ACC 3MSG.DAT is   given.FSG entirely

      'She$_i$ have herself$_i$ to him entirely.'

   b.   ✗ REFL ACC > 1/2DAT
      * Ils$_i$ se$_i$ me   présentent
        they REFL.ACC 1SG.DAT introduce.3PL

      'They$_i$ introduce themselves$_i$ to me.'

Furthermore, just as postulated by the Strong PCC, as long as the direct object is a weak 3rd-person element, weak indirect objects of all person may combine with it. Crucially, in such cases, the reflexive *se* may also licitly combine with it as an indirect object – thus showing itself once again to pattern according to the PCC:

(22)   ✓ 3ACC > DAT:

   a.   Elle me   l'a   donné.
      she me.DAT 3SG.ACC=HAVE.3SG GIVE.MSG

      'She gave it to me.'

   b.   Elle$_i$ se$_i$ l'est   donné.
      she   herself.DAT 3SG.ACC=BE.3SG GIVE.MSG

      'She$_i$ gave it to herself$_i$.'

Rosen (1990) and Baker (2008) also report analogous data for Southern Tiwa, an Algonquian language.

3.2.2 Anaphoric agreement

The same sensitivity to PERSON-asymmetries on the part of anaphors is played out in a different empirical realm, namely that of agreement. In certain languages – e.g. in Bantu languages like Swahili (Woolford 1999), Chicheŵa (Baker 2008),

and Ndebele (Bowern & Lotridge 2002), and in Warlpiri (Legate 2002) – the anaphor triggers "anaphoric agreement" on the verb. This is agreement marking that differs from the normal ϕ-paradigm in that language. Thus, the special *ji* marking on the verb in Swahili (24) (contrast with 23) does not ϕ-covary, so is a form unique to the anaphor alone:

(23) Ahmed a-na-m/*ji-penda   Halima
      Ahmed 3sbj-prs-3obj-love Halima.

      'Ahmed loves Halima.'

(24) Ahmed a-na-ji/*m-penda   mwenyewe.
      Ahmed 3sbj-prs-refl/*3obj-love himself

      'Ahmed$_i$ loves himself$_i$.' (emphatic)

Furthermore, this *ji-* prefix contrasts with the clearly ϕ-agreeing elements of the paradigm in Swahili (Thompson & Schleicher 2001: 245), Table 3.

Under a ϕ-deficiency approach, such data would be genuinely difficult to capture because they show that the anaphor must be featurally distinguishable from all other nominals at the point at which it triggers verbal agreement. We could imagine, for the sake of argument, that the anaphor does, indeed, have some or all ϕ-features unvalued when it is merged in the structure. However, we would still need a mechanism to ensure that it inherits only a *proper subset* of features from its binder, in a way that identifies it as being featurally distinct from its binder even after feature-valuation. We might avail ourselves of Kratzer (2009)'s [anaphoric] feature here. But of course, as we have already observed, once such a choice is made, we have already made the implicit move away from a purely ϕ-deficiency view.

To make matters even more complicated, Baker (2008) shows that such anaphoric agreement patterns unmistakably like agreement triggered by 1st- and 2nd-person pronouns and *un*like 3rd-person agreement. 1st- and 2nd-person agreement is crosslinguistically categorially restricted: e.g. adjectives don't show person-agreement. Interestingly, adjectival agreement in languages like Chicheŵa, and other Bantu languages, inflect for the number and gender of the anaphor, but cannot reflect the anaphoric agreement that shows up on the verb (Baker 2008: 150–151, 86a–b, in Chicheŵa):

(25) Ndi-na-i-khal-its-a   *pro[CL4]* y-a-i-kali.
      1ss-past-4o-become-caus-fv   cl4-assoc-cl4-fierce

      'I made them (e.g. lions) fierce.'

Table 3: Swahili object agreement paradigm

ϕ	OBJECT–MARKER	VERB–FORM
1SG	-ni-	a-na-<u>ni</u>-penda
		(s)he loves me
2SG	-ku-	a-na-<u>ku</u>-penda
		(s)he loves you
3{M/F}SG (CLASS 1)	-m/mw-	a-na-<u>m</u>-penda
		(s)he loves him/her
1PL	-tu-	a-na-<u>tu</u>-penda
2PL	-wa- or -ku-	a-na-<u>wa</u>-pend<u>eni</u>
3PL (class 2)	-wa-	a-na-<u>wa</u>-penda
3NSG (class 3)	-u-	a-na-<u>u</u>-penda
3PL (class 4)	-i-	a-na-<u>i</u>-penda
3NSG (class 5)	-li-	ana-<u>li</u>-penda
3PL (class 6)	-ya-	ana-<u>ya</u>-penda
3NSG (class 7)	-ki-	ana-<u>ki</u>-penda
3PL (class 8)	-vi-	ana-<u>vi</u>-penda
3NSG (class 9)	-i-	ana-<u>i</u>-penda
3PL (class 10)	-zi-	ana-<u>zi</u>-penda
3NSG (class 11)	-u-	ana-<u>u</u>-penda
3NSG (class 14)	-u-	ana-<u>u</u>-penda
3NSG (class 15)	-ku-	ana-<u>ku</u>-penda
3NSG (class 16)	-pa-	ana-<u>pa</u>-penda
3NSG (class 17)	-ku-	ana-<u>ku</u>-penda
3NSG (class 18)	-mu-	ana-<u>mu</u>-penda

