

# Distinct featural classes of anaphor in an enriched PERSON system

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## Abstract

Given the wealth of generative literature on anaphora, it is surprising, if not downright odd, that the question of what an anaphor formally *is*, still remains an open question. This paper asks why, and tries to find a fruitful solution. There are two prevailing views on this point: the  $\phi$ -deficiency view and the  $F$ -deficiency view. Morphological  $\phi$ -underspecification, phi-matching effects, and the Anaphor Agreement Effect (AAE) argue for a phi-deficiency approach. Perspectival anaphora and anaphoric sensitivity to PERSON-asymmetries argue in favor of the other. We thus have two *mutually inconsistent but equally valid* views on anaphora. 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 animacy feature. The current model is shown to make accurate empirical predictions for anaphors that are *insensitive* to PERSON-asymmetries for the PCC, animacy effects for anaphoric agreement, and instances of non-matching for NUMBER and PERSON.

## 1 Overview

Standard theories classify PERSON into three categories: 1st, 2nd, and 3rd. In this paper, I argue that this classification is not fine-grained enough to capture all the PERSON distinctions attested in language. We need (at least) six categories of PERSON, rather than the standard three, as illustrated in Table 1. The PERSON-system in Table 1 introduces two main categories to a standard three-way system. In addition to the categories built on standard 1st (itself additionally distinguished for clusivity), 2nd, and 3rd (which have the feature [*Anim*] in common<sup>1</sup>) there is an

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<sup>1</sup> This encodes the presence of semantic animacy and is present on categories that are contentful for PERSON. Adger & Harbour (2007) propose that this is simply presupposed on categories that are [+participant]. I am introducing it instead as a privative feature.

Table 1: Person Classification: [ $\pm$ Author], [ $\pm$ Addressee] & [Anim]

Features	Category	Exponents
[+Author, +Addressee, anim]	1INCL.	<i>naam</i> (Tamil, 1INCL.PL)
[+Author, -Addressee, anim]	1EXCL.	<i>naaŋga</i> (Tamil, 1EXCL.PL)
[-Author, +Addressee, anim]	2	<i>you</i>
[-Author, -Addressee, anim]	3	<i>him, sie</i> (German), <i>si</i> (Italian)
[anim]	REFL	Anaphors in Bantu
$\emptyset$	NULL	<i>ziji</i> (Chinese), <i>man</i> (German)

entirely featureless NULL category and a featurally underspecified REFL category. There are thus *three* non-1st and non-2nd (i.e. non-Participant)PERSON-categories. Similarly articulated PERSON-classifications 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.

In Minimalism, anaphora is effected under syntactic Agree between the anaphor and its antecedent, the output of which feeds semantic binding. 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 is being Agreed for, between an anaphor and its antecedent. Two main schools of thought may be discerned with respect to this issue: the “ $\phi$ -deficiency view” and “ $F$ -deficiency view”. In the former, anaphora are simply defined in terms of  $\phi$ -deficiency (Heinat 2008; Kratzer 2009; Reuland 2001; 2011; Rooryck & vanden Wyngaerd 2011). In the latter (adopted by Adger & Ramchand (2005); Hicks (2009); Sundaesan (2012), an anaphor is defined as being defective for some *other* non- $\phi$  feature,  $F$ .

Given the wealth of literature on anaphora (see e.g. Chomsky (1981); Reinhart & Reuland (1993); Sells (1987); Hellan (1988) a.o. in the GB era and, more recently in Minimalist work Reuland (2001; 2011); Heinat (2008); Kratzer (2009); Hicks (2009); Rooryck & vanden Wyngaerd (2011)), it is surprising, if not downright odd, that the question of what an anaphor is, syntactically speaking, still remains so unresolved. The goal of this paper is to tackle this issue head-on, to motivate a principled explanation and find a fruitful resolution for it. The main source of the problem, as I will argue below, is that there are strong theoretical

and empirical arguments for both views on anaphora. The empirical evidence for a  $\phi$ -defectivity approach comes from anaphor-antecedence  $\phi$ -matching, the Anaphor Agreement Effect (AAE), and the crosslinguistic morphological underspecification of anaphors for  $\phi$ -features. Empirical evidence for the  $F$ -deficiency view comes from perspectival anaphora crosslinguistically, from the sensitivity of anaphors to 1st, 2nd vs. 3rd PERSON-asymmetries, and a rarely discussed PERSON-restriction on anaphoric antecedence (Comrie 1999).

The upshot is that we have two *mutually inconsistent but equally valid* views on anaphora. *No single anaphor* that can satisfy the criteria for both at the same time. A unified resolution of both featural approaches is not possible. I thus argue for resolution in terms of a unification, rather than an intersection, of their empirical properties – proposing that anaphors fall into distinct featural categories, delineated against the feature-system in Table 1. The full class of anaphors is as given in Table 2 and will be shown to capture the full range of empirical properties discussed in the course of the paper. Running orthogonal to these is the class of perspectival anaphora, involving anaphors whose antecedence is regulated by perspective-holding with respect to some predication containing the anaphor (Sells 1987; Kuno 1987; Koopman & Sportiche 1989; Giorgi 2010; Sundaresan 2012; Pearson 2013; Nishigauchi 2014; Charnavel 2015).

Table 2: Three Classes of Anaphor

Class	PERSON-Features	Exponents
3rd-anaphor	[-Author, -Addressee, Anim]	<i>taan</i> (Tamil), <i>zich(zelf)</i> (Dutch)
REFL	[Anim]	Bantu anaphors
NULL-anaphor	$\emptyset$	<i>ziji</i> (Chinese), <i>zibun</i> (Japanese)

The model developed here makes testable empirical predictions with respect to the PCC,  $\phi$ -matching and animacy effects. I show that these are positively confirmed, attesting to the validity of the current approach.

## 2 The $\phi$ -deficiency view

One of the main theoretical advantages of this approach is its parsimony. All the approaches of this nature are built on the fundamental premise that an anaphor is defined by its lack of  $\phi$ -features.  $\phi$ -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 to an observation by Bouchard (1984), that a nominal needs a full set of  $\phi$ -features to be LF-interpretable. As such, any nominal that lacks a full  $\phi$ -feature specification must get its missing  $\phi$ -features checked in syntax, on pain of being subsequently uninterpretable at LF.

