# Distinct featural classes of anaphor in an enriched PERSON system

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**Abstract**

Given the wealth of literature on anaphora within the generative tradition, it is surprising, if not downright odd, that the question of what an anaphor formally *is*, still remains very much unresolved. This paper seeks to tackle this problem head on and find a fruitful resolution for it. Two main schools of thought can be discerned: one holds that anaphors are defined as being deficient for phi-features; the other, that they are deficient for some non-phi feature, F. The main source of the problem, I argue, is that there are strong theoretical and empirical arguments for *both* views on anaphora. Morphological underspecification, phi-matching effects, and the Anaphor Agreement Effect (AAE) provide evidence supporting a phi-deficiency approach. Perspectival anaphora, and deep-rooted anaphoric sensitivity to PERSON-hierarchy effects reflected in PCC effects, agreement, and a hithertho unnoticed typological gap for PERSON in anaphoric antecedence, argue in favor of the other view. The upshot of all this, is that we have two *mutually inconsistent but valid* views on anaphora. There is *no single anaphor* that can satisfy the criteria for both at the same time. I thus propose that anaphors in natural language be categorized into distinct featural classes and 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 with respect with respect to anaphors that are insensitive to PERSON-asymmetry effects for the PCC, to animacy effects for anaphoric agreement, and to a special case of non-$\phi$-matching between the anaphor and its binder.

## 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) five categories of PERSON, rather than the standard three. I will propose the categories for PERSON

in Table 1 resulting from a fully binary classification on the feature $[\pm Author]$ in combination with $[\pm Addressee]$. The person-system in Table 1 introduces two

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

| Features | Category | Exponents |
|---|---|---|
| [+Author, +Addressee, anim] | 1incl. | *naam* (Tamil, 1incl.pl) |
| [+Author, -Addressee, anim] | 1excl. | *naaŋgaɭ* (Tamil, 1excl.pl) |
| [-Author, +Addressee, anim] | 2 | *you* |
| [-Author, -Addressee, anim] | 3 | *him, sie* (German), *si* (Italian) |
| [anim] | Refl | Anaphors in Bantu |
| ∅ | null | *ziji* (Chinese), *man* (German) |

main categories to a standard three-way system. In addition to the categories built on standard 1st, 2nd, and 3rd — all of which are assumed to have the feature $[Anim]$ in common[1] — there is a null category which is entirely featureless and a refl category which is featurally underspecified for just $[Anim]$. The 1st-person is itself further articulated into two, according to clusivity, yielding 1incl. and 1excl. Together with the standard 3rd-person, this then yields a total of six person-categories. The upshot of such a classification is that there are now *three* person-categories that are non-1st and non-2nd (or non-Participant). This, I will argue, is key to capturing the full range of patterns involved for the empirical phenomenon in question.

  The primary empirical domain that will be used to motivate this categorization is that of anaphora. Articulated person-classifications analogous to that in Table 1 have, indeed, been previously put forth in the literature. For instance, Nevins (see e.g. 2007); Anagnostopoulou (2005: a.o.) argue that there are two types of 3rd-person: one that actually involves a 3rd-person feature and another that is entirely contentless with respect to person-features, just as specified in Table (1). In other words, "3rd-person" is simply the label given to any person category that is non-Participant. However, accounts such as these reach this position primarily on the strength of evidence from person hierarchy effects, such as effects due to the Person Case Constraint (PCC). The novel contribution of this paper is that it provides empirical support for such a feature system from a relatively

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[1] 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.

new angle, namely that of anaphora.

It is generally agreed that the defining property of anaphors is that they lack independent reference. Semantically, this is typically interpreted to mean that they constitute *bound variables*. Syntactically, it is far less clear what this entails. Within the Minimalist tradition, anaphora is syntactically construed in terms of an Agree dependency between the anaphor and its antecedent. The output of this Agree relation in syntax then triggers anaphoric binding at LF. As discussed in Hicks (2009), construing binding in terms of Agree has the advantage that the characteristic distributional properties of local anaphora crosslinguistically (captured under Condition A of Chomsky (1981)'s Binding Theory), namely the fact that they must be locally bound or must be c-commanded by the antecedent, fall out for free. Locality and c-command simply denote the structural input conditions required for *any* operation of syntactic Agree to obtain, thus it is only expected that they would characterize dependencies involving anaphors, as well. No special rules of well-formedness need to be postulated for reflexives, per se.

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. In other words, the question of *what* an anaphor is, formally speaking, still remains very much unresolved. Two main schools of thought may be discerned with respect to this issue. In the first, anaphors are simply defined in terms of $\phi$-deficiency (Heinat 2008; Kratzer 2009; Reuland 2001; 2011; Rooryck & vanden Wyngaerd 2011). A formal correlate of this within an Agree-based analysis would be to propose that an anaphor is simply an element that has one or more unvalued $\phi$-features. It must thus Agree with its antecedent (perhaps via intervening functional heads like T or *v*) to get these $\phi$-features valued. Successful $\phi$-feature valuation triggers binding at LF. In the second (adopted by Adger & Ramchand (2005); Hicks (2009); Sundaresan (2012), an anaphor is defined as being defective for some *other* non-$\phi$ feature which forces it to Agree with the nominal that gets construed as its antecedent. For instance, Hicks (2009) proposes that this is an VAR feature which is a pointer of sorts to the (eventual) referential identity of the anaphor. Successful feature valuation under Agree triggers binding at LF, just as under the previous account.

Given the wealth of research on anaphora over the years (see e.g. Chomsky (1981); Reinhart & Reuland (1993); Sells (1987); Pica (1987); Huang & Tang (1991); 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)), the fact that there is still no consensus as to what an anaphor formally is, is a striking, if not distinctly odd, state of affairs. 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 the fact that anaphors crosslinguistically tend to be morphologically underspecified for $\phi$-features and match their antecedents for $\phi$-features. Another piece of supporting evidence comes from the so-called Anaphor Agreement Effect (AAE) (observed originally in Rizzi (1990)), which speaks to the interactions between anaphora and $\phi$-agreeement. Empirical evidence against the $\phi$-deficiency view of anaphora is of two types. The first shows that anaphora, in many languages, is regulated by sensitivity to something other than $\phi$-feature deficiency, e.g. perspective-holding. The second has to do with the observation that anaphors are sensitive to deep-rooted PERSON-asymmetries that are reflected on empirical phenomena like PCC effects and agreement. In such cases, anaphors in many languages behave like 1st- and 2nd-PERSON pronouns and unlike 3rd-PERSON pronouns. As part of this evidence, I also discuss a hitherto unnoticed typological gap having to do with PERSON-restrictions on anaphoric antecedence.

The upshot of this discussion will be to show that, what we have on our hands is evidence for two *mutually inconsistent* views on anaphora, both of which are valid in their own right. This means, crucially, that there is *no single anaphor* that can satisfy the criteria for both at the same time. In this regard, a unified resolution of both featural approaches is not possible. I thus argue for resolution of a different sort — one in terms of a unification, rather than an intersection, of the empirical properties — proposing that anaphors fall into two broad featural categories, delineated against the enriched feature-system for PERSON given in Table 1. I will refer to these as "3rd-anaphor" and "NULL-anaphor" classes. Having two classes of anaphor, rather than just one, immediately allows us to deal with the full range of empirical data mentioned above: under an approach in terms of $\phi$-deficiency or reference-deficiency alone, on the other hand, only a proper subset of these phenomena could be satisfactorily accounted for, with the rest having to be shelved as empirical exceptions. This will get us much of the way. But once we get to the case of PERSON-asymmetries with PCC effects and agreement, I will show that we need an additional class, namely the REFL class of anaphor alluded to at the beginning. The full class of anaphors is thus as given in Table 2.

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;

Table 2: Three Classes of Anaphor

| Class | PERSON-Features | Exponents |
|---|---|---|
| 3rd-anaphor | [-Author, -Addressee, Anim] | *taan* (Tamil), *zich(zelf)* (Dutch) |
| REFL | [Anim] | Bantu anaphors |
| NULL-anaphor | ∅ | *ziji* (Chinese), *zibun* (Japanese) |

Charnavel 2015). Both NULL-PERSON anaphors and 3rd-PERSON anaphors (and potentially also REFL) can additionally be perspectival — a property that I assume is also featurally marked (following recent independent arguments in the literature to this effect).

Such an account also makes 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. Finally, the enriched PERSON-classification in Table (1), on which the anaphoric categorization in Table 2 is based, may also help resolve a long-standing debate (going back at least to Benveniste 1971) as to whether 3rd-PERSON is a "real" person or not: NULL-PERSON, being featurally vacuous, would not count as a real person, but 3rd-PERSON and [*anim*], being featurally specified, would do so.

## 2 The $\phi$-deficiency view

The $\phi$-deficiency view of anaphora could be taken to be the predominant view in the Minimalist literature. An anaphor is assumed to be a nominal that lacks one or more $\phi$-features. Valuation of these $\phi$-features via Agree in "narrow" syntax, triggers binding at LF and anaphoric exponence at PF, as mentioned above.