(26) Ndi-na-dzi-khal-its-a   *pro[+ana]* w-a-m-kali.
      1SS-PAST-REFL-become-CAUS-FV   CL1-ASSOC-CL1-fierce
      'I made myself fierce.'

This shows that anaphoric agreement is a kind of PERSON agreement. Interestingly furthermore, Bantu anaphors can be anteceded by 1st, and 2nd person nominals (in addition to 3rd, as attested by 26), again suggesting that they have some feature(s) in common with these. The parallels between 1st- and 2nd-PERSON agreement and anaphoric agreement don't stop here, as Baker discusses. Possessive determiners and adpositions – categories that can manifest 1st- and 2nd-PERSON agreement – can also allow anaphoric agreement in Greenlandic (Bittner 1994) and Slave (Rice 1989), respectively.

The fact that certain anaphors are sensitive to PERSON-asymmetries reflected in phenomena like the PCC and anaphoric agreement, shows the following: (i) such anaphors are themselves not underspecified for PERSON (at least at the point where the trigger agreement) (ii) (and potentially relatedly), anaphors of this kind must have something in common with 1st- and 2nd-person pronouns, which is absent on 3rd, (iii) the ϕ-feature-specification of such an anaphor must be different from all other nominals at this stage of the derivation (for the case of anaphoric agreement).

3.2.3 A gap in anaphoric antecedence: 1st/2nd vs. 3rd

Many anaphors only take 3rd-PERSON antecedents: e.g. German *sich*, Romance *se/si*, Japanese *zibun*, Korean *caki*, and Dravidian *ta(a)n*. A glance at anaphors that take local (1st/2nd-PERSON) antecedents initially reveals a somewhat baffling picture.

There are anaphors that allow 1st, 2nd-PERSON antecedents, but these crucially also allow 3rd (see Huang & Liu 2001, for a discussion of Chinese *ziji* in this regard). It is tempting to conclude from this that anaphors can take 1st/2nd-PERSON antecedents only if they also take 3rd-PERSON ones. Yet, a pro-form like *mich* in German *can* take a 1st-person antecedent while not also taking a 3rd (or a 2nd):

(27) Ich(/*Du/*Sie) schlug mich.
      I/*you/*she   hit   refl.ACC
      'I hit myself.'
      ✗ 'You hit yourself.'
      ✗ 'She hit herself.'

Interestingly, however, *mich* is ambiguously anaphoric or pronominal (as indeed is *dich*). This suggests that there is no *unambiguous* anaphoric *form* anteced by 1st/2nd but not 3rd. Table 4 for Lezgian (Northeast Caucasian) tells us that this cannot be accurate either (Haspelmath 1993: 184).

Table 4: Pro-forms in Lezgian (absolutive, singular)

Person	Anaphor	Pronoun/Dem.
1st	*žuw*	*zun*
2nd	*žuw*	*wun*
3rd	*wič*	*am*

In Table 4, *žuw* is an unambiguously anaphoric form, anteced by 1st and 2nd, but not 3rd.[9] But note that Lezgian has, not one, but two dedicated reflexive forms.

What we don't seem to have is a language that is the *inverse* of one like Italian, German, Tamil or Korean: i.e. where the anaphor that takes a local antecedent has a dedicated reflexive form while the one that takes a 3rd-PERSON antecedent has a form that is syncretic with a pronoun. In other words, the correct restriction is that in (28), which is also reported in Comrie (1999) as a typological gap:

(28)   In a language with only one unambiguously anaphoric form, this must correspond to an anaphor that takes a 3rd-PERSON antecedent.

It is hard to see how a ϕ-based account would be able to capture the generalization in (28). An anaphor that is ϕ-minimal in the sense of Kratzer (2009), for instance, should, by default, place no PERSON-restrictions on antecedence: i.e. such an anaphor should behave like Chinese *ziji*. Such data shows that anaphors need access to a more articulated featural system, one which can also distinguish inherent asymmetries within the categories of PERSON.

4 Proposal: Unequal anaphors

In this section, I motivate a formal syntax and semantics for anaphora that simultaneously identifies anaphora as constituting a meaningul nominal category, while also postulating an articulated featural inventory that is rich enough to derive its internal heterogenity in syntax, semantics, and morphology.