## 2.1 Theoretical motivation and details

My discussion of a  $\phi$ -deficiency view to anaphora (the predominant approach), is not, by any means, intended to suggest that there is a single homogenous approach to this phenomenon. These proposals also differ significantly with respect to other assumptions regarding the internal structure and overall feature-composition of the anaphor and, in some cases, also the nature of the Agree dependency. Here, I present a “highlights reel” version of this.

### 2.1.1 Nature of $\phi$ -defectivity

Kratzer (2009) proposes that all anaphors are “born minimal”: i.e. an anaphor has no valued  $\phi$ -features whatsoever.  $\phi$ -valuation happens post-syntactically at PF, via feature unification, by c-commanding local functional heads (T or  $\nu$ ) and, eventually, the antecedent of the anaphor. This valuation triggers binding at LF. Reuland (2001; 2011), on the other hand, assume that the number and nature of  $\phi$ -features an anaphor lacks are a matter for parametric variation. Thus, for Kratzer, parametric variations must be captured morphologically; for Reuland, they directly reflect underlying differences in the respective anaphors’ feature-composition.

For Reuland (2011), the internal structure of the anaphor also plays a crucial role in distinguishing simplex anaphors from complex (or “SELF”) anaphors. The presence of a SELF-morpheme in the latter prevents the complex anaphor from becoming indistinguishable from its antecedent when it enters a “chain” dependency with it. Heinat (2008) points out that anaphors in Thai and San Lucas Quiavini Zapotec seem, on the surface, not to be pronominal at all, but are R-expressions in their own right.

This means, for him, that anaphors, R-expressions, and pronouns are all built on a (pro)nominal root (e.g.  $\sqrt{Mike}$ ). Their difference stems from where in the DP this root is merged: with an anaphor, it is merged as a complement to a D head that bears unvalued  $\phi$ -features. This in turn makes the entire DP  $\phi$ -deficient, flagging it as anaphoric. With a (deictic) pronoun or R-expression, the root is

merged as a complement to N inside a DP. Though the D still bears unvalued  $\phi$ -features, these can be valued by N. Such a DP is thus referentially independent. An N head is crucially lacking in an anaphoric DP.

### 2.1.2 Nature of Agree

For Kratzer, under Feature Transmission under Binding “The  $\phi$ -feature set of a bound DP unifies with the  $\phi$ -feature set of the verbal functional head that hosts its binder” Kratzer (2009), 195, Ex. 18). Unlike standard Agree, which is downward, Kratzer assumes that feature unification under binding is essentially set-union, thus “neutral with respect to the direction of feature transmission”. It is also post-syntactic. For Heinat (2008), 119, on the other hand, “any phrase externally merged to a structure functions as a probe, if it has an unvalued feature”. Assuming that such probing obtains only under c-command, this essentially entails that probing is downward. This creates an immediate problem for the analysis of reflexive sentences like (1):

- (1) Malala<sub>i</sub> admired herself<sub>i</sub>.

Since *herself* is the object, treating it as a probe for  $\phi$ -valuation would essentially entail proposing upward probing. To obviate this problem, Heinat proposes that the real probe in (1) is actually the subject, *Malala*, because it lacks a value for case (formally: has an unvalued T feature). When it is externally merged in Spec,  $\nu$ P, it probes downward within the  $\nu$ P; as a *reflex* of this, it values the  $\phi$ -features on  $\nu$  and the reflexive. The subject is then internally merged to Spec, TP, where it again probes downward to get its case valued.  $\phi$ -feature valuation thus happens as an epiphenomenon of (downward) case-valuation.

### 2.1.3 Inherited vs. inherent $\phi$ -features

The question that becomes relevant for all the analyses under the  $\phi$ -deficiency view is what formally distinguishes an anaphor as an anaphor once its  $\phi$ -features have been valued. In particular, how does the grammar “know” to distinguish a simplex anaphor like Dutch *zich* from a pronoun like *hem* when they both occur in object position? Rooryck & vanden Wyngaerd (2011) propose a brute-force solution: inherited features must be distinguished from inherent features by their bearing a “\*” featural diacritic. The anaphoric *zich* will thus bear this diacritic, but *hem* will not, and the two will be distinguished from one another at the interfaces. An alternative, and potentially more elegant solution, might be to keep the feature-specifications the same but shift the locus of variation to the

internal structures of the anaphor vs. pronoun. As we have seen, Heintz (2008) already proposes something along these lines (see also Dechaine & Wiltschko (2012) for a more articulated analysis of reflexives across languages, in this spirit).

Empirical support for the  $\phi$ -deficiency view comes from a number of sources. I turn to this next.

## 2.2 Anaphora and $\phi$ -matching

Anaphors must typically match their antecedents for  $\phi$ -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, (2) is ungrammatical because the anaphor has 1SG  $\phi$ -features which don't match the 3MSG features of its binder:

- (2) \*He<sub>i</sub> saw myself<sub>i</sub>.

Such  $\phi$ -matching seems to be a restriction on simplex anaphors as well, as illustrated by the ungrammaticality of the German counterpart to (2) in (3):

- (3) \*Er<sub>i</sub> sah mich<sub>i</sub>.

Under a  $\phi$ -deficiency approach, this falls out for free. If an anaphor must have one or more unvalued  $\phi$ -features and anaphoric binding is triggered by the anaphor having its  $\phi$ -features valued, via Agree, then such  $\phi$ -matching is, indeed, precisely what is predicted.

There are, of course, cases where no  $\phi$ -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)):

- (4) Drites<sub>i</sub>                      dhimset                      vetja<sub>i</sub>.  
Drita.DAT=3SG.DAT pity.3SG.PAST.NACT ANAPH.NOM  
'Drita<sub>i</sub> pities herself<sub>i</sub>.'
- (5) Vetja<sub>i</sub> me<sub>i</sub>                      dhimset.  
ANAPH.NOM=1SG.DAT pity.3SG.PRS.NACT  
'I<sub>i</sub> pity myself<sub>i</sub>.'

However, what such examples show is the absence of overt  $\phi$ -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  $\phi$ -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. An alternative might be to propose that there is a single anaphoric form that is syncretic for all PERSON, NUMBER, and GENDER combinations.