### 2.1 Theoretical motivation and details

In talking about a $\phi$-deficiency view to anaphora, I don't, by any means, mean to suggest that there is a single homogenous approach to this phenomenon. Rather, this is just a loose label to define a *range* of analyses of anaphora within the Minimalist tradition over the past years, all of which share the core premise that an anaphor is an element that lacks one or more $\phi$-features. Nevertheless, these proposals also differ from one another significantly in other ways, with respect to other assumptions regarding the nature of 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, focussing on what I think are the main points of difference or contention between the different main approaches, not only to demonstrate that there is considerable variation built above the common bedrock premise of an anaphor being $\phi$-deficient, but also to showcase the relevant analytic parameters that a proper treatment of anaphora in these terms must keep in mind.

The various approaches (Heinat 2008; Kratzer 2009; Rooryck & vanden Wyngaerd 2011; Reuland 2011) differ with respect to the number and nature of $\phi$-features that an anaphor is supposed to be deficient for and their assumptions regarding the loci for parametric variation. For instance, Kratzer (2009) proposes that all anaphors are "born minimal". In other words, an anaphor is an element that has no valued $\phi$-features whatsoever. All its $\phi$-features must be valued in the course of the syntactic derivation by c-commanding local functional heads (T or $v$) and, eventually, the non-anaphoric nominal that will be interpreted as the antecedent of that anaphor. This valuation triggers binding at LF. Reuland (2001; 2011), on the other hand, assumes that the number and nature of $\phi$-features an anaphor lacks are a matter for parametric variation. Some anaphors, like Chinese *ziji* might lack all $\phi$-features, thus can take antecedents of all PERSON, NUMBER, and GENDER. Others, like Dutch *zich* can only take 3rd-person antecedents but these can be of any NUMBER or GENDER. Such anaphors could thus be taken to be born with a 3rd-PERSON feature but be unvalued for NUMBER and GENDER. Yet others, like Japanese *zibun*, which can take singular antecedents of any PERSON or GENDER would be taken to be born with an unvalued PERSON and GENDER feature but with a NUMBER feature valued as *singular*. Thus, for Kratzer, all anaphors are featurally minimal and the parametric variations in antecedence between Chinese *ziji*, Dutch *zich*, and Japanese *zibun*, among others, must be captured, separately, e.g. as a function of morphological differences in their spell-out rules. For Reuland, these antecedence distinctions directly reflect underlying differences in the respective anaphors' feature-composition: i.e. while anaphors may vary with respect to *which* $\phi$-features they are deficient for, the common denominator that unifies them is the property that they are all defective for *some* $\phi$-feature.

The proposals also differ with respect to their assumptions about the internal structure of an anaphor. Some, like Kratzer (2009) have nothing detailed to say about this, choosing to focus primarily on the featural status of the bound variable. For Reuland (2011), the internal structure plays a crucial role in distinguishing simplex anaphors from complex (or "SELF") anaphors. The presence of a SELF-morpheme in the latter crucially prevents the complex anaphor from becoming indistinguishable from its antecedent when it enters a "chain" dependency

with it. For others, like Heinat (2008), an anaphor is distinguished from other pro-forms and from an R-expression predominantly in terms of its own internal structure which, in turn, has repercussions for its featural status. Heinat points out that anaphors in certain languages seem, on the surface, not to be pronominal at all, but are R-expressions in their own right. This is the case in San Lucas Quiaviní Zapotec, as illustrated in (1) (Lee (2003) via Heinat (2008), 151, Ex. 261 (a)):

(1)   San Lucas Quiaviní Zapotec:
      B-gwi'ih Gye'eihlly$_i$ lohoh Gye'eihlly$_{\{i,*j\}}$ zë'cy-cahgza' Li'eb$_j$
      PRF-look Mike        at     Mike                 likewise      Felipe
      "Mike$_i$ looked at himself$_{\{i,*j\}}$ and Felipe did too." (i.e. Felipe$_j$ looked at himself$_j$/*Mike)

The fact that we get sloppy readings under ellipsis in (1) further shows that the R-expression really is anaphorically bound and is not merely accidentally coreferent. As such, Heinat proposes that anaphors, R-expressions, and pronouns are all identical in that they are built on a (pro)nominal root (e.g. $\sqrt{Mike}$). The difference between them stems from where in the DP this root is merged, not in the content of this root itself. With an anaphor, the root is merged as a complement to a D head: D is assumed to bear unvalued $\phi$-features. This in turn makes the entire DP $\phi$-deficient, flagging it as anaphoric for LF. In the case of a (deictic) pronoun or R-expression, the root is merged as a complement to N inside a DP. The D head bears unvalued $\phi$-features, but the N head has inherently valued $\phi$-features. Such a DP is thus "self-sufficient" for $\phi$-features: this in turn flags it as being referentially independent.

A different point of variation has to do with the nature of the Agree dependency involving the anaphor. For Kratzer (2009), the Agree relation involved in binding is fundamentally different from other types of Agree operation in syntax. Both involve feature transmission for privative features between a Probe (which contains unvalued features) and a Goal. But the nature of the Agree relation is different in each case. Kratzer proposes that binders are not nominals but actually verbal functional heads (T or $v$). These have valued $\phi$-features (which they have themselves acquired under standard Agree with the closest nominal in their c-command domain) which is then passed on to the local bound variable according to the following rule: "*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). Feature-unification is just set-union and has the advantage that it is "neutral with respect to the direction of feature

transmission". In contrast, Kratzer assumes that other types of Agree involve downward probing: "*Agree*: The $\phi$-feature set of an unindexed head $\alpha$ that is in need of $\phi$-features (the probe) unifies with that of an item $\beta$ (the goal) if $\beta$ is the closest element in $\alpha$'s c-command domain that has the needed features" (Kratzer (2009), 197, Ex. 21).

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 further, that such probing obtains only under conditions of c-command, we immediately get the restriction that probing only obtains downward. Such an assumption creates an immediate problem for the analysis of sentences involving locally bound reflexives, which are typically objects, as in (2):

(2)  Malala$_i$ admired herself$_i$.

Assuming that a reflexive like *herself* is base-generated in object position, it is no longer straightforward to claim that its binding at LF is the result of *herself* probing, in narrow syntax, to get its $\phi$-features valued by *Malala*. Given the anaphor's object status, such probing would necessarily be upward, not downward. To obviate this problem, Heinat proposes that the real probe in a sentence like (2) 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, $v$P, it probes downward within the $v$P; as a *reflex* of this, it values the $\phi$-features on $v$ and the reflexive, both of which have unvalued $\phi$-features. The subject is then internally merged to Spec, TP, where it again probes downward to get its case valued. Such a state-of-affairs thus allows Heinat to have his theoretical cake and eat it too: the anaphor remains an element that is defined by its lack of $\phi$-features and yet, probing is not for $\phi$-features, but for some other feature. $\phi$-feature valuation happens as an epiphenomenon of (downward) case-valuation.

A final point of resolution has to do with what happens upon $\phi$-feature-valuation, when the output of Agree is shipped off to the LF and PF interfaces. As we have seen, all the accounts under this view have in common the premise that an anaphor is a nominal that lacks one or more $\phi$-features. Anaphoric binding at LF, as well as anaphoric exponence at PF, are the result of an anaphor getting its unvalued $\phi$-features valued by the antecedent nominal (either directly or via an intervening functional head), via Agree. The question that becomes relevant for all these approaches but is only really explicitly discussed in Rooryck & vanden Wyngaerd (2011), as far as I'm aware, 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? After all, they will both

bear valued $\phi$-features at this stage of the derivation, though they will likely have come by them differently — the former, because it has had its $\phi$-features be explicitly valued by Agree, and the latter, because it was born with them. One would expect them to have the same case feature as well, given that they are both direct objects. 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, Heinat (2008) already proposes something along these lines (see also Dechaine & Wiltschko (2012) for a more articulated analysis of reflexives across languages, in this spirit).

One of the main theoretical advantages of this approach is its parsimony. Details of variation aside, and we have seen that there are several, 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 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.

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

## 2.2 Anaphora and $\phi$-matching

A well known observation is that anaphors must often match their antecedents for $\phi$-features. Thus, a sentence like (3) is ungrammatical because the anaphor has 1SG $\phi$-features which don't match the 3MSG features of its binder:

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

One could always dismiss such cases as involving a restriction on the pronominal morpheme 'my', and not on the complex anaphor as a whole. However, $\phi$-matching seems to be a restriction on many simplex anaphors as well, as in the German counterpart to (3), with the designated referential indices, below:

that the anaphor is spelled out as an invariant form, as in the Albanian examples above. To sum up then, under a syncretism approach, invariant anaphors may be straightforwardly accommodated under the $\phi$-deficiency view. An alternative view like that in Kratzer (2009) could also make sense of these pattern; but to do so, Kratzer must relinquish the notion that an anaphor is defined *solely* in terms of its lack of $\phi$-features.