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[9]English may be similar, but forms like *himself* arguably contain a syncretic pro-form (as in the German case) + "self" marker.

4.1 What is an anaphor?

The discussion above has shown that anaphors in natural language are not created equal. Some anaphors are contentful for PERSON in a way that others are not. Yet others are sensitive to properties that are arguably entirely orthogonal to ϕ-features, like perspective, which also seems to be syntactically instantiated. The data that we have seen so far thus supports the view that there are many (featural) routes to anaphora. In other words, two nominals may qualify as being both anaphoric, despite being featurally quite distinct. This then naturally raises the question of what an anaphor actually is, and whether the notion of anaphora is now so diffuse as to be taxonomically worthless.

The definition in (29) proposes that anaphors are both syntactically and semantically non-homogenous. At the same time, it is specific enough to identify anaphors as a meaningful nominal category in syntax and semantics:

(29) Working definition of an anaphor:[10]

In the syntax: An anaphor defines a nominal that is featurally deficient for a (potentially unary) set γ, which must then be checked under Agree with a nominal that is valued for γ, potentially via intervening functional heads.

In the semantics: An anaphor defines a bound variable or a reflexivizing predicate that co-identifies two arguments of a predicate. For those semantic anaphors that are also syntactic anaphors, feature valuation of γ leads either to variable binding, with the Goal for γ binding the Probe for γ, or arity reduction.[11]

Output = referential covaluation: The individuals that the binder/bindee denote in the evaluation context covary with respect to one another.

The definition in (29) ensures that the kind of feature that an anaphor lacks is one that a non-anaphoric nominal is inherently born with – since it is a non-anaphoric nominal that must ultimately check the featural deficiency on the anaphor. This means, the missing feature cannot be something like case (which would be checked by a functional head), but must uniquely target the kind of information that is *inherent* to other nominals, such as a ϕ- or reference-feature (like Hicks' VAR) or a perspectival feature (as in the DEP feature from my previous work). The different features all trigger the same kind of Agree mechanism which then feeds binding at LF, yielding referential identity as the common output. The

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[10]I thank Giorgos Spathas (p.c.) for helping me finesse aspects of this definition.

[11]See Spathas (2010; 2015) for arguments that anaphors are semantically non-homogenous, with some being bound variables and others arity reducing predicates.

definition also leaves open the possibility that certains nominals, for instance bound variable pronouns, fake indexicals (Kratzer 2009) or certain types of A-bar elements,[12] count as anaphoric via the semantic route alone – i.e. without having a featurally defective nominal counterpart in the syntax.

4.2 A more articulated feature system

Against this background, I now propose that a more articulated PERSON-categorization than the standard 1st, 2nd, and 3rd is needed to capture the featural distinctions between the two classes of anaphor called for here. I base this on a bivalent rather than a privative feature system. I will avail myself of the binary features [±AUTHOR] and [±ADDRESSEE] and a private feature [SENTIENCE].

(30) Featural definitions:[13]

  a. [+AUTHOR] = the reference set contains the speaker of the evaluation context (default: utterance-context)

  b. [+ADDRESSEE] = the reference set contains the hearer(s) of the evaluation context (default: utterance context).

  c. [SENTIENCE] = the reference set contains an individual (or individuals) that is mentally aware and capable of bearing mental experience in the evaluation context.

Note that while we can think of [SENTIENCE] as a kind of PERSON feature, in the sense that it has a clear relation to [±AUTHOR] and [±ADDRESSEE], it does not carve up the space of referents like these features do in terms of the participants of a speech act. Given the definition of the [SENTIENCE] feature in (30), it is clear that all individuals that are contentful for PERSON – i.e. individuals that are [±AUTHOR] and [±ADDRESSEE]) – must automatically also bear the [SENTIENCE] feature. At the same time, we can also have elements that only bear the [SENTIENCE] feature.[14]

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[12]What precisely the membership of this class of elements is, is outside the scope of the current paper, and must remain an open question for now.

[13]The definitions for [+AUTHOR] and [+ADDRESSEE] are adapted from Halle (1997); Nevins (2007)'s definitions for [±PARTICIPANT] and [±AUTHOR]. The [SENTIENCE] feature is akin to the [±MENTAL STATE] feature in Reinhart (2000).

[14]The introduction of the privative [SENTIENCE] feature thus does not actually constitute a counter-argument to proposals like Bobaljik (2008: 4) which argues that

> "the traditional three-value person system over-generates, allowing for the expression of universally unattested distinctions. By contrast, a two-valued, binary feature system

A cross-classification of [±AUTHOR] and [±ADDRESSEE] together with [SEN-TIENCE] thus yields the set of PERSON-categories in Table 6.[15]

The real innovation of such a system is that it defines three distinct types of non-1st and non-2nd PERSON category which our classes of anaphor can now invoke. The NULL category is based on the ∅ and thus defines an entirely PERSON-less form. The second category is specified as having PERSON features that are *negatively opposed* to those carried by 1st and 2nd-PERSON, this being precisely the kind of distinction that a binary feature system allows us to make. The third category, REFL, defines nominals that are featurally underspecified: these bear the [SENTIENCE] feature and nothing else. We will see that such featural underspecification characterizes anaphors involved in patterns of anaphoric agreement, discussed for some Bantu languages, above.[16]

Against the featural classification in Table 6, I distinguish four categories of anaphor (Table 7).