Explicit cases of non- $\phi$ -matching typically involve some sort of mismatch between the semantic and grammatical  $\phi$ -features on the antecedent and the anaphor. Such a situation obtains in the minimal pair (6) and (7), involving so-called “imposters”<sup>2</sup> (97; Exx.\ 15; 17; Collins & Postal (2012)):

- (6) [The present authors]<sub>i</sub> are proud of ourselves<sub>i</sub>.  
(7) [The present authors]<sub>i</sub> are proud of themselves<sub>i</sub>.

As Collins & Postal show, a sentence like (6) 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 (6) doesn’t really involve a  $\phi$ -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.

### 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  $\phi$ -distinctions in the given language. The identity and range of these features is parametrized, as we’ve already noted. Thus, Korean *caki* and Dravidian *taan* are underspecified for gender alone: i.e. can take antecedents of any gender, but these must be 3sgGerman *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  $\phi$ -deficiency view, these distinctions can be captured in one of two ways. Assuming that a bound variable starts out  $\phi$ -minimal (Kratzer 2009), we could propose that an anaphor acquires all and only those  $\phi$ -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

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<sup>2</sup> Collins & Postal (2012), 5, Ex. 10, define an imposter as “a notionally X person DP that is grammatically Y person, X  $\neq$  Y.”

thus remain unspecified for all  $\phi$ -features. The morphology, then, straightforwardly spells out this featural state-of-affairs. Note, of course, this implies that an anaphor be born, not just lacking values for  $\phi$ -features, but lacking the relevant  $\phi$ -attributes themselves.

Alternatively, 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  $\phi$ -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 (8):

$$(8) [3, \text{sg}, \text{D}] \leftrightarrow ta(a)n$$

Under (8), 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 (9):

$$(9) [\text{D}] \leftrightarrow ziji$$

Since (9) makes reference to no  $\phi$ -features whatsoever, we would get syncretism across all PERSON, NUMBER, and GENDER categories for this anaphoric form.<sup>3</sup>

While a system like Kratzer's can directly capture the crosslinguistic robustness of morphological underspecification, a purely morphological solution will have to seek independent explanations, e.g. a functionalist explanation (Rooryck & vanden Wyngaerd 2011), for its universality.<sup>4</sup> Finally note that, under a  $\phi$ -valuation approach, it is perfectly possible for an anaphor to be expounded with all its  $\phi$ -features (as in Zapotec, Thai, or even English), as well. Such an anaphor would have to satisfy the condition that it have *all* its  $\phi$ -features valued at the time of SpellOut; additionally, it would have to be ensured that the SpellOut rule itself not be underspecified for any  $\phi$ -feature.

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<sup>3</sup> Of course, such a system would also need to make sure to differentiate the anaphor from a deictic pronoun in that position, with the same features. Such a distinction could be made either with featural diacritics (Rooryck & vanden Wyngaerd 2011) or in terms of the internal structure of the pro-form (Heinat 2008; Dechaine & Wiltschko 2012).

<sup>4</sup> To quote Rooryck & vanden Wyngaerd (2011), 45: "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."

## 2.4 Anaphor Agreement Effect (AAE)

The Anaphor Agreement Effect (AAE) is the observation, going back to Rizzi (1990), and since revised periodically since Woolford (1999); Tucker (2011); Sundaresan (2016), that anaphors cannot trigger “normal” (i.e. covarying)  $\phi$ -agreement. Rizzi’s original observation was motivated by minimal pairs like the one below, from Italian (Rizzi (1990), 3):

- (10) A loro interess-ano solo i ragazzi.  
to them interest-3PL only the boys.NOM  
‘They<sub>i</sub> are interested only in the boys<sub>i</sub>.’
- (11) \*A loro interess-ano solo se-stessi.  
to them interest-3PL only them-selves.NOM  
‘They<sub>i</sub> are interested only in themselves<sub>i</sub>.’ (Intended)

Italian has a nominative-accusative case system:  $\phi$ -agreement is triggered by a nominative argument. Thus, in (10), 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 (11), the sentence becomes ungrammatical. In contrast, a sentence like (12) (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:

- (12) A loro import-a solo di se-stessi.  
to them matters-3SG only of them-selves  
‘They<sub>i</sub> only matter to themselves<sub>i</sub>.’

A key difference between (11) and (12) 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: (11), where the anaphor should trigger agreement is ungrammatical whereas (12) 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 Selayereese, 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). Sundaresan (2016) argues that Tamil adopts an “agreement switch” strategy. When the anaphor occurs in the agreement-triggering case (nominative), co-varying  $\phi$ -agreement is exceptionally triggered by *some other nominal* with valued  $\phi$ -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, Sundaresan (2016), 23, updates Rizzi’s AAE as follows: “Anaphors cannot directly trigger covarying  $\phi$ -agreement which results in covarying  $\phi$ -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 the  $\phi$ -deficiency view. If an anaphor itself lacks  $\phi$ -features, then such an anaphor should not, be able to serve as a Goal to value the  $\phi$ -features on a probing T or  $v$ , yielding the AAE (as argued by Kratzer (2009)).

### 3 The $F$ -deficiency view

This is the group of analyses that have in common the idea that an anaphor is defined, not in terms of its lack of  $\phi$ -features, but by its being deficient for some other feature,  $F$ . Valuation for  $F$  triggers semantic binding and rules of Vocabulary Insertion for the elements in question, at PF.

#### 3.1 Theoretical motivation and details

The main theoretical issue with a  $\phi$ -deficiency approach to anaphora is that, while the  $\phi$ -features of a nominal restrict its domain of reference (in the evaluation context), they crucially don’t exhaust it.  $\phi$ -features introduce presuppositions that restrict, via partial functions, the lexical entry of nominals (Heim & Kratzer 1998), as in (13) below:

$$(13) \quad \llbracket she \rrbracket^{c,g} = \lambda x: x \text{ is female} \ \& \ x \text{ is an atom}.x$$

To quote Hicks (2009), 112: “While the shared reference of an anaphor and its antecedent perhaps naturally implies that the two share the same  $\phi$ -features, it is not at all clear that referential properties are formally encoded in terms of

$\phi$ -features ...Essentially, what is at stake in anaphor binding is referential dependency, not simply a  $\phi$ -feature dependency.” Hicks further notes that, under a  $\phi$ -deficiency view, anaphors that are overtly specified for all their  $\phi$ -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  $\phi$ -morphology” (Hicks (2009), 111).