We might expect that explicit cases of non-$\phi$-matching would be much more damning for a $\phi$-deficiency approach since these would show that an anaphor has independent $\phi$-features; this, in turn, would mean that anaphoricity must be defined in terms of something other than $\phi$-features. But such cases typically seem to involve some sort of mismatch between the semantic and grammatical $\phi$-features on the antecedent and the anaphor. Such a situation obtains in sentences like (7) and (8), which make up a minimal pair, and involve so-called "imposters" (**97**; **Exx.\ 15**; **17**; Collins & Postal (2012)):

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

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

Collins & Postal (2012), 5, Ex. 10, define an imposter as "a notionally X person DP that is grammatically Y person, X $\neq$ Y." In (7), the anaphor has 1PL features, while in (8), it has 3PL features. The antecedent 'the present authors' seems like it should have 3PL features, so the 1PL feature on the anaphor in (7) initially looks like a mismatch. However, Collins & Postal show that 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 $\phi$-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]

To sum up, $\phi$-matching between the anaphor and its antecedent is a robust crosslinguistic property that is straightforwardly and naturally captured under a $\phi$-deficiency view. Putative counter-examples involving invariant anaphors don't necessarily challenge the $\phi$-deficiency view (though they also don't explicitly support it) since they can be accommodated in different ways (e.g. in terms

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[2] Note, furthermore, that the NUMBER agreement on the anaphor does not have similar flexibility: it is fixed at plural because the antecedent also stays fixed at plural across both (7) and (8). Collins & Postal further argue that such putative mismatches only obtain in the plural in English, yet provide examples of dialects in English where PERSON-mismatches in the singular seem possible as well (Collins & Postal (2012), 10, Ex. 13a). In any case, PERSON-mismatches in the singular are noted to obtain straightforwardly in Albanian (Kalluli 2014) and are also attested in Tamil.

of syncretism). The other type of counter-example involving explicit cases of non-matching doesn't seem to involve any real mismatch at all. What looks like a mismatch is really a kind of *enriched* matching, or a matching on different levels of grammar. The anaphor, in sentences like (7)-(8), seems to be capable of matching the antecedent for different *types* of PERSON-feature, grammatical or semantic.

## 2.3 Morphological underspecification of anaphors

A different sort of empirical support for the $\phi$-deficiency view comes from the fact that, going by restrictions placed on their antecedence, a remarkable number of anaphors from a range of unrelated languages seem to fail to mark the full range of $\phi$-distinctions in the given language. The identity and range of these features seems to be parametrized, as we've already noted. Thus, Korean *caki* and Dravidian *taan* are underspecified for gender alone: in other words, they can take antecedents of any gender, but these must be 3rd-PERSON, and *singular*. On the other hand, German *sich* and its other Germanic relatives (e.g. Dutch *zich*, Icelandic *sig*, and Norwegian *seg*) 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 — i.e. for person, number as well as gender.

Under a $\phi$-deficiency view, these distinctions can be captured in one of two ways. Assuming that a bound variable starts out minimal (i.e. with no $\phi$-features), as proposed in Kratzer (2009), we could propose that an anaphor acquires all and only those $\phi$-features it actually surfaces with. This means, concretely, that Tamil *ta(a)n* or Korean *caki* would receive PERSON and NUMBER features alone from $v$, but not GENDER. In contrast, the reflexive $v$ head would transmit only a NUMBER feature to Japanese *zibun*, which would thus remain featurally unspecified for PERSON and GENDER, just as desired. An invariant anaphor like Chinese *ziji*, as we have already seen, would simply receive the "signature" feature [reflexive] from $v$ and thus remain unspecified for all $\phi$-features. Of course, for such a system to work, an anaphor cannot simply be $\phi$-deficient in the sense of having unvalued $\phi$-features, which then get valued upon Agree. It must lack $\phi$-*attributes* altogether. This must be what Kratzer assumes, though she never makes the technicalities explicit. The bound variable (or minimal pronoun) in Kratzer's system lacks $\phi$-features entirely (not just the values for them): when it undergoes set-unification with all, or a proper subset of, the $\phi$-features of the reflexive $v$ in its domain, it thus simply ends up faithfully reflecting these same features, having none of its own to contribute. Since there are no unvalued $\phi$-features to begin with, there is no crash. Under a feature-valuation approach (Heinat 2008; Rooryck & vanden

Wyngaerd 2011), where an anaphor is additionally assumed to be born with a full set of (unvalued) $\phi$-features, we would instead expect these unvalued $\phi$-features to cause a crash.

The treatment of morphological underspecification (as well as parametric variation for it) could, alternatively, 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. This could either be because it was born featurally minimal and got these $\phi$-features valued via Agree, or because it was born with a proper subset of $\phi$-features unvalued and had only these valued in the course of the derivation. The Vocabulary Insertion rule for the exponent *ta(a)n* in Tamil could then be set up to look like that in (9):

(9)   [3, SG, D] $\leftrightarrow$ *ta(a)n*

The rule in (9) makes explicit reference to 3rd-PERSON and *singular*, and the category of the nominal (which I am nominally assuming here to be D) but is underspecified for GENDER. Thus, all *m, f, n* GENDER combinations with these features will be spelled out syncretically as *ta(a)n*. Chinese *ziji*, in contrast, would have a maximally underspecified SpellOut rule, as in (10):

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

The rule in (10) makes reference to no $\phi$-features whatsoever, only to the categorial feature (and potentially also to a case-feature). This would ensure syncretism across all PERSON, NUMBER, and GENDER categories for this anaphoric form.[3]

Of course, a $\phi$-deficiency view doesn't predict that *all* anaphors should be morphologically underspecified. After all, as we have already seen for Zapotec in (1) — and in fact, we don't need to go that far afield, as complex "SELF" anaphors in English wear all their $\phi$-features on their sleeve — this is not empirically corroborated. Under a $\phi$-valuation approach, it is perfectly possible for an anaphor to be exponed with all its $\phi$-features, 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. Nevertheless, an approach that views anaphora

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[3] 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. But this isn't overtly problematic for a $\phi$-deficiency approach. Such a distinction could be made either with featural diacritics that distinguish inherent from inherited $\phi$-features (Rooryck & vanden Wyngaerd 2011) or in terms of the internal structure of the pro-form (Heinat 2008; Dechaine & Wiltschko 2012).

in terms of $\phi$-deficiency does have a better handle on morphological underspecification than one that doesn't make reference to $\phi$-features in any way. In particular, if an anaphor may be sent to SpellOut without a full array of $\phi$-features to begin with, without being in danger of crashing the system, as in Kratzer's proposal, one can readily explain why such morphological underspecification for $\phi$-features is such a crosslinguistically robust property for anaphors. A purely morphological solution in terms of SpellOut rules, on the other hand, will have to seek independent explanations for this tendency. For instance, Rooryck & vanden Wyngaerd (2011), 45, who also pursue the morphological solution, argue that:

> "...the explanation for this state of affairs is a functional one: it is easy to see how communicative efficiency is served by having different pronouns for the different person, gender, and number categories. 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 (as the cases of both Old and Modern English demonstrate), but it does predict that underspecified forms, if they occur, will be found in the reflexive paradigm rather than in the nonreflexive one."

Assuming that this is valid, one could then contend that the $\phi$-deficiency view has the advantage even here.

## 2.4 Anaphor Agreement Effect (AAE)

Standard $\phi$-agreement captures an asymmetric dependency between a nominal and a verbal element. Thus, in a typical case of subject-verb agreement, as in the sentence *'She run-s'*, the T head gets its $\phi$-features valued as 3FSG by the subject 'she', which is assumed to bear these $\phi$-features inherently. Our general conception of agreement allows any nominal, in theory, to be capable of triggering agreement on a verbal element, in this manner. But agreement seems to go quite awry when the nominal in question is an anaphor. This is the observation, going back to Rizzi (1990), termed the "Anaphor Agreement Effect (AAE)", and since revised in a number of other studies, including Woolford (1999); Tucker (2011); Sundaresan (2016).

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 is a language with a nominative-accusative case system: $\phi$-agreement is triggered by a nominative argument. Thus, in (11), the nominative object 'the boys' triggers 3rd-person plural agreement on the verb. However, 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 grammatical:

(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 licit. Patterns such as these in Italian and similar ones in Icelandic, 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; Deal 2010; Tucker 2011) have tested the validity of the AAE against a wider range of languages. What these later studies show is that languages may choose to avoid an AAE violation in a number of ways, in addition to the default agreement strategy pursued by those like Italian and Icelandic. Some, like Inuit, may simply detransitivize the predicate in question (14, thus preventing a structure where an object anaphor would have triggered agreement on the verb, as in (15) (examples taken from Bok-Bennema (1991), 51):

(14)  Asap-puq.
       wash-IND.3SGS
       "He$_i$ washed himself$_{\{i,*j\}}$.'

(15)  \*Hansi-up$_i$ immi$_{\{i,*j\}}$  asap-paa.
      Hansi-ERG  himself.ABS wash-IND.3SGS.3SGO
      "Hansi$_i$ washed himself$_{\{i,*j\}}$." (Intended)

Examples like that in (16), taken from Selayerese, a Malayo Polynesian language, initially seem to represent a counter-example to the AAE, since the anaphor seems to be strategitriggering verbal agreement:

(16)  La-jaŋjang-i    kalen-na.
      3.ERG-see-3.ABS ANAPH-3
      "He$_i$ saw himself$_{\{i,*j\}}$."