4.3 NULL-PERSON anaphors

A NULL-PERSON anaphor must have an unvalued PERSON-feature that is valued in the course of the syntactic derivation by a nominal or functional head in the Agree domain. The empirical signature of such an anaphor is that it can take antecedents of all PERSON.

[±SPEAKER] and [±HEARER] (or any equivalent notation) is not only restricted to a four-way contrast, it in fact yields exactly the maximally attested contrasts and excludes precisely those distinctions that are unattested."

What we have in our featural toolbox is not a three-value PERSON-system, but a strictly two-value PERSON system. Concretely, [SENTIENCE] picks out a proper superset of the union of the set of referents picked out by [±AUTHOR] and [±ADDRESSEE]. It bears a strong similarity to the privative [EMPATHY] feature proposed in Adger & Harbour (2007), but involves none of the cultural connotations that Adger and Harbour attribute to the [EMPATHY] feature. I thank an anonymous reviewer for bringing this potential concern to my attention.

[15]Of course, we could also underspecify the PERSON-features themselves to yield a more comprehensive set of categories, as in Table 5, fleshed out with language help from the Surrey syncretisms database (Baerman 2002).

However, I will seek to model syncretism effects for [±AUTHOR] and [±ADDRESSEE] via morphological, rather than featural, underspecification, where possible, to keep the featural toolbox more parsimonious.

[16]A [SENTIENCE] marked nominal might also, in addition, characterize expletives (like German *man*) in this class (Nevins 2007; Ackema & Neeleman 2018), which have been argued to be ϕ-featurally deficient, but nevertheless presuppose the sentience of their referent.

Table 5: Person Cross-Classification (w/- feature-underspecification).

	Features	Category	Exponents
	[+AUTHOR, SENTIENCE]	1	*I, we*
	[+ADDRESSEE, SENTIENCE]	1INCL ∧ 2	*-nto* (Muna, 2HON.SG=1INCL.DU)
1.	[−AUTHOR, SENTIENCE]	¬1	*ale* (Amele, 2=3.DU)
	[−ADDRESSEE, SENTIENCE]	¬2	–
	[SENTIENCE]	REFL	Anaphors in Bantu
	∅	NULL	*ziji* (Chinese), *man* (German)
	[−AUTHOR, −ADDRESSEE, SENTIENCE]	3	*him, sie* (German), *si* (Italian)
	[+AUTHOR, +ADDRESSEE, SENTIENCE]	1INCL.	*naam* (Tamil, 1INCL.PL)
2.	[+AUTHOR, −ADDRESSEE, SENTIENCE]	1EXCL.	*naaŋaḷ* (Tamil, 1EXCL.PL)
	[−AUTHOR, +ADDRESSEE, SENTIENCE]	2	*you*

Table 6: Person Cross-Classification (no feature-underspecification).

Features	Category	Exponents
[+AUTHOR, +ADDRESSEE, SENTIENCE]	1INCL.	*naam* (Tamil, 1INCL.PL)
[+AUTHOR, −ADDRESSEE, SENTIENCE]	1EXCL.	*naaŋaḷ* (Tamil, 1EXCL.PL)
[−AUTHOR, +ADDRESSEE, SENTIENCE]	2	*you*
[−AUTHOR, −ADDRESSEE, SENTIENCE]	3	*him, sie* (German), *si* (Italian)
[SENTIENCE]	REFL	Anaphors in Bantu
∅	NULL	*ziji* (Chinese),

Table 7: Four classes of anaphor

Class	PERSON-Features	Exponents
3rd-anaphor	[−AUTHOR, −ADDRESSEE, SENTIENCE]	*taan* (Tamil), *zich (zelf)* (Dutch)
REFL	[SENTIENCE]	Bantu anaphors
NULL-anaphor	∅	*ziji* (Chinese), *zibun* (Japanese)

Class	Non-ϕ-Feature	Exponents
Perspectival anaphors	[DEP]	*taan*, *ziji*, *sig* (Icelandic)

4.3.1 Deriving phi-matching (NULL-PERSON)

We noted again that anaphor-antecedence ϕ-matching is typically a prerequisite crosslinguistically. In the simplest scenario, a NULL-PERSON anaphor has not just unvalued PERSON, but also unvalued NUMBER, and GENDER features. Such an assumption is compatible for the Chinese anaphor *ziji*, given that it places no ϕ-restrictions on its antecedent. In such a scenario, all the ϕ-features on the anaphor would simply receive the same values as those on its antecedent, under Agree, yielding ϕ-matching as an obligatory result. A less straightforward scenario is that the NULL-PERSON anaphor lacks only the PERSON feature but is born with inherently valued NUMBER and/or GENDER features (e.g. Japanese *zibun*).