For Hicks, therefore, anaphoric dependence is built on operator-variable features, along the lines of Adger & Ramchand (2005). An anaphor, as a semantically bound variable, is born 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.<sup>5</sup> Quantifiers, like ‘all’ and ‘some’ have OP features [OP:  $\forall$ ] and [OP:  $\exists$ ], respectively. This yields the derivations in (14a) and (14b) for (14):

(14) Every toddler injures herself.

- a. Every<sub>[OP: $\forall$ ]</sub> toddler<sub>[VAR: $x$ ]</sub> injures herself<sub>[VAR:  $\_$ ]</sub>
- b. Every<sub>[OP: $\forall$ ]</sub> toddler<sub>[VAR: $x$ ]</sub> injures herself<sub>[VAR: $x$ ]</sub>

Crucially, unbound (or free) variables like ‘she’ can also bind an anaphor, despite lacking an OP feature. Hicks’ proposal is built on the notion of referential defectiveness which, however, itself presupposes  $\phi$ -defectiveness. Empirical properties like  $\phi$ -matching are thus obtained for free. 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.

Sundaresan (2012)’s DEP-feature is formally identical to Hicks’ VAR. It is an attribute-value pair that takes integers/letters as value: these are assigned arbitrarily upon Merge, just as in Hicks’ system. An anaphor is born with an unvalued DEP-feature, the valuation of which feeds semantic binding. The fundamental difference from Hicks’ system lies in the notion that not every deictic

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<sup>5</sup> This is a crucial move. If Hicks were to assume, instead, that the value for VAR on R-expressions and pronouns were listed in the lexical entry, essentially distinguishing one instance of ‘he’ from another – a valued VAR would simply reduce to a referential index. This in turn would violate the Inclusiveness Condition in Chomsky (1995), 381. Hicks assumes, therefore, that a pronoun or R-expression is born with a feature whose values is simply a *pointer* or *instruction* to be converted to an arbitrary integer or letter upon Merge.

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. Central empirical evidence for this comes from “perspectival anaphora” – anaphors that are regulated by perspective-sensitivity – in languages like Tamil, Italian, Icelandic, and Japanese, which display an anti-locality effect with respect to antecedence. Since the local subject doesn’t bear a DEP-feature, it cannot value the unvalued DEP on the anaphor. The anaphor can only be valued by the pronominal operator in its phase, which alone bears a valued DEP feature.<sup>6</sup>

Below, I turn to an exposition of the empirical support for this approach.

### 3.2 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 Helan (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. Further evidence that such perspective-holding must be syntactically encoded, then shows that the feature content of such anaphors must be defined, not in terms of  $\phi$ -defectiveness, but in terms of perspective-defectiveness.

#### 3.2.1 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 for Chinese below (Huang & Liu 2001):

- (15) Wo bu xiaoxin dapò-le ziji de yanjing.  
I not careful break-ASP ANAPH POSS glasses  
“Not being careful, I broke my own glasses.”

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<sup>6</sup> The anti-locality itself is achieved by severing the notion of antecedence from that of binding. The pronominal operator that Agrees with, and subsequently binds, the anaphor is its true binder. The antecedent of the anaphor doesn’t enter into any syntactic relations with the anaphor. It simply corefers with the pronominal operator via standard discourse reference. Coreference between the antecedent and the anaphor thus obtains via transitivity. See Sundaresan (2012) and Sundaresan (2017) for details.

- (16) \*Yanjing<sub>i</sub> diao-dao dishang dapo-le ziji<sub>{i,\*j}</sub>.  
 glasses drop-to floor break-ASP ANAPH  
 “[The glasses]<sub>i</sub> dropped to the floor and broke themselves<sub>{i,\*j}</sub>.”  
 (Intended)

Under a simple  $\phi$ -deficiency view, both ‘the glasses’ with 3PL features in (16) and ‘I’ with 1SG features in (15) should qualify as potential Goals for valuing the  $\phi$ -features on the anaphor, thus both (15) and (16) 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 like promising, we have nevertheless weakened the link between  $\phi$ -features and reference by bringing in sentience through the back door. Second, the fact that the English counterpart to (16) 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 (17)-(18), reported also for Italian (Giorgi 2006) and Malayalam (Jayaseelan 1997), suggest that the LF filtering account is too simple:

- (17) Wo de jiaobao hai-le ziji.  
 I ’s pride hurt-ASP ANAPH  
 “[My<sub>i</sub> pride]<sub>j</sub> hurt self<sub>i/\*j}</sub>.”
- (18) Wo de meimei hai-le ziji.  
 I ’s sister hurt-ASP ANAPH  
 “[My<sub>i</sub> sister]<sub>j</sub> hurt self<sub>j/\*i}</sub>.”

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 than  $\phi$ -features – e.g. in terms of a feature that presupposes sentience (like the perspectival DEP-feature or an animacy feature itself) however, 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.<sup>7</sup>

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<sup>7</sup> Of course, we would still need some mechanism like feature percolation to allow the 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 typically denote perspective-holders more than objects do. Here, again, an account in terms of  $\phi$ -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.

### 3.2.2 One language, two anaphors

Sundaesan (2012), 85, Exx. 84a-b reports that, in certain Tamil dialects, (local) reflexivity may be expressed either with a dedicated anaphoric form *ta(a)n*, as in (20), or with a pro-form *avan*, that is syncretic with a 3MSG deictic pronoun, as in (19):

- (19) Raman-ükkü<sub>i</sub> avan-æ-yee<sub>{i,j}</sub> piḍikka-læ.  
 Raman[NOM] he-ACC-EMPH like-NEG  
 “Raman<sub>i</sub> didn’t like (even) himself<sub>i</sub>/him<sub>j</sub>.”
- (20) Raman<sub>i</sub> tann-æ-yee<sub>{i,\*j}</sub> piḍikka-læ.  
 Raman[NOM] ANAPH-ACC-EMPH like-NEG  
 “Raman<sub>i</sub> didn’t like (even) himself<sub>{i,\*j}</sub>.”

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 (20) *ta(a)n* favors an interpretation from the perspective of the antecedent, whereas the use of the pronoun doesn’t.

The challenge for the  $\phi$ -deficiency view is this: If *ta(a)n* and *avan* are purely  $\phi$ -deficient elements, why are they spelled-out differently, and interpreted in distinct ways? One might posit that they are both deficient for different  $\phi$ -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  $\phi$ -features, namely

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(e.g. animacy) of the possessor nominal to be visible on the possessum, thus enabling Agree with the anaphor.