However, Woolford (1999) shows that the verbal agreement remains invariant at 3rd-person even if the anaphoric object is 1st- or 2nd-person. Woolford also presents independent evidence to show that reflexives in Selayerese look superficially similar to possessives, arguing on the strength of this, that Selayarese utilizes the protected anaphora strategy: i.e. the anaphor is prevented from triggering agreement by itself being embedded inside a larger DP structure. It is the latter that triggers agreement on the verb. Similar strategies have been reported for Modern Greek (Woolford 1999) and West Flemish (Haegeman 2004). Sundaresan (2016) investigates a different strategy to repair an AAE violation, observed in Tamil, namely that of agreement-switch (reported also for Kutchi Gujarati in Patel-Grosz (2014) and Murugesan & Raynaud (To Appear)). When the anaphor occurs in the syntactic position or with the case (which is the nominative, in Tamil) construed with triggering agreement in a given language, co-varying $\phi$-agreement is simply triggered by *some other nominal* with valued $\phi$-features in the local domain. Based on such patterns, Sundaresan (2016), 23, updates the 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 were itself to be lacking in $\phi$-features, then a constraint like the AAE should, in fact, be precisely what we predict, since such an anaphor should not, then, be able to serve as a Goal to value the $\phi$-features on a probing T or $v$. This is, in fact, a point that Kratzer (2009), who proposes that anaphors are $\phi$-featurally "minimal", explicitly argues for. However, we don't necessarily even need to assume that anaphors are entirely lacking in $\phi$-features, as Kratzer does. As Sundaresan discusses, even if we were to adopt the more conservative proposal that anaphors lack some but not all $\phi$-features, the AAE

would follow, as long as we also assume that *partial* $\phi$-valuation under Agree is ruled out. In other words, assuming that *all* the $\phi$-features on T or $v$ must always be valued under Agree, then an anaphor (which, by definition, will lack a full specification of $\phi$-features) will never be able to fulfill this requirement. As such, standard Agree will fail and must be repaired in one of many ways, yielding the range of crosslinguistic surface patterns described by the AAE.

# 3 The reference-deficiency view

The reference-deficiency view is 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, call it $F$, that encodes its referential defectivity. In other words, the lack of a value on $F$ is what marks an element as being anaphoric in the syntax. Like with the $\phi$-deficiency approach, this featural defectivity forces the anaphor to enter into an Agree relation with some other nominal, which bears an inherent value for $F$. Valuation for $F$ on the anaphor at SpellOut feeds anaphoric binding at LF and rules of Vocabulary Insertion for the elements in question, at PF.

## 3.1 Theoretical motivation and details

As with the $\phi$-deficiency view, I provide here a brief highlight of the approaches that have adoped what I'm broadly categorizing here as the reference-deficiency view and discuss the theoretical motivations behind their rejection of the more standard $\phi$-deficiency strategy toward anaphora.

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. In theories like Heim & Kratzer (1998), this intuition is captured by proposing that $\phi$-features introduce presuppositions that restrict the reference of nominals: these are formally hardwired as partial functions into the lexical entries of the referring expressions themselves, as in (17) below:

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

Hicks (2009), 112, describes the problem like this:

> I believe that the use of $\phi$-features in binding relations is more deeply problematic. 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. A system of $\phi$-feature

agreement between anaphors and their antecedents simply predicts that the two $\phi$-feature values should be identical, but nothing more. If Agree were to simply match the $\phi$-feature values of *John* and *himself* in *John loves himself*, for example, *himself* could in theory refer to any other male individual, contrary to fact. Essentially, what is at stake in anaphor binding is referential dependency, not simply a $\phi$-feature dependency.

Hicks further notes that anaphors that are overtly specified for all their $\phi$-features, like reflexives in English, would be predicted to behave like pronouns, not like anaphors, under a $\phi$-deficiency view. 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).

On the strength of such arguments, Hicks proposes that anaphoric dependence is built on operator-variable features, along the lines of Adger & Ramchand (2005)'s featural model for anaphora — arguing that "operators and variables are in fact encoded syntactically as distinct semanticosyntactic features, [OP] and [VAR], respectively" (115). 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 a VAR feature that is inherently valued, with values being integers or letters that are arbitrarily assigned in the course of the derivation.[4] Quantifiers, like 'all' and 'some' have OP features [OP: $\forall$] and [OP: $\exists$], respectively. Thus, the derivation of a sentence like (18) proceeds as in (18a) and (18b):

(18)   Every toddler injures herself.
     a. Every$_{[\text{OP}:\forall]}$ toddler$_{[\text{VAR}:x]}$ injures herself$_{[\text{VAR}:\_]}$
     b. Every$_{[\text{OP}:\forall]}$ toddler$_{[\text{VAR}:x]}$ injures herself$_{[\text{VAR}:x]}$

Crucially, unbound (or free) variables like 'she' can also bind an anaphor, despite lacking an OP feature. The derivation is again straightforward: the anaphor is born with an unvalued VAR feature and probes upward to get this valued with its phase, much like in (18). There are thus two main aspects to Hicks' proposal.

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[4] 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.

First, it is built on the notion of referential defectiveness which, however, itself presupposes $\phi$-defectiveness. Thus, empirical properties like $\phi$-matching are obtained for free. Second, Hicks 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) fundamentally follows Hicks (2009) in spirit, in particular, in divorcing referential deficiency from $\phi$-defectivity. Where Sundaresan diverges from Hicks is in proposing that the feature that encodes anaphoricity is not present on every nominal. The central empirical evidence that prompts such a move involves perspectival anaphora in languages like Tamil, Italian, Icelandic, Japanese, and others which display what looks like an anti-locality effect. In particular, the anaphor may not be bound by the local antecedent and can only be anteceded by a nominal that is extra-clausal. This is illustrated for Tamil in (19) (adapted from Sundaresan (2012), 14, Ex. 12):

(19)  Sri$_j$      [Ram$_i$      tann-æ$_{\{*i,j\}}$ aḍi-tt-aan-nnŭ]      paar-tt-aan.
      Sri[NOM] Ram[NOM] ANAPH-ACC hit-PST-3MSG-COMP see-PST-3MSG

"Sri$_j$ saw [$_{CP}$ that Ram$_i$ hit him$_j$/*himself$_i$]."

Furthermore, certain nominals are systematically excluded from potential antecedence on the basis of animacy and thematic properties: the unifying condition, as Sundaresan shows in detail, is one of mental or spatial *perspective-holding* with respect to the predication containing the anaphor (see also Sundaresan (2017) for discussion). To deal with such patterns, Sundaresan proposes that anaphors are born with an unvalued DEP feature. Formally, DEP is much like Hicks' VAR feature. It takes intergers or letters as value that are assigned to it upon Merge. The anaphor Probes upward to get DEP valued. Successful valuation of DEP triggers variable binding of the anaphor at LF. The only difference is that only designated nominals are born with a DEP attribute. In particular, a pronominal operator in the specifier of a Perspectival Phrase is born with a valued DEP feature. In any given binding domain (by default, the phase), this pronoun is the only element with a valued DEP, thus is also the only element that can Agree with the anaphor. This successfully ensures that the anaphor will only Agree with this pronoun, even if there are other nominals that are structurally closer to it.[5]

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[5] 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 refer-

To sum up, then, the primary motivation for the reference-deficiency view to anaphora is the intuition that anaphors are nominals that lack reference; $\phi$-features restrict, but crucially don't exhaust, such reference. Thus, reference must be encoded in terms of some *other*, or some *additional*, feature(s). Below, I turn to an exposition of the empirical support for this approach.

## 3.2 When $\phi$-features aren't enough: perspectival anaphora

The first kind of evidence shows what we've already seen in theory, namely that $\phi$-features aren't enough: reference really involves something "extra". I present evidence for this from perspectival anaphora which are reported for a number of languages (for instance, Jayaseelan (1997), Japanese Kuno (1987); Nishigauchi (2014), Dutch Reinhart & Reuland (1993); Rooryck & vanden Wyngaerd (2011), Icelandic Hellan (1988); Sigurðsson (1991), Norwegian Lødrup (2007), French Charnavel (2015), Italian Bianchi (2003); Giorgi (2010), Abe Koopman & Sportiche (1989), and Ewe Pearson (2013), to name just a few).

### 3.2.1 Sentience, sub-command, subject-orientation

I observed above that in cases of perspectival anaphora, certain nominals are systematically excluded from potential antecedence. Non-sentient antecedents are ruled out, for instance. The sentences in below illustrate this phenomenon for Chinese (Huang & Tang 1991):

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

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

(21)  *Yanjing$_i$ diao-dao dishang dapo-le    ziji$_{\{i,*j\}}$.
      glasses     drop-to floor    break-ASP ANAPH

"[The glasses]$_i$ dropped to the floor and broke themselves$_{\{i,*j\}}$."
(Intended)

An account in terms of simple $\phi$-deficiency alone cannot deal with the difference in grammaticality between (20) and (21). Under such a view, the Chinese anaphor *ziji* would be born fully $\phi$-minimal — as suggested by the fact that it can typically take antecedents of all PERSON, NUMBER, and GENDER. Its $\phi$-features would then be valued by Agree by the closest nominal with valued $\phi$-features in

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ence. Coreference between the antecedent and the anaphor thus obtains via transitivity. See Sundaresan (2012) and Sundaresan (2017) for details.

its search domain. By this criterion, both 'the glasses' with 3PL features in (21) and 'I' with 1SG features in (20) should qualify as potential antecedents, so the fact that they don't is surprising.