What is to prevent such an anaphor from only matching the PERSON value of its antecedent but differing in values for NUMBER and GENDER? It makes sense to think that, in such a case, ϕ-mismatch is ruled out semantically. This follows from the condition that referential identity typically yields identity of ϕ-features. Put another way, an anaphor (e.g. *zibun*) cannot, in the default case, corefer with a nominal without matching it for *all* ϕ-features. If ϕ-matching is not enforced in the syntax, it will typically be enforced in the semantics, once binding is established, as we have already discussed. But as already mentioned, the two routes to referential identity can be teased apart empirically. I discuss a concrete instance of such a scenario in Section 5.1.

4.3.2 Deriving morphological underspecification (NULL-PERSON)

The morphological underspecification of anaphors could be captured for a NULL-PERSON anaphor, but it would have to be relegated to the morphological component. This follows from the assumption that a NULL-PERSON anaphor start out being *unvalued* for PERSON. This means that, once it becomes ϕ-valued under Agree, it will end up with a full set of ϕ-features. Any surface lack of ϕ-featural distinctions on such an anaphor will necessarily have to follow from the underspecification of Vocabulary Items, as again in (31) and (32):

(31)   [D] $\leftrightarrow$ *ziji*

(32)   [3, SG, D] $\leftrightarrow$ *ta(a)n*

Thus, the *theory* itself doesn't actually make any predictions for increased frequency of underspecification on such anaphors, compared to their deictic pronominal counterparts. Such patterns would thus have to follow from functional considerations (Rooryck & Vanden Wyngaerd 2011), by proposing that anaphors lack, not just the values but also the attributes, for ϕ features (Kratzer 2009), by using featural diacritics to distinguish valued features from inherent ones (Rooryck

& Vanden Wyngaerd 2011) or by distinguishing anaphors from other pro-forms with respect to their internal structure (Heinat 2008; Déchaine & Wiltschko 2012) – along the lines discussed in Section 2.3.

4.3.3 Deriving the Anaphor Agreement Effect (NULL-PERSON)

The AAE, as we saw, is the restriction that an anaphor cannot directly trigger co-varying ϕ-morphology. AAE effects are straightforwardly captured with a NULL-PERSON anaphor, as long as we make two, fairly uncontroversial, assumptions.

First, the timing of Agree operations is crucial. We must ensure that the anaphor has not itself been valued for ϕ-features by the time a functional head (like T or v) comes around looking to Agree with it.[17]

Second, we must assume that partial agreement with T or v is ruled out. After all, a NULL-PERSON anaphor is only born unvalued for PERSON. In other words, X (Probe) cannot Agree with Y (Goal) if Y has even one unvalued ϕ-feature.[18] Concretely, this means that a NULL-PERSON anaphor with a valued NUMBER and/or valued GENDER feature should nevertheless not be able to trigger covarying agreement for these features on the verb. Agreement must be an "all or nothing" operation.[19] Finally, anaphoric agreement of the kind noted for Swahili and Chicheŵa has also been classified as a type of AAE. Such agreement is not a property of

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[17]For a non-local anaphor in subject position (e.g. Tamil *ta(a)n*, Sundaresan 2016; 2018), this falls out straightforwardly, because the Agree Probe (e.g. T) is merged before the nominal binder. In a local reflexive sentence, with an object anaphor, we can have subject or object agreement. With object agreement, the logic is the same. The Probe is v, which is merged earlier than the nominal binder subject. Subject agreement typically involves cases of a nominative object under a subject which, being oblique, cannot itself trigger agreement, as in Italian (11–13). The Probe is T and is actually merged *higher* than the binder. To explain why the AAE still holds, we must thus make some additional assumption, e.g. that "subject agreement" with an in-situ nominative object involves successive cyclic Agree via v. It would then be the first Agree cycle that runs into earliness problems as the other types of agreement.

[18]Note that this is distinct from another phenomenon sometimes referred to as partial agreement which, as a reviewer correctly points out, is well attested. This is of the following abstract form. X (Probe) Agrees with Y (Goal), which is fully specified for all ϕ-features; but X only marks (and potentially also only Agrees for) a proper subset of these features. For instance, German nouns have fully valued case, PERSON, NUMBER, and GENDER features. But adjectives modifying such nouns show agreement with them only for case, NUMBER, and GENDER, and plausibly do not even Probe them for PERSON. Partial agreement in this sense is, of course, fully possible in the current system and is not what I am talking about here.