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 the  $F$ -deficiency approach, however, we could simply propose that *avan* is  $\phi$ -deficient while *ta(a)n* is  $F$ -deficient (where  $F = \text{DEP}$ ), which then accounts for its perspectival nature. There is, indeed, nothing to prevent a single language from having both types of anaphor in its lexicon.

### 3.3 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.

#### 3.3.1 PCC effects

Bonet (1991, 182) defines the Person Case Constraint (PCC), Strong and Weak, reported for a number of languages (Haspelmath 2004; Doliana 2013), as follows:

**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 3<sup>rd</sup> 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.”

(21a)-(21b) show the Strong PCC at work in French (all French examples below are taken from (Raynaud 2017)):

(21) STRONG PCC (FRENCH):

- a. ✗ 1/2 ACC > 3 DAT  
\*Ils me lui présentent.  
3PL.NOM 1SG.ACC 3SG.DAT introduce.3PL  
‘They introduce me to him/her.’
- b. ✗ 1/2 ACC > 1/2 DAT  
\*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 both Strong and Weak PCC effects (Kayne 1975; Herschensohn 1979; Bonet 1991; Anagnostopoulou 2003; 2005; Rivero 2004; Nevins 2007; Adger & Harbour 2007). Compare French (22a) (originally from Kayne (1975)), 173, with French (21a), and (22b) with (21b):

(22) STRONG PCC WITH REFLEXIVES – FRENCH:

a. ✗ REFL ACC > 3 DAT

\*Elle<sub>i</sub> se<sub>i</sub> lui est donnée entièrement.’

She REFL.ACC 3MSG.DAT is given.FSG entirely

‘She<sub>i</sub> have herself<sub>i</sub> to him entirely.’

b. ✗ REFL ACC > 1/2 DAT

\*Ils<sub>i</sub> se<sub>i</sub> me présentent.’

they REFL.ACC 1SG.DAT introduce.3PL

‘They<sub>i</sub> introduce themselves<sub>i</sub> 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:

(23) ✓ 3 ACC > DAT:

a. Elle me l’a donné.

she me.DAT 3SG.ACC=HAVE.3SG GIVE.MSG

‘She gave it to me.’

b. Elle<sub>i</sub> se<sub>i</sub> l’est donné.

she herself.DAT 3SG.ACC=BE.3SG GIVE.MSG

‘She<sub>i</sub> gave it to herself<sub>i</sub>.’

Rivero (2004) reports that reflexives in Spanish show similar effects; Adger & Harbour (2007) discuss analogous data for Kiowa (Kiowa Tanoan), and Baker (2008) reports it for Southern Tiwa.

It is worth noting here, an interesting correlation between PCC effects and animacy in many languages. For instance, Adger & Harbour note for Kiowa that 1st-PERSON, 2nd-PERSON, indirect objects in the 3rd-PERSON as well as reflexives pattern alike with respect to the PCC. Crucially, these are all also interpreted

as being semantically animate. As such, Adger & Harbour make this the featural basis of the distinction between local PERSON, indirect objects, and reflexives, on the one hand, and other types of 3rd-PERSON, on the other. Anagnostopoulou (2005) also posits an underlying featural distinction between local PERSON and reflexives (+PERSON), on the one hand, and 3rd-PERSON (PERSON-less), on the other, to deal with the kinds of PCC data above. Indirect objects like those in Kiowa, on the other hand, are specified as -PERSON.

### 3.3.2 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 (Bower & Lotridge 2002), and in Warlpiri (Legate 2002) – the anaphor triggers “anaphoric agreement” on the verb. This is agreement marking that differs from the normal  $\phi$ -paradigm in that language. Thus, the special *ji* marking on the verb in Swahili (25) (contrast with (24)) does not  $\phi$ -covary, so is a form unique to the anaphor alone:

- (24) Ahmed a-na-m/\*ji-penda Halima  
Ahmed 3SBJ-PRS-3OBJ-love Halima.  
“Ahmed loves Halima.”
- (25) Ahmed a-na-ji/\*m-penda mwenyewe.  
Ahmed 3SBJ-PRS-REFL/\*3OBJ-love himself  
“Ahmed<sub>i</sub> loves himself<sub>i</sub>.” (emphatic)

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

Under a  $\phi$ -deficiency approach, such data would be genuinely difficult to capture because they show that the feature-specification of anaphors in such languages must be different, at the point of triggering verbal agreement, from that of *all other* nominals across all PERSON, NUMBER, and GENDER combinations. We could imagine, for the sake of argument, that the anaphor does, indeed, have some or all  $\phi$ -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. Kratzer (2009) pursues a variant of this option. Additionally, Kratzer introduces an [anaphoric] feature, as discussed: i.e. in certain cases, a reflexive *v* may choose to transmit this alone to the anaphor.

Table 3: Swahili object agreement paradigm

$\phi$	OBJECT-MARKER	VERB-FORM
1sg	-ni-	a-na- <u>ni</u> -penda
2sg	-ku-	a-na- <u>ku</u> -penda
3sg (class 1)	-m/mw-	a-na- <u>m</u> -penda
1pl	-tu-	a-na- <u>tu</u> -penda
2pl	-wa...-eni	a-na- <u>wa</u> -pendeni
3pl (class 2)	-wa-	a-na- <u>wa</u> -penda
:		

But of course, once such a choice is made, we have already made the implicit move away from a purely  $\phi$ -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 *unlike* 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, Exx. 86a-b, in Chicheŵa):

- (26) 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.'
- (27) 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 (27)), 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. In Pasamaquoddy, long distance agreement with anaphoric arguments is restricted in precisely the same environments as with 1st- and 2nd-PERSON arguments (Bru-

ening 2001). Conversely, 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  $\phi$ -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).

### 3.3.3 A gap in anaphoric antecedence: 1/2 vs. 3

Many anaphors only take 3rd-PERSON antecedents: e.g. German *sich*, Romance *se/si*, Japanese *zibun*, Korean *caki*, and Dravidian *ta(a)n*. Attempts have been made in the literature to formalize this restriction as stemming from a definitional property of anaphors, such as their inability to refer deictically (Safir 2004). While there *are* anaphors that allow 1st, 2nd-PERSON antecedents (e.g. Chinese *ziji*), these crucially also allow 3rd (see Huang & Liu (2001), for Chinese). This suggests that no anaphor can be anteceded by 1st/2nd but *not* by 3rd.