A possible way out for the $\phi$-deficiency view might be to propose that the restriction to sentient antecedents isn't encoded formally, but only applies later, at LF. Under this approach, *ziji* would then continue to be $\phi$-minimal in the syntax and have its features be valued by the closest nominal in its search domain. The syntax would, in other words, *overgenerate* potential antecedents for the anaphor. At LF, before semantic binding takes place, non-sentient nominals like 'the glasses' that are in an Agree relation with the anaphor would be systematically filtered out. As a result, the anaphor would only be bound by sentient nominals.

This looks like a promising solution. But of course, by bringing in sentience through the back door, we have nevertheless weakened the link between $\phi$-features and reference. Second, notice that the English counterpart to (21) is perfectly grammatical. This in turn suggests that a proposal that is based on the notion that the anaphors in both languages are featurally identical may be on the wrong track. Finally, patterns of so-called "sub-command", like those in (22)-(23), suggest that the LF filtering account described above may be too simple:

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

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

Descriptively, patterns like (22)-(23) show that a (possessor) DP contained inside a subject DP may antecede an anaphor just in case the subject DP is inanimate (thus is itself disqualified from antecedence). Analogous patterns of subcommand have been reported for Italian (Giorgi 2006; 2010) and Malayalam (Jayaseelan 1997). To deal with such data, our LF filtering account has to fine-tune the filtering mechanism considerably: non-sentient nominals that have Agreed with *ziji* can no longer be filtered out blindly. 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. If such anaphors are defined in terms of something than $\phi$-features — e.g. in terms of a feature that presupposes sentience (like the DEP-feature encoding perspective-holding 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.[6]

A different sort of problem has to with so-called "subject orientation" of antecedence. 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 showing that syntactic subjecthood is neither a necessary nor a sufficient condition on antecedence. 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 will find it much harder to deal with the problem of how certain nominals can be "skipped" in this manner. One that encodes perspectival properties more directly can do so much more straightforwardly, however.

### 3.2.2 One language, two anaphors

A different kind of problem for the $\phi$-deficiency approach comes from minimal pairs like the following (Sundaresan 2012), 85, Exx. 84a-b (see also Annamalai (1999)):

(24)  Raman-ŭkkŭ$_i$ avan-æ-yee$_{\{i,j\}}$ piḍikka-læ.
      Raman[NOM] he-ACC-EMPH   like-NEG
      "Raman$_i$ didn't like (even) himself$_i$/him$_j$."

(25)  Raman$_i$       tann-æ-yee$_{\{i,*j\}}$ piḍikka-læ.
      Raman[NOM] ANAPH-ACC-EMPH like-NEG
      "Raman$_i$ didn't like (even) himself$_{\{i,*j\}}$."

In certain dialects of Tamil, like in the Palakkad variety, there seem to be two ways to express the proposition that Raman didn't like himself: one involving a dedicated anaphoric form *ta(a)n*, as in (25), and the other, in (24), involving a pro-form *avan* which is syncretic with the deictic 3MSG pronoun. Having either one by itself is not peculiar. Many languages have dedicated reflexive forms, simplex or complex, for expressing local anaphora. 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 local position is strange,

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[6] Note that if we wanted to implement this in purely structural terms, we would still need some mechanism like feature percolation to allow the feature (e.g. animacy) of the possessor nominal to be visible on the possessum, thus enabling Agree with the anaphor.

indeed. As might be expected, these differences correlate with systematic differences in interpretation. The use of *ta(a)n* in (25) *ta(a)n* favors an interpretation from the point of view of the antecedent, whereas the use of the pronoun favors a reading from the perspective of the utterance-context speaker.

It is unclear how the distinction between (24) and (25) would be captured, under a view where an anaphor is simply defined in terms of being $\phi$-deficient. In other words, if *ta(a)n* and *avan* are both $\phi$-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 whatsoever to do with $\phi$-features, namely perspective-holding on the part of the antecedent. 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. Such a strategy will not work because the anaphors need to be distinguished morphologically as well, showing that any distinction between them needs to be made early, in the "narrow" syntax, so that it can feed not only the LF but also the PF module. For instance, an approach like that in Rooryck & vanden Wyngaerd (2011) suffers in the face of data like this. Under this analysis, one could envision a Spell-Out rule like (26) for *avan*— treating it, in other words, as an underspecified form compatible with lexical insertion both in environments where 3MSG features are inherent and those where they are the result of feature-sharing with an antecedent:

(26)  {P:*3(\*)*, N:*sg(\*)*, G:*m(\*)*} $\leftrightarrow$ *avan*

This would capture the syncretism of *avan* in deictic and anaphoric contexts. However, it would leave no clear way to distinguish *ta(a)n* from the anaphoric use of *avan*. On the other hand, if we try to distinguish *avan* from *ta(a)n* by saying that the former only spells out pronouns with inherent 3MSG features (i.e. a deictic 3MSG pronoun) while the latter spells out pro-forms with feature-shared $\phi$-features (e.g. 3\*sg\*), we would expect (24) to violate Binding Principle B.

An account that allows anaphors to be defective for features other than $\phi$-features can readily make sense of such data, however. We could simply propose that *avan* is $\phi$-deficient in the sense of Rooryck & vanden Wyngaerd (2011) or Kratzer (2009). An anaphor like *ta(a)n*, on the other hand, is defective for some other feature (e.g. 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 in favor of a reference-deficiency approach is really evidence *against* a $\phi$-deficiency approach. Such evidence involves data showing that anaphors in certain languages are sensitive to PERSON-asymmetries. In particular, such anaphors seem to behave more like 1st- and 2nd, than like 3rd-PERSON pronouns. The first set of these data involves PCC effects and has been known in the literature for some time. The second involves "anaphoric agreement": agreement triggered ostensibly by an anaphor, involving a special reflexive form. The third has to do with a typological gap in PERSON-restrictions on anaphoric antecedence which, as far as I'm aware, hasn't been explicitly noted elsewhere. None of these types of data can be straightforwardly accommodated under the assumption that anaphora is defined solely in terms of a lack of $\phi$-features.

### 3.3.1 PCC effects

The Person Case Constraint (PCC), both Strong and Weak, describes certain person co-occurrence restrictions between a weak direct and indirect object (e.g. clitic, agreement-marker, or weak pronoun) in certain languages and are defined below (taken from Bonet (1991), 182):

**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 $3^{rd}$ 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."

The PCC 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); Bejar & Řezáč (2003); Doliana (2013), among others. (2727a)-(2727b) show the Strong PCC at work in French; (2828a)-(2828b) instantiate the Weak PCC in Italian, for the analogous sentences (all French and Italian examples below are taken from (Raynaud 2017)):

(27)    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.'

(28)  WEAK PCC (ITALIAN):

    a. ✗ 1/2 ACC > 3 DAT

       '\*Mi    gli      presentano.'

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

       'They introduce me to him.'

    b. ✓ 1/2 ACC > 1/2 DAT

       Mi      ti      presentano.

       1SG.ACC 2SG.DAT introduce.3PL

       'They introduce me to you.'

As can be seen, the crucial difference is that the Weak PCC allows the indirect object to be non-3rd-person (2828b), while the Strong PCC doesn't (2727b). 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). Thus, in French, the reflexive clitic *se* is ruled out as a direct object, just like 1st- and 2nd-person arguments are (due to the Strong PCC) — compare French (29a) (originally from Kayne (1975)), 173, with French (27a) and (29b) with (27b):

(29)  STRONG PCC WITH REFLEXIVES – FRENCH:

    a. ✗ REFL ACC > 3 DAT

       \*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 > 1/2 DAT

       \*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 argument, 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:

(30)    ✓ 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$_i$ se$_i$       l'est         donné.
       she herself.DAT 3SG.ACC=BE.3SG GIVE.MSG
       'She$_i$ gave it to herself$_i$.'

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, that an interesting correlation seems to obtain 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 all have one additional empirical property in common: they are all 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. The former all have a PARTICIPANT feature (part of the PERSON paradigm) which entails that they are semantically animate (or sentient in some way). The latter are entirely lacking in PERSON-features, thus may or may not be semantically animate. Anagnostopoulou (2005) also posits an underlying featural distinction between local PERSON and reflexives, on the one hand, and 3rd-PERSON, on the other, to deal with the kinds of PCC data above: 1st, and 2nd-PERSON and reflexives are specified as +PERSON, while 3rd-PERSON is specified as PERSON-less. Indirect objects like those in Kiowa, on the other hand, are specified as -PERSON.

PCC effects crosslinguistically present strong evidence for the idea that there is a fundamental asymmetry between the representation 1st- and 2nd-person, on the one hand, and 3rd-person, on the other. The fact that anaphors in certain languages are sensitive to this asymmetry and behave, furthermore, like 1st- and 2nd- person, with respect to the PCC, shows two things about such

anaphors. First, it illustrates that such anaphors are themselves not underspecified for PERSON: if they were, we would expect them to be licit in all clitic configurations. This means that anaphors cannot all be minimal pronouns in the sense of Kratzer (2009); if they are partially $\phi$-underspecified, such underspecification can be for NUMBER, or GENDER, but not for PERSON. Second (and potentially relatedly), anaphors of this kind must have something in common with 1st- and 2nd-person pronouns (whether this be animacy, empathy, affectedness or whatever else): this could be a feature that is explicitly encoded on both types of element or is simply presupposed, as in Adger & Harbour's system. Such a feature must, additionally, not be borne by a 3rd-PERSON element.