[19]On the other hand, if it turns out that there *are* languages that allow covarying agreement for GENDER and NUMBER in such cases, then the current system has a way to make sense of this. The idea would be that, in such languages, partial agreement is allowed, perhaps as a parametric choice. What is strictly ruled out, however, is a scenario where a NULL-PERSON anaphor triggers covarying agreement for PERSON.

NULL-PERSON anaphors. Given that they have no valued PERSON-feature themselves, they are not expected to trigger agreement (that additionally patterns like 1st and 2nd-PERSON agreement) on T or *v*.

4.4 3rd-PERSON anaphors

A 3rd-PERSON anaphor has the feature specification [−AUTHOR, −ADDRESSEE], and is negatively specified with respect to 1st- and 2nd-PERSON. The empirical signature of such an anaphor is that it allows only 3rd-PERSON antecedents.

3rd-PERSON anaphors must be distinguished from *non*-anaphoric 3rd-PERSON pro-forms, which will also have the same feature-specification. Assuming that anaphora is defined in terms of feature-deficiency (which is "rectified" via Agree), this means that 3rd-PERSON anaphora must be defective for a non-PERSON feature. Such anaphors could thus have an unvalued NUMBER or GENDER feature. Alternatively, or additionally, such anaphors could be deficient for a perspectival feature like DEP (Sundaresan 2012; 2018).

4.4.1 Deriving phi-matching (3rd-PERSON)

Since a 3rd-PERSON anaphor can start out unvalued for NUMBER and GENDER, we predict that we would have syntactic feature matching for these features, because they will be valued by Agree with the antecedent. But matching for 3rd-PERSON must be via the semantic route since the anaphor is born with this feature already valued.

4.4.2 Deriving morphological underspecification (3rd-PERSON)

As with NULL-PERSON anaphors, morphological underspecification must be captured either functionally, structurally, via featural diacritics, or by positing that the anaphor lacks featural attributes, not just values.

4.4.3 Deriving the Anaphor Agreement Effect (3rd-PERSON)

Given the discussion above for NULL-PERSON anaphors, we predict that a 3rd-PERSON anaphor should also be subject to the AAE. Central to this conclusion is the afore-mentioned premise that partial agreement with a functional head is ruled out. In other words, it cannot be the case that a 3rd-PERSON anaphor can satisfy a Probe by triggering agreement for this feature alone. I assume, as before, that having unvalued NUMBER and GENDER features will render the 3rd-PERSON anaphor unable to serve as a appropriate Goal for ϕ-agreement. Finally,

the timing of Agree is again crucial. The AAE holds just in case the anaphor has not had its own ϕ-features valued in the course of binding via Agree, by its nominal antecedent, at the stage when the functional head is trying to Probe it.

4.5 The 1/2 vs. 3 antecedence gap

Consider now the 1/2 vs. 3 antecedence gap in (28), repeated below:

(33) In a language with only one unambiguously anaphoric form, this must correspond to an anaphor that takes a 3rd-PERSON antecedent.

Both classes of anaphor seen so far are well-behaved with respect to (33). 3rd-PERSON anaphors allow only 3rd-PERSON antecedents; NULL-PERSON anaphors allow antecedents of all PERSON. The only scenario that would allow 1st/2nd-antecedence while *dis*allowing 3rd, would be if the anaphor were itself specified as [+AUTHOR] or [+ADDRESSEE] (or some combination thereof). But there don't seem to be dedicated *anaphoric* forms for 1st and 2nd-PERSON alone in any language. For instance, bound-variable uses of 1st and 2nd-PERSON forms (see discussion of so called "fake indexicals" in von Stechow 2002; Kratzer 2009, a.o.) as in (34) always *also* involve an indexical use:

(34) I am the only one who broke my laptop this week.

But it is admittedly not so clear why this is the case.[20]

4.6 PCC effects and anaphoric agreement: REFL anaphors

We observed earlier that anaphors in French and Southern Tiwa are sensitive to the PCC, just like 1st and 2nd-PERSON pronouns in these languages. If the PCC is a person restriction that affects all (weak) grammatical objects that are (positively or negatively) specified for PERSON, then it follows that 3rd-PERSON anaphors would be subject to the same restriction as 1st- and 2nd-. This, in turn, could be taken to argue that anaphors in such languages belong to the 3rd-PERSON class. An additional assumption that is needed, of course, is that, in such languages, a *non*-anaphoric 3rd-person pro-form must lack PERSON altogether.

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[20]Perspectival anaphors are *obviative*: i.e. cannot *cannot* refer to the perspective of the utterance-context participant (Sundaresan 2012; 2018; Sundaresan & Pearson 2014). E.g. perspectival anaphora in Italian (Giorgi 2010) and Icelandic (Hicks 2009; Reuland 2011, a.o.) are used only across subjunctive clauses – an obviative mood that precludes the utterance-speaker's perspective (Hellan 1988; Sigurðsson 2010). If this is correct, then we can imagine that interpreting the perspectival feature on the anaphor together with a feature that is [+AUTHOR] or [+ADDRESSEE] (or both) leads to semantic incompatibility, perhaps even a contradiction.