Yet, Table 4 would seem to falsify this:

Table 4: Pro-forms in German (accusative, singular)

PERSON	ANAPHOR	PRONOUN
1st	<i>mich</i>	<i>mich</i>
2nd	<i>dich</i>	<i>dich</i>
3rd	<i>sich</i>	<i>ihn/sie/es</i>

A form like *mich* can, after all, take a 1st-person antecedent but not a 3rd, or a 2nd:1

- (28) Ich(/\*Du/\*Sie) schlug mich.  
 I/\*you/\*she hit refl.ACC  
 ‘I hit myself.’  
 ✗ ‘You hit yourself.’  
 ✗ ‘She hit herself.’

But *mich* is ambiguously anaphoric or pronominal (as is *dich*). Perhaps, then, there is no *unambiguous* anaphoric form anteceded by 1st/2nd but not 3rd. Table 5 for Lezgian tells us that this cannot be accurate either (Haspelmath 1993: 184).

Table 5: Pro-forms in Lezgian (absolutive, singular)

PERSON	ANAPHOR	PRONOUN/DEM.
1st	<i>žuw</i>	<i>zun</i>
2nd	<i>žuw</i>	<i>wun</i>
3rd	<i>wič</i>	<i>am</i>

In (5), *žuw* is an unambiguously anaphoric form, anteceded by 1st & 2nd, but not 3rd. English may be similar, but forms like *himself* arguably contain a syncretic pro-form (as in the German case) + “self” marker. Returning to Lezgian, the additional unambiguously anaphoric *wič* makes this different again from the situation in German or Italian. 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 1st and 2nd-PERSON 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 (29):

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

In other words, the restriction makes reference to *surface forms* conditioned by underlying features, not to the underlying features directly.

It is hard to see how a  $\phi$ -deficiency account would be able to capture (29). An anaphor that is  $\phi$ -minimal (Kratzer 2009) should, by default, place no PERSON-restrictions on antecedence: i.e. such an anaphor should behave like Chinese *ziji*. We need the anaphor to have access to a more articulated featural system which can distinguish asymmetries within the categories of PERSON.

## 4 Proposal: distinct categories of anaphor

We have looked at the  $\phi$ -deficiency vs.  $F$ -deficiency views to anaphora as a way to answer the following question: why, given the wealth of generative research on anaphora, is a unified answer to the question of what the syntactic correlate

of an anaphor actually is, still lacking? We have seen theoretical and empirical evidence supporting both views. The  $\phi$ -deficiency view is supported by crosslinguistically robust anaphor-antecedent  $\phi$ -matching effects, the morphological  $\phi$ -underspecification of anaphors and the AAE. The  $F$ -deficiency view is supported by the existence of perspectival anaphora, and evidence showing that anaphors in certain languages are not PERSON-less: i.e. are sensitive to PERSON-asymmetries reflected in the PCC, agreement, and antecedence.

Far from helping to adjudicate between the two proposals, therefore, our comparison of the two has actually shown that both are valid in their own right. The role of PERSON has stood out, in particular. How can an anaphor be contentful for PERSON and contentless for it at the same time? It cannot, of course. The answer, then, must be that anaphors in natural language are not all created equal. Rather, they align themselves along distinct broad classes. Those of one class must be deficient for PERSON; those of the other must be contentful for PERSON. Some of these anaphors must also have an additional non- $\phi$  feature, to yield the properties of perspectival anaphora discussed earlier.

#### 4.1 Distinct featural classes of anaphor

I 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.<sup>8</sup> I base this on a bivalent rather than a privative feature system. The two features I will avail myself of are  $[\pm Author]$  and  $[\pm Addressee]$  which, modifying Halle (1997); Nevins (2007),<sup>9</sup> I define as in (30):

(30) **Featural definitions:**

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

A cross-classification of  $[\pm Author]$  and  $[\pm Addressee]$  now yields the following

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<sup>8</sup> Note, incidentally, that the idea that PERSON categories are more articulated is not novel: see Anagnostopoulou (2005); Nevins (2007); Adger & Harbour (2007: a.o.) for proposals in a similar vein based on data involving PCC effects. What is novel here is the kind of data that such an analysis is based on – namely data involving dichotomous patterns of anaphora crosslinguistically, as discussed above.

<sup>9</sup> Halle's and Nevins' definitions actually pertain to  $[\pm Participant]$  and  $[\pm Author]$ , the latter of which I have taken over unchanged. I am, however, using  $[\pm Addressee]$  instead of  $[\pm Participant]$  in order to be able to deal with clusivity distinctions.

PERSON-categories; exponents from the more unfamiliar languages in Table 6 are taken from the Surrey Syncretisms Database (Baerman 2002).

Table 6: Person Classification based on  $[\pm Author]$  and  $[\pm Addressee]$

	Features	Category	Exponents
1.	[+Author]	1	<i>I, we</i>
	[+Addressee]	$1\text{INCL} \wedge 2$	<i>-nto</i> (Muna, $2\text{HON.SG}=1\text{INCL.DU}$ )
	[-Author]	$\neg 1$	<i>ale</i> (Amele, $2=3.\text{DU}$ )
	[-Addressee]	$\neg 2$	—
2.	[-Author, -Addressee]	3	<i>him, sie</i> (German), <i>si</i> (Italian)
	[+Author, +Addressee]	$1\text{INCL.}$	<i>naam</i> (Tamil, $1\text{INCL.PL}$ )
	[+Author, -Addressee]	$1\text{EXCL.}$	<i>naaŋga</i> , (Tamil, $1\text{EXCL.PL}$ )
	[-Author, +Addressee]	2	<i>you</i>
	$\emptyset$	$\text{NULL}$	<i>ziji</i> (Chinese), <i>man</i> (German)

The categories in Group 1 in Table 6 are all characterized by having a value for exactly one feature and yield various person syncretism effects. Thus,  $[\text{+Addressee}]$  defines all and only forms that include the addressee, i.e. forms that are syncretic for 1st-PERSON inclusive. Assuming that *Author* and *Addressee* features denote individuals labelled  $i$  and  $u$ , respectively (Harbour 2016), a non-participant feature denotes an individual labelled  $o$ .<sup>10</sup> Thus,  $1\text{INCL.}$  denotes the following reference-set:  $\{i \wedge u, i \wedge u \wedge o\}$  and 2 denotes  $\{u, u \wedge o\}$ . The elements in Group 2, with the exception of  $\emptyset$ , however, are defined on the full specification of  $[\pm Author]$  and  $[\pm Addressee]$ . Here, similarly, a feature combination like  $[-Author, +Addressee]$  defines all and only forms that include the addressee and exclude the author. This is defined by the reference-set  $\{u, u \wedge o\}$ , as we have seen, which are just variants of 2 so the category is simply labelled as such.