### 3.3.2 Anaphoric agreement

Essentially 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. Bantu languages like Swahili (Woolford 1999), Chicheŵa (Baker 2008), Ndebele (Bowern & Lotridge 2002), and Lubukusu (Baker et al. 2013), Warlpiri (Legate 2002) or, more recently, Kabardian (Burukina 2017) and Adyghe (Lander & Bagirokova 2017) (both West Circassian) — the anaphor triggers "anaphoric agreement" on the verb. This is agreement marking that differs from the normal $\phi$-paradigm. Thus, the special *ji* marking on the verb in Swahili (32) (contrast with (31) does not $\phi$-covary, so it is a form unique to the anaphor alone:

(31)   Ahmed a-na-m/*ji-penda   Halima
       Ahmed 3SBJ-PRS-3OBJ-love Halima.

       "Ahmed loves Halima."

(32)   Ahmed a-na-ji/*m-penda        mwenyewe.
       Ahmed 3SBJ-PRS-REFL/*3OBJ-love himself

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

Furthermore, and just as important, this object agreement prefix (the prefix *ji-* in (32)), contrasts with the clearly $\phi$-agreeing elements of the paradigm in Swahili (Thompson & Schleicher 2001), 245, and also Mpiranya (2015), Table 3.

Under a $\phi$-deficiency approach to anaphora, 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,

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>-pend<u>eni</u> |
| 3pl (class 2) | -wa- | a-na-<u>wa</u>-penda |
| ⋮ | | |

have some or all unvalued $\phi$-features 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. Crucially, furthermore, the anaphor needs to be featurally distinct from all other nominals at the time of triggering agreement. Kratzer (2009) pursues a variant of this option. Since, for Kratzer, an anaphor is $\phi$-minimal, the null hypothesis is that it inherit all the same $\phi$-features as its binder. To obviate this problem, Kratzer has to explicitly propose that binders can choose which features they transmit to the anaphor, though it isn't made clear how such a choice is technically implemented. Additionally, Kratzer introduces an [anaphoric] feature: in certain cases, a reflexive *v* may choose to transmit this alone to the anaphor. But of course, once such a choice is made, we have already made the 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 *un*like 3rd-PERSON agreement. Baker shows in his book that 1st- and 2nd-PERSON agreement is crosslinguistically categorially restricted in that adjectives don't show PERSON-agreement. Interestingly, anaphoric agreement in languages like Chicheŵa, and other Bantu languages, seems to be subject to precisely the same restriction. Adjectival agreement in such 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):

(33)  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.'

(34)  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.'

A further point to note about these anaphors is that they can be anteceded by 1st, and 2nd person nominals (as attested by (34)), again suggesting that they have some feature(s) in common with these. Baker goes on to show that the parallels between 1st- and 2nd-PERSON agreement and anaphoric agreement don't stop here. In Passamaquoddy, long distance agreement with anaphoric arguments is restricted in precisely the same environments as with 1st- and 2nd-PERSON arguments (Bruening 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 evidence from anaphoric agreement thus essentially parallels that from the PCC. The facts from agreement themselves show an inherent categorial asymmetry for PERSON, with 1st- and 2nd-PERSON behaving one way and 3rd-PERSON behaving another. Anaphors are not only sensitive to this asymmetry, they also show a clear preference, patterning closely with 1st- and 2nd-PERSON than with 3rd. As with the PCC data, such evidence suggests that an anaphor in one of these types of language *is* featurally specified for PERSON, at least at the point at which it triggers verbal agreement. Furthermore, the $\phi$-feature-specification of such an anaphor must be different from all other nominals at this stage of the derivation.

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

The final piece of evidence against a $\phi$-deficiency view comes in terms of PERSON-asymmetries with respect to anaphoric antecedence. As far as I am aware, this is a pattern that has not been explicitly noted elsewhere.

Crosslinguistically, anaphors tend to disprefer 1st and 2nd-PERSON antecedents. Anaphors like German *sich* (and its other Germanic equivalents in Dutch, Norwegian, Icelandic etc.), Japanese *zibun*, Korean *caki*, Italian *se* (and its equivalents in French and Spanish), Tamil *ta(a)n* (and its Dravidian equivalents in Telugu, Malayalam, and Kannada) and many others — allow only 3rd-PERSON an-

tecedents. 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). For instance, Schlenker (2003) proposes that a logophor is nothing other than a 1st-PERSON pronoun that must be evaluated against a context that is explicitly specified *not* to be the utterance-context. This is enforced as a presuppositional restriction into its lexical entry as in (35):

(35)  $[\![I_{log}]\!]^{c,g} = \left[\!\!\left[ \bigwedge_{\mathbf{I}_5 \quad \mathbf{i}_k} \right]\!\!\right]^{c,g} = g(i_k)$ if $[g(i_k) = Author(i_k) \wedge (i_k \neq c^*)]$,

undefined otherwise.

While there *are* anaphors like Chinese *ziji* that allow 1st, 2nd person antecedents — they crucially *also* allow 3rd-PERSON antecedents, as shown in (36)-(37) (Huang & Tang 1991) (see also Huang & Liu (2001) a.o.):

(36)  Zhangsan$_i$ renwei [Lisi$_j$ hai-le    ziji$_{\{i,j\}}$].
      Zhangsan  think  Lisi   hurt-ASP ANAPH
      'Zhangsan$_i$ thought [that Lisi$_j$ hurt himself$_{\{i,j\}}$]"

(37)  Zhangsan$_i$ renwei [wo$_{Auth}$ hai-le    ziji$_{\{*i,Auth\}}$]
      Zhangsan$_i$ think   I        hurt-ASP ANAPH
      "Zhangsan$_i$ thought [that I$_j$ hurt myself$_{\{*i,Auth\}}$]"

But as far as I am aware:

(38)  The pattern of an anaphor allowing 1st/2nd-PERSON antecedents while simultaneously *dis*allowing 3rd-PERSON antecedents is crosslinguistically unattested.

This state of affairs is illustrated more clearly in Table 4 below:

Table 4: The 1, 2 vs. 3 antecedence gap

| PATTERN | EXAMPLE | 1ST | 2ND | 3RD |
|---|---|---|---|---|
| Allows 1, 2, and 3 | Chinese *ziji* | ✓ | ✓ | ✓ |
| Allows only 3 | Tamil *ta(a)n*, Japanese *zibun*, Korean *caki* | ✗ | ✗ | ✓ |
| Allows only 1 and 2 | **Unattested** | ✓ | ✓ | ✗ |

Such a generalization would seem to be readily falsified by anaphoric paradigms like the one involving German *sich*, as shown in Table 5.

Table 5: German anaphoric paradigm (accusative forms)

| PERSON | SINGULAR | PLURAL |
|--------|----------|--------|
| **1st** | *mich* | *uns* |
| **2nd** | *dich* | *euch* |
| **3rd** | *sich* | *sich* |

A form like *mich* would seem to violate the antecedence gap generalization given in (38): it is, after all, an anaphor that can take a 1st-person antecedent but not a 3rd, or a 2nd:

(39)  Ich schlug mich.
      I    hit    me.ACC
      'I hit myself.'

(40)  *Du$_i$ schlugst mich$_i$.
      you   hit       me.ACC
      'You hit yourself.' (Intended)

(41)  *Sie$_i$ schlug mich$_i$.
      she    hit     me.ACC
      'She hit herself.' (Intended)

Similarly, *dich* can take a 2nd-person antecedent but not a 3rd or a 1st, and thus also seems to violate (38). Such putative counter-examples are fairly common and easy to come by in the world's languages. Note, however, that forms like *mich* and *dich* are not uniquely anaphoric: they also surface as non-anaphoric pronominal forms, as illustrated in the pronominal paradigm for German in Table 6: Thus, the example sentences in (40) and (41) would be perfectly grammatical

Table 6: German pronominal paradigm (accusative forms)

| PERSON | SINGULAR | PLURAL |
|--------|----------|--------|
| **1st** | *mich* | *uns* |
| **2nd** | *dich* | *euch* |
| **3rd** | *ihn/sie/es* | *sie* |

if *mich* were simply interpreted as a deictic pronoun (= 'me'); they are only illicit

under the reading where it is taken to be a reflexive. Table 6 shows clearly that the only row that has different exponents for anaphoric and pronominal variants in German is that corresponding to 3rd-person. In other words, while *sich* is an unambiguously anaphoric form, *mich* and *dich* are simply general 1st and 2nd-person pro-forms that are syncretic for both pronominal and anaphoric uses. The exact same point can be made for other languages with anaphoric forms that are restricted to 3rd-person antecedents, like Tamil *ta(a)n* and Italian *se*.

In light of this data, it seems that the generalization in (38) must really be that in (42) below:

(42) The pattern of an unambiguously anaphoric form allowing 1st/2nd-PERSON antecedents while simultaneously *dis*allowing 3rd-PERSON antecedents is crosslinguistically unattested.