The fact that anaphoric agreement patterns with 1st- and 2nd-PERSON agreement could be accounted for by positing that such agreement is regulated by sensitivity to a positively or negatively specified PERSON-feature. But we also saw that anaphoric agreement in a given language is distinct from all other forms in the ϕ-paradigm in that language (see again (23) vs. (24) and the ϕ-paradigms in Table 3). This means that the 3rd-PERSON anaphor must be featurally distinct from all other nominals at the time of triggering agreement. Assuming, as before, that partial ϕ-agreement is ruled out, this is harder to implement. After all, once such an anaphor has been valued for any NUMBER, GENDER or other (e.g. DEP) features, what is to distinguish it from another nominal (e.g. a non-anaphoric 3rd-PERSON pronoun) which bears these features inherently? One could underspecify the SpellOut rule for agreement, but this seems clearly the wrong way to go: it doesn't explain why such agreement is triggered by an anaphor as opposed to any other pro-form with these features.

A bigger challenge comes from sentences like (35), repeated from (26):

(35) Ndi-na-dzi-khal-its-a   *pro[+ana]* w-a-m-kali.
      1SS-PAST-REFL-become-CAUS-FV   CL1-ASSOC-CL1-fierce

      'I made myself fierce.'

Patterns like (35), reported for other Bantu languages like Ndebele (Bowern & Lotridge 2002) and Swahili (Woolford 1999), show us that the anaphor needs to share some features in common with 1st and 2nd-PERSON as well which, of course, a 3rd-PERSON anaphor doesn't.

This is where the privative [SENTIENCE] feature comes into play. As discussed, such a feature underlies all nominals with contentful PERSON. An anaphor that takes a 1st and 2nd-PERSON antecedent, as in (35), is simply featurally underspecified for all features except the [SENTIENT] feature. The empirical signature of such an anaphor (labelled "REFL") is that it takes only sentient antecedents. To explain the unique form of anaphoric agreement in such languages, we must assume that no other nominal in the language is featurally underspecified such that it denotes [SENTIENT] and nothing else, at the point in the derivation where the anaphor triggers agreement on the verb. This means, in turn, that the anaphor cannot already have Agreed with its antecedent by this point (assuming that such an Agree operation would render the anaphor and its antecedent featurally indistinguishable).

4.7 Perspectival anaphora

In the current system, perspectival anaphora comes out as a strictly orthogonal category. As such, perspectival anaphors can, in theory, be defined for NULL-

PERSON and 3rd-PERSON anaphors, as well as REFL. Dravidian *ta(a)n* is a 3rd-PERSON anaphor in the current system, and is additionally perspectival. It is thus spelled out by the rule in (36), after having had the [DEP] feature valued by its binder:

(36) [−AUTHOR, −ADDRESSEE, SENTIENCE, Dep: *x*, sg] ↔ *taan*

We saw earlier that, in certain Tamil dialects, it is possible to have two locally bound reflexive forms – a 3MSG *avan* (non-perspectival, syncretic) and *ta(a)n* (perspectival) (cf. 18 vs. 19), from Sundaresan (2012). In the current system, the anaphor *avan* would be spelled out by the rule in (37):

(37) [−AUTHOR, −ADDRESSEE, SENTIENCE, m, sg] ↔ *avan*

Although the anaphoric and pronominal variants of *avan* would differ in terms of which NUMBER and GENDER features they were born with – they would be indistinguishable post-valuation. They would thus both be subject to the SpellOut rule in (37), yielding syncretic *avan* in this dialect.

Chinese *ziji* is a NULL-PERSON anaphor but is also perspectival, given its sentience and sub-command restrictions (cf. 16 vs. 17). Note, though, that it could also be REFL. Being featurally marked [SENTIENT], its sentience restriction would follow automatically. How do we decide? With *ziji*, we see not only animacy restrictions but also thematic restrictions on antecedence: ultimately, it is subject-oriented like all perspectival anaphors are and singles out an antecedent that denotes a perspective-holder (Huang & Liu 2001). As such, we don't need to encode the animacy restriction on *ziji* separately with [SENTIENT]; it comes out for free with DEP, which is independently needed anyway. So the SpellOut rule for *ziji* is just that in (38):[21]

(38) [Dep:*x*] ↔ *ziji*

5 Empirical predictions

The current system makes a range of testable empirical predictions. Below, I show that many of these are, indeed, confirmed.