All this said, it is always a valid question whether the featurally underspecified categories in Group 1 of Table 6, are really necessary, given that the same syncretism effects can be obtained via morphological underspecification. For the sake of simplicity, I will do away with the categories in Group 1 and propose that such syncretisms be derived via underspecification of the exponents instead. As

<sup>10</sup> For the sake of perspicuity, I don't distinguish *pluralities* built on  $i, u, o$ , and their minimal combinations, in what follows. This means sets like  $\{u \wedge u\}$ , and  $\{o \wedge o \wedge o \dots\}$  are simply subsumed under  $\{i\}$ ,  $\{u\}$ , and  $\{o\}$ , respectively. Similarly, a set like  $\{i \wedge u\}$  is not distinguished from one like  $\{i \wedge u \wedge u\}$ .

an illustration, the SpellOut rule for exponing *we* in English would be as in (31), with the contexts for its insertion being fully specified as [+Author, -Addressee] or [+Author, +Addressee]:

(31) [+Author] ↔ *we*

This would yield the desired lack of clusivity distinction for 1st-person.<sup>11</sup> This yields the following reduced range of PERSON-categories:

Table 7: Final Person Classification based on [ $\pm$ Author] and [ $\pm$ Addressee]

Features	Category	Exponents
[-Author, -Addressee]	3	<i>him, sie</i> (German), <i>si</i> (Italian)
[+Author, +Addressee]	1INCL.	<i>naam</i> (Tamil, 1INCL.PL)
[+Author, -Addressee]	1EXCL.	<i>naaŋga</i> (Tamil, 1EXCL.PL)
[-Author, +Addressee]	2	<i>you</i>
∅	NULL	<i>ziji</i> (Chinese), <i>man</i> (German)

The real innovation of such a system is that it defines two different types of non-1st and non-2nd PERSON category. It is these categories that two of our classes of anaphor will be built on. The NULL category is based on the ∅ and thus defines a PERSON-less form. In addition to certain types of anaphor, I am also including expletives (like German *man*) in this class (Nevins 2007; Ackema & Neeleman To Appear). 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. We will see that the feature-system in Table 7 will need to be updated still further to accommodate anaphoric agreement and certain types of PCC effects. But this basic set-up can already get us much of the way.

The model that I am developing here thus supports the view that an anaphor can come in different guises: two nominals may qualify as being both anaphoric despite being underlyingly quite distinct. Anaphora is simply the process of valuation of some feature *F* on a (pro-)nominal via Agree which then triggers semantic binding at LF.<sup>12</sup>

<sup>11</sup> One way to rule out the categories in Group 1 in a principled manner would be to propose that [ $\pm$ Author] and [ $\pm$ Addressee] come “as a package”, e.g. because they are encoded on a single syntactic head. Thus, there is no way to isolate one over the other. We can have categories for both, and also for neither (yielding ∅) but crucially not for one without the other.

<sup>12</sup> Of course, *F* would ideally be a feature that is independently justified, like a  $\phi$ -feature, in that

## 4.2 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. Below, we will see that such an anaphor can easily fulfill the empirical properties that motivated the  $\phi$ -deficiency view.

### 4.2.1 $\phi$ -matching

We noted again that anaphor-antecedence  $\phi$ -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  $\phi$ -restrictions on its antecedent. In such a scenario, all the  $\phi$ -features on the anaphor would simply receive the same values as those on its antecedent, under Agree, yielding  $\phi$ -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,  $\phi$ -mismatch is ruled out semantically. This follows from the condition that referential identity typically yields identity of  $\phi$ -features. Put another way, an anaphor (e.g. *zibun*) cannot, in the default case, corefer with a nominal without matching it for *all*  $\phi$ -features. If  $\phi$ -matching is not enforced in the syntax, it will typically be enforced in the semantics, once binding is established.<sup>13</sup>

### 4.2.2 Morphological underspecification

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-anaphors start out being *unvalued* for PERSON. This means that, once it becomes  $\phi$ -valued under

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it has something to do with the reference. Meta-rules of computational wellformedness are also relevant here, like the Inclusiveness Condition, which restrict the kinds of features that can be allowed into the syntax proper.

<sup>13</sup> Referential identity actually enforces, not  $\phi$ -feature identity, but a kind of  $\phi$ -feature consistency. This means that, in certain scenarios, the condition on  $\phi$ -feature matching can be relaxed. I discuss such a case in Section 5.1.

Agree, it will end up with a full set of  $\phi$ -features. Any surface lack of  $\phi$ -featural distinctions on such an anaphor will necessarily have to follow from the underspecification of Vocabulary Items, as again in (32) and (33):

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

(33) [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 as proposed in Rooryck & vanden Wyngaerd (2011).<sup>14</sup> We must also ask: given that the anaphor will inherit all of the  $\phi$ -features from the antecedent, how will the system "know" to distinguish the antecedent from the anaphor at LF and PF? We could propose that the binder and the anaphor could simply be distinguished structurally at LF: specifically, the former would asymmetrically c-command the latter. A non-mutually exclusive alternative, which seems to be empirically supported, would be to distinguish them by their internal structures (Heinat 2008; Dechaine & Wiltschko 2012). These same properties, in addition to case distinctions, would also serve to distinguish the nominals at PF.

#### 4.2.3 Anaphor Agreement Effect

The AAE, as we saw, is the restriction that an anaphor cannot directly trigger covarying  $\phi$ -morphology. Under the current model, AAE effects are straightforwardly predicted 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  $\phi$ -features by the time a functional head (like T or  $v$ ) comes around looking to Agree with it.<sup>15</sup> Second, we must assume

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<sup>14</sup> An alternative might be to argue, as Kratzer (2009) does, that NULL-PERSON-anaphors can be born with no PERSON-attributes at all. Then, morphological underspecification would simply reflect featural underspecification. However, I want to avoid proposing this to keep the system as restrictive as possible and to maintain the idea that semantic binding of such anaphors is rooted in syntactic Agree for PERSON.