In other words, the restriction makes reference to *surface forms* conditioned by underlying features, not to the underlying features directly. But what, then, about a language like English? Consider Table 7. The problem that English poses

Table 7: English anaphoric paradigm (accusative forms)

| PERSON | SINGULAR | PLURAL |
|--------|----------|--------|
| **1st** | *myself* | *ourselves* |
| **2nd** | *yourself* | *yourselves* |
| **3rd** | *himself/herself/itself* | *themselves* |

is that a form like *myself* is unambiguously anaphoric as well as being unambiguously 1st-person. This would seem to contradict the generalization in (42). However, I would argue here that we should not take *myself* as a *monolithic* form that is simultaneously anaphoric and 1st-person. Rather, it is a complex SELF-anaphor (Reinhart & Reuland 1993), and consists of two pieces: a *my* form which is syncretic with the 1st-person singular possessive pronominal form and a *self* form which is uniquely anaphoric.[7] This shows that, for an anaphoric form to count as unambiguous, *all* of its sub-components must be unambiguous (i.e. non-syncretic with another pro-form), as well. Thus, the complex SELF-anaphor in Dutch *zichzelf* is umabiguously anaphoric and satisfies (42) because each of its morphemes *zich* and *zelf* is unambiguously anaphoric in form; but Dutch

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[7] It also has an emphatic use which has been correlated with the anaphoric one: see Hicks (2009) for an excellent summary of prior analyses to this effect.

*hemzelf*, just like English *himself*, is not unambigously anaphoric, because *hem* is syncretic with the pronominal variant.

It is hard to see how a $\phi$-deficiency account would be able to capture the crosslinguistic antecedence gap described in (42). Under the assumption that all anaphors are ($\phi$-)featurally minimal (as Kratzer (2009) proposes), the null hypothesis would be that all anaphors would behave like Chinese *ziji*. In other words, the lack of any inherent $\phi$-features on the anaphor should entail the lack of any person restrictions on the antecedent. We could, instead, assume that anaphors are characterized by having *at least one $\phi$*-feature unvalued. Thus, while Chinese *ziji* starts out completely unvalued (allowing all antecedents), German *sich* might start out with a valued 3rd PERSON feature but an unvalued NUMBER or GENDER feature, preventing it from taking 1st and 2nd person antecedents. But, in this scenario, there would be nothing to rule out a hypothetical element that is essentially parallel to *sich* with the only difference being that it has a valued 1st-PERSON (rather than a valued 3rd-PERSON) feature. This hypothetical anaphor would then allow 1st-PERSON antecedents but not 2nd- or 3rd-PERSON antecedents, in direct violation of (38). Short of stipulating that an anaphor *cannot* have a valued 1st- or 2nd-PERSON feature, it is difficult to see how such a situation could be avoided.

## 4 Interim Summary

The purpose of the discussion in Sections 2 and 3 has been to address the question of why, given the wealth of research on anaphora in the generative tradition, a unified answer to the question of what an anaphor actually is, in the syntax, is formally lacking. To this end, I have presented an overview of the two main approaches to the question of what makes up an anaphor: the one that claims that an anaphor is a $\phi$-deficient nominal, and the other that proposes that it is deficient for some other feature, such as one that encodes reference.

The $\phi$-deficiency view, which is theoretically motivated by the notion that reference itself is encoded in terms of $\phi$-features, is empirically supported by the fact that anaphors invariably match their antecedents in $\phi$-features, that many anaphors are morphologically underspecified for $\phi$-features (compared to deictic pronouns in the same language), and the AAE. In other words, as discussed in detail, all of these properties could find a natural solution under an approach where an anaphor were born with some or all unvalued $\phi$-features which were then valued in the course of the derivation, either by the nominal that antecedes it or by an intervening functional head, like T or *v*.

The view that anaphors are deficient for some other (non-$\phi$) feature, either

in addition to (or instead of) $\phi$, is theoretically motivated by the notion that $\phi$-features restrict but crucially don't exhaust reference. Empirical support for this type of analysis comes from two broad types of data. The first shows that reference to $\phi$-features isn't enough: anaphoric dependencies seem to be regulated by something else (perhaps in addition to $\phi$-features). To this end, we looked at so-called perspectival anaphora: dependencies where the antecedent of the anaphor is defined, not just in terms of $\phi$-features but in terms of perspective-holding with respect to some predication containing the anaphor. In languages with such systems, sentience was shown to play a crucial role in regulating antecedence. Similarly, we looked at Tamil, a language with two types of anaphor: one that is perspectival and has a unique reflexive form, and another that is non-perspectival and has a form that is syncretic with that of a deictic pronoun. A simple $\phi$-deficiency approach cannot capture these patterns. The second type of empirical support for this view is of a negative kind and involves anaphoric sensitivity to PERSON-asymmetries. To this end, we saw that anaphors behave like 1st, and 2nd-PERSON pronouns, and unlike 3rd-PERSON, with respect to two phenomena — PCC effects and agreement. The final piece of evidence comes from a hitherto unnoticed typological gap with respect to anaphoric antecedence: there is no unambiguously anaphoric form that allows 1st- and 2nd-PERSON antecedents while simultaneously disallowing 3rd-PERSON antecedents. All three pieces of evidence point to the following conclusions about the featural status of such anaphors: they must themselves be specified for PERSON and, furthermore, they must share some feature in common with 1st- and 2nd-PERSON (which 3rd-PERSON lacks).

Far from helping to adjudicate between the two proposals, our comparison of the two has actually shown that both are valid in their own right, with strong theoretical and empirical evidence to back them up. This thus suggests that *both* conceptions of anaphora must be correct. How can an anaphor be $\phi$-featurally contentful and $\phi$-featurally deficient 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 two broad classes. Those of one class must be $\phi$-featurally deficient; those of the other must be $\phi$-featurally contentful (in particular, they must be valued for PERSON, as discussed above). Some of these anaphors must also have an additional non-$\phi$ feature, to yield the properties of perspectival anaphora discussed earlier. Below, I sketch more fully what such a scenario might look like.[8]

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[8] Having said this, I will show that we actually need, not two, but three distinct classes of anaphor. While the third class might only be needed for a few languages, it does seem like we

# 5 Proposal: two categories 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.[9] In particular, I propose that we use a bivalent rather than a privative feature system; this means that, for any feature $[F]$, we get the distinctions $\{+F, -F, \emptyset\}$, where $\emptyset$ is the absence of $[F]$ and $[-F] = \neg[+F]$.[10] The two features I will avail myself of are $[\pm Author]$ and $[\pm Addressee]$ which, modifying Halle (1997); Nevins (2007),[11] I define as in (43):

(43) **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 $[\pm Author]$ now yields the following PERSON-categories; exponents from the more unfamiliar languages in Table 8 are taken from the Surrey Syncretisms Database (Baerman 2002).

The categories in Group 1 in Table 8 are all characterized by having a value for exactly one feature and yield various person syncretism effects. Thus, $[+Addressee]$ defines all and only forms that include the addressee. In other words, these are forms that are syncretic for 1st-PERSON inclusive. Following the notational rubric in Harbour (2016), I will assume that the *Author* and *Addressee* features denote individuals labelled $i$ and $u$, respectively; a non-participant feature denotes an individual labelled $o$.[12] This means that 1st-PERSON inclusive denotes the follow-

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cannot do without it to deal with some of the cases of PCC effects and anaphoric agreement discussed above. However, the two classes mentioned here are arguably the main ones and these are hence the ones I turn to first.

[9] 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. 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.

[10] In a privative feature system, on the other hand, there is no clear way to distinguish between the absence of $[F]$ and $[-F]$, so we end up with only a binary distinction on features.

[11] 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.

[12] 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 $\{o \wedge o \wedge o \ldots\}$ are simply subsumed under $\{i\}$, $\{u\}$, and $\{o\}$, respectively. Similarly, a set like $\{i \wedge u\}$ is not distinguished from one like $\{i \wedge u \wedge u\}$.

Table 8: Person Classification based on $[\pm Author]$ and $[\pm Addressee]$

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

ing sets of referents: $\{i \wedge u, i \wedge u \wedge o\}$) and 2nd-PERSON denotes ($\{u, u \wedge o\}$). As per the Surrey Syncretisms Database, Muna is a language that involves just such a syncretism on a verbal exponent: the 2nd-PERSON singular is syncretic with the 1st-PERSON inclusive dual. Analogously, $[+Author]$ defines all and only forms that include the author, which defines the reference-set: $\{i, i \wedge u, i \wedge o, i \wedge u \wedge o\}$. These are just understood to be variants of 1st-PERSON, so this category is just identified as 1. 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 2nd-PERSON, so the category is simply labelled as such.