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[21]This raises the interesting question of whether we can ever superficially "tell" the difference between a NULL-PERSON perspectival anaphor and a REFL perspectival anaphor. Perhaps not. The latter is possibly just ruled out under conditions of featural economy: i.e. the grammar avoids simultaneously using two features that accomplish the same goal, in this case specifying animacy.

5.1 ϕ-matching and its absence

The current model derives anaphor-antecedence ϕ-matching in two ways. With a NULL-PERSON anaphor, all ϕ-matching could happen featurally, e.g. if such an anaphor is born with *all* its ϕ-features unvalued. With a 3rd-PERSON anaphor, matching for NUMBER and GENDER alone may happen featurally; PERSON-matching is always enforced in the semantics, as a result of referential identity between the anaphor and its binder.

But as mentioned earlier, this distinction can be tested empirically. In particular, featural matching should imply strict ϕ-feature identity since it comes about via goal-probe feature-copying under Agree. Semantic matching, on the other hand, results in ϕ-feature identity *in the default case*, but not always. Rather, the requirement is that, applying the interpretation of the two sets of ϕ-features to a single referent does not yield a *contradiction* (e.g. a single referent cannot be simultaneously 1st and 2nd-PERSON).

But this predicts that we should observe anaphor-antecedent ϕ-mismatches, just in case applying the interpretation of the two sets of ϕ-features to a single referent *does*, indeed, yield a consistent interpretation. In prior work (Sundaresan 2012; 2018), I argue that this prediction is confirmed in so-called "monstrous agreement" sentences in Tamil. *Monstrous agreement* refers to the phenomenon where the predicate of a 3rd-person speech report surfaces with 1st-person agreement in the scope of a 3rd-PERSON anaphor. I propose that, in such cases, the anaphor *ta(a)n* is bound by a shifted 1st-PERSON indexical (Schlenker 2003; Anand 2006) which also triggers the 1st-PERSON agreement on the verb. We thus have a scenario where an anaphor and its local binder have clearly non-identical PERSON features, and yet have identical reference. We can make sense of this precisely because it happens under conditions of indexical shift.

It is entirely consistent for a single referent to be both the speaker of a matrix speech event (thus [+AUTHOR] with respect to the speech event) and *not* the speaker or ADDRESSEE with respect to the utterance-context (thus, [−AUTHOR, −ADDRESSEE] with respect to the utterance-context). There is no contradiction. Note, crucially, that *ta(a)n* is a 3rd-PERSON anaphor; thus, referential identity is enforced semantically, not via feature-matching.

A different prediction is that a NULL-PERSON anaphor, being unvalued for PERSON, has to match its antecedent for PERSON, but not necessarily for NUMBER and GENDER. Indeed, such NUMBER mismatches are possible in Hausa (Haspelmath 2008: 42, 8): crucially, Hausa anaphors can be anteceded by all PERSON (Newman 2000), showing that they belong to the class of NULL-PERSON anaphor.

5.2 PCC effects

We predict that NULL-anaphora should not be restricted like 1st- and 2nd-PERSON for PCC, since they lack PERSON. This, too, seems to be confirmed. Thus, in Bulgarian, a language that shows the Weak PCC, PCC effects do not obtain with the reflexive clitic *se* (Rivero 2004: 500) and also Nevins (2007):

(39) Na Ivan mu se   xaresvat tezi   momicheta.
     to Ivan DAT REFL like-3PL these girls

     'Ivan likes these girls.'

Crucially, Bulgarian *se* is underspecified for PERSON and can take antecedents for 1st, 2nd, and 3rd-PERSON.

5.3 AAE and the timing of Agree

I observed earlier that the timing of Agree plays a central role in deriving the AAE. Concretely, the anaphor cannot serve as a Goal for Agree for T or *v* because it has unvalued ϕ-features of its own. This in turn predicts that, in cases where an anaphor has already had its ϕ-features valued by Agree with its antecedent at the stage in the derivation where T/*v* Probes it, the AAE should not hold. This prediction seems to be met. In recent work Murugesan (2018) presents case studies from Gujarati showing that objects in this language Agree with T, not *v*. This means an object anaphor has already had its ϕ-features valued by its antecedent in [Spec, *v*] by the time T Probes it. It is precisely in such a configuration that the AAE seems not to hold. Murugesan argues that similar situations arise in Archi, Ingush, and Shona.

5.4 Sentience and animacy effects

I have argued that an anaphor that triggers anaphoric agreement, as in the Bantu languages is of the REFL class, featurally underspecified as [SENTIENT]. The obvious prediction, then, is that anaphors in such languages will not only allow antecedents of all PERSON, which we have already seen to be true, but that they will *not* allow non-sentient antecedents which (properly) includes inanimate antecedents. Such a restriction does, indeed, seem to be initially confirmed. Woolford (1999) and Vitale (1981) report for Swahili, a language with anaphoric agreement, that object agreement may only be trigged by animate entities.

Acknowledgements

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