<sup>15</sup> For a non-local anaphor in subject position (e.g. Tamil *ta(a)n*, Sundaresan (2016)), 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 (10)-(12). The

that partial agreement with T or *v* is ruled out. After all, a NULL-PERSON anaphor is only born unvalued for PERSON. 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.<sup>16</sup> 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 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*.

### 4.3 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 (Sundaesan 2012; 2017).

#### 4.3.1 The 1/2 vs. 3 antecedence gap

Consider now the 1/2 vs. 3 antecedence gap in (29), repeated below:

- (34) 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 (34). 3rd-PERSON anaphors allow only 3rd-PERSON antecedents; NULL-PERSON anaphors

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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.

<sup>16</sup> 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.

allow antecedents of all PERSON. The only scenario that would allow 1st/2nd-antecedence while *disallowing* 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 (35) always *also* involve an indexical use:

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

But it is admittedly not so clear why this is the case.<sup>17</sup>

### 4.3.2 PCC effects and anaphoric agreement

The fact that certain anaphors are sensitive to the PCC can be accounted for under the current system. As discussed earlier, such anaphors cannot themselves be unvalued for PERSON. They must therefore belong to the class of 3rd-PERSON anaphor. 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. These are, after all, the only nominals that are featurally specified for PERSON in the current system. An additional assumption that is needed, of course, is that, in such languages, a *non-anaphoric* 3rd-person pro-form must lack PERSON altogether.

The fact that anaphoric agreement patterns with 1st- and 2nd-PERSON agreement can be accounted for in much the same way, i.e. 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  $\phi$ -paradigm in that language (see again Exx. (24) vs. (25) and the  $\phi$ -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  $\phi$ -agreement is ruled out, this is harder to implement. After all, once such an anaphor has been valued for any NUMBER, GENDER

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<sup>17</sup> Perspectival anaphors are *obviative*: i.e. cannot *cannot* refer to the perspective of the utterance-context participant (Sundaresan 2012; Sundaresan & Pearson 2014; Sundaresan 2017). 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 [+*Participant*] feature leads to semantic incompatibility, perhaps even a contradiction.

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 (36), repeated from (27):

- (36) 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 (36), reported for other Bantu languages like Ndebele (Bower & Lottridge 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.

Recall that animacy plays a central role in tying together nominals that are affected by the PCC, in many languages. So this seems like a good candidate for the common feature that underlies nominals with contentful PERSON (see also Adger & Harbour (2007)). An anaphor that takes a 1st and 2nd-PERSON antecedent, as in (36), is simply featurally underspecified as [*anim*]. The empirical signature of such an anaphor (labelled "REFL") is that it takes only animate antecedents. Assuming that no other nominal in the language has precisely this feature-specification, we can then also straightforwardly explain the unique form of anaphoric agreement. This yields the final updated PERSON-classification below:

Table 8: Person Classification: [ $\pm$ Author], [ $\pm$ Addressee] & [*Anim*]

Features	Category	Exponents
[+Author, +Addressee, anim]	1INCL.	<i>naam</i> (Tamil, 1INCL.PL)
[+Author, -Addressee, anim]	1EXCL.	<i>naaŋga</i> (Tamil, 1EXCL.PL)
[-Author, +Addressee, anim]	2	<i>you</i>
[-Author, -Addressee, anim]	3	<i>him, sie</i> (German), <i>si</i> (Italian)
[anim]	REFL	Anaphors in Bantu, Warlpiri
∅	NULL	<i>ziji</i> (Chinese), <i>man</i> (German)

Assuming that this is correct, we then have the three distinct classes of anaphor, described in Table 9.

Table 9: Three Classes of Anaphor

Class	PERSON-Features	Exponents
3rd-anaphor	[-Author, -Addressee, Anim]	<i>taan</i> (Tamil), <i>zich(zelf)</i> (Dutch), <i>si</i> (Italian)
NULL-anaphor	∅	<i>ziji</i> (Chinese), <i>zibun</i> (Japanese), <i>vetja</i> (Albanian)
REFL	[Anim]	Bantu anaphors

#### 4.4 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 (37), after having had the [DEP] feature valued by its binder:

(37) [-Author, -Addressee, anim, 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. (19) vs. (20)), from Sundaresan (2012). In the current system, the anaphor *avan* would be spelled out by the rule in (38):

(38) [-Author, -Addressee, anim, 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 (38), 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. (17) vs. (18)). Note, though, that could also be REFL. Being featurally [*anim*], 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 [*anim*]; it comes out for free with DEP, which is independently needed anyway. So the SpellOut rule for *ziji* is just that in (39):<sup>18</sup>

(39) [Dep:*x*]  $\leftrightarrow$  *ziji*

## 5 Empirical predictions

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

### 5.1 $\phi$ -matching and its absence

The current model derives anaphor-antecedence  $\phi$ -matching in two ways. With a NULL-PERSON anaphor, all  $\phi$ -matching could happen featurally, e.g. if such an anaphor is born with *all* its  $\phi$ -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.

This distinction can be tested empirically. In particular, featural should imply strict  $\phi$ -feature identity since it comes about via goal-probe feature-copying under Agree. Semantic matching, on the other hand, results in  $\phi$ -feature identity *in the default case*, but not always. Rather, the requirement is that, applying the interpretation of the two sets of  $\phi$ -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  $\phi$ -mismatches, just in case applying the interpretation of the two sets of  $\phi$ -features to a single referent *does*, indeed, yield a consistent interpretation. This prediction is confirmed in so-called “monstrous agreement” sentences in Tamil (Sundaesan 2012; 2017). *Monstrous agreement* refers to the phenomenon where the predicate of a 3rd-person speech report surfaces with 1st-person agreement in the scope of an anaphor. Sundaesan argues 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

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<sup>18</sup> 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.

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.

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, Ex. 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):

- (40) 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 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 [*anim*]. 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 inanimate antecedents. Such a restriction does, indeed, seem to hold for Swahili: e.g. only animate objects may trigger agreement (Woolford 1999; Vitale 1981). This same animacy restriction should hold for REFL clitics in Romance or Kiowa that behave like 1st and 2nd-PERSON clitics.

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