All this said, it is always a valid question whether featural paucity, such as that attributed to the individual categories here, is really necessary. After all, essentially the same syncretism effects can be obtained via underspecification of the morphological exponents. For the sake of simplicity, I will assume that the full range of logical featural combinations given in Table 8 is not required. In particular, I will do away with the categories in Group 1 and propose that the syncretisms of those types that do arise be derived via morphological underspecification instead. As an illustration, the SpellOut rule for the exponent *we* in English would itself be underspecified as in (44), even though the contexts for its insertion are fully specified as $[+Author, -Addressee]$ or $[+Author, +Addressee]$:

(44)  $[+Author] \leftrightarrow$ *we*

This would yield the desired lack of clusivity distinction for 1st-person.[13] I will thus assume the following reduced range of person-categories:

Table 9: Final Person Classification based on $[\pm Author]$ and $[\pm Addressee]$

| Features | Category | Exponents |
|---|---|---|
| [-Author, -Addressee] | 3 | *him, sie* (German), *si* (Italian) |
| [+Author, +Addressee] | 1incl. | *naam* (Tamil, 1incl.pl) |
| [+Author, -Addressee] | 1excl. | *naaŋgaḷ* (Tamil, 1excl.pl) |
| [-Author, +Addressee] | 2 | *you* |
| ∅ | null | *ziji* (Chinese), *man* (German) |

The updated table in (9) defines a 1st-person inclusive and exclusive category and a 2nd-person category, along the lines described above. The real innovation, however, is that it defines two different types of "Other" category. In a more primitive featural system (e.g. one defined on privative 1st, 2nd, and 3rd-person features), this Other category would simply be identical to 3rd-person. Here, however, we see that it splits further into two distinct categories. The only property these both have in common is that they are both non-local, i.e. non-1st and non-2nd. It is these categories that our two classes of anaphors 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, since the latter have been argued to lack person (see Nevins (2007); Ackema & Neeleman (To Appear) for discussion). The second category differs crucially from the other non-local one is being featurally contentful for person. It 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 9 will need to be updated still further to accommodate a proper subset of anaphors, namely those involving anaphoric agreement and certain types of PCC effects. But for now, I will show how this basic set-up can already deal with most of the empirical properties for anaphora we have observed so far. Against the featural classification in Table

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[13] 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.

9, I will now distinguish two categories of anaphor. I label these NULL-PERSON vs. 3rd-PERSON anaphors, based on the PERSON features they carry. The essential distinction between the two categories rests on this difference: the latter is inherently valued for PERSON, the former isn't. The feature specifications of the two main classes anaphors are given below:[14]

Table 10: Two Categories of Anaphor

| PERSON-Features | Category | Exponents |
|---|---|---|
| [-Author, -Addressee] | 3 | *taan* (Tamil), *si* (Italian), *zich(zelf)* (Dutch) |
| ∅ | NULL | *ziji* (Chinese), *zibun* (Japanese), *vetja* (Albanian) |

A central assumption I am making here is that what really matters for anaphora is valuation for PERSON, not NUMBER, or GENDER. Concretely, this means that a 3rd-PERSON anaphor may still lack values for GENDER and NUMBER and count as featurally specified enough for purposes of reference. Conversely, a NULL-person anaphor may bear values for NUMBER and GENDER and still count as featurally lacking (or NULL), for purposes of anaphoric categorization. Taken to the extreme, a 3rd-PERSON anaphor may be specified for all $\phi$-features, while a NULL-PERSON anaphor may be specified for none, in which case these anaphors would featurally have nothing in common at all. 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.[15]

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[14] The English form *himself*, just like Dutch *hemzelf*, doesn't fit neatly into Table 10 because, as discussed above, I am treating these as consisting of a pronominal form + an anaphoric "self" form. The "self" morpheme alone would count as PERSON-less, since it can take an antecedent of any PERSON. However, the pronominal part is clearly specified for PERSON. Whether this pronominal part is *pre*-specified for PERSON, or ends up acquiring these features via Agree with its antecedent is something that I have no opinion on at the moment, though much work has been done on this issue elsewhere.

[15] Of course, $F$ cannot just be *any* feature, as we have seen. Ideally, it would be a feature that is independently justified, like a $\phi$-feature, in that it has something to do with the reference of the anaphor in question. There are also meta-rules of computational wellformedness to keep in mind, like the Inclusiveness Condition, which restrict the kinds of features that can be allowed into the syntax proper.

## 5.1 NULL-PERSON anaphors

NULL-PERSON anaphora are featurally specified to lack a PERSON-feature, as I have said. In particular, an anaphor of this type 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. Below, we will see that such an anaphor can easily fulfill the empirical properties that motivated the $\phi$-deficiency view.

### 5.1.1 $\phi$-matching

We saw that anaphors invariably match their antecedents for $\phi$-features. Thus a sentence like (45), repeated from (3), is illicit in English (and other languages):

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

Antecedence $\phi$-matching is automatically predicted for a NULL-PERSON anaphor; it is, in fact, the only option. In the simplest scenario, such an anaphor just has unvalued PERSON, 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 straightforwardly. 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.[16]

### 5.1.2 Morphological underspecification

We had observed that anaphors crosslinguistically often fail to mark the full range of $\phi$-distinctions. This can be captured for a NULL-PERSON-anaphor, but it would have to be relegated to the morphological component. This follows from

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[16] 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 6.1.

the assumption that NULL-PERSON-anaphors start out being *unvalued* for PERSON. They may be valued or unvalued for the remaining $\phi$-features, as discussed. This means that, once they become valued for the relevant $\phi$-features via Agree, in the course of the syntactic derivation, they will end up with a full set of $\phi$-features. As such, any surface lack of $\phi$-featural distinctions on such an anaphor will have to follow from the underspecification of Vocabulary Items. Thus, Chinese *ziji*, which has an invariant, dedicated reflexive form, might have the SpellOut Rule in (46), repeated from (10), while Tamil *ta(a)n* would have that in (47) (repeated from (9)):

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

(47)  [3, SG, D] $\leftrightarrow$ *ta(a)n*

This means, however, that the *theory* itself don'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 along the lines described earlier from Rooryck & vanden Wyngaerd (2011).[17]

A second point to keep in mind has to do with what happens *after* feature valuation. In particular, given that the anaphor will inherit all of the $\phi$-features from the antecedent (directly or indirectly via a functional head), how will the system "know" to distinguish the antecedent from the anaphor at LF and PF? This is a concern that Rooryck & vanden Wyngaerd (2011) bring up which, in turn, motivates their "*" featural diacritic to mark out valued features on the anaphor, as discussed earlier. We could proceed in one of two ways here. For purposes of LF, the binder and the anaphor could simply be distinguished in terms of their structural configuration: specifically, the former would asymmetrically c-command the latter. A non-mutually exclusive alternative, which seems to be empirically supported, would be to distinguish the two in terms of 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.

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[17] An alternative might be to propose, as Kratzer (2009) does, that NULL-PERSON-anaphors can be born with no PERSON-attributes at all. Then, morphological underspecificaiton 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.

### 5.1.3 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 the anaphor. In the case of a long-distance anaphor in subject position, as with Tamil *ta(a)n*(Sundaresan 2016), this falls out straightforwardly, because the Agree Probe in T is merged before the nominal binder which carries the valued $\phi$-features. In a local reflexive sentence, where the anaphor is the object, we can have subject or object agreement. In the case of the latter, the logic is the same. The Probe is $v$, which is merged sooner than the nominal binder in subject position. The latter typically involve cases of a nominative object under a subject which, being oblique, cannot itself trigger agreement, as in the Italian sentences in (11)-(13). Since this is subject agreement, we would expect the Probe to be on T and thus actually merged *higher* than the binder. To explain why the AAE still holds in such cases, we must thus make some additional assumption, e.g. we could assume that "subject agreement" with an in-situ nominative object involves successive cyclic Agree via the $v$ head. It would then be the first Agree cycle that runs into earliness problems as the other types of agreement.

The second assumption we must make is that partial agreement with T or $v$ is ruled out. After all, a NULL-PERSON anaphor is only born unvalued for PERSON. While this allows it to be unvalued for all $\phi$-features, like with *ziji*, it doesn't force it to be so. We must thus ensure that an anaphor of this type which happens to have a valued NUMBER and/or a valued GENDER feature cannot trigger covaring agreement for these features on the verb. Agreement must be an "all or nothing" operation.[18]

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

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[18] On the other hand, if it turns out that there are languages that allow anaphors to trigger covarying agreement for GENDER and NUMBER, then the current system has a way to make sense of this. The idea would be that, in such languages, the all-or-nothing restriction on partial agreement doesn't hold. What is strictly ruled out, however, is a scenario where a NULL-PERSON anaphor triggers covarying agreement for PERSON.

and 2nd-ᴘᴇʀsoɴ agreement) on T or *v*.

## 5.2  3rd-ᴘᴇʀsoɴ anaphors

3rd-ᴘᴇʀsoɴ anaphora are inherently specified for ᴘᴇʀsoɴ. They thus have the feature specification $[-Author, -Addressee]$, and are negatively specified with respect to 1st- and 2nd-ᴘᴇʀsoɴ.

Two brings up three immediate points. First, note that *any* pro-form that is classified as 3rd-ᴘᴇʀsoɴ in such a system will also be specified $[-Author, -Addressee]$. This means, then, that 3rd-ᴘᴇʀsoɴ anaphors must be distinguished from non-anaphoric 3rd-ᴘᴇʀsoɴ pro-forms with respect to some *other* feature. I will continue to assume that anaphoricity is defined in terms of feature deficiency which is rectified by feature valuation under Agree, in the course of the syntactic derivation, which in turn feeds semantic binding at LF.

This implies that, second, and relatedly, 3rd-ᴘᴇʀsoɴ anaphors must be anaphoric by virtue of being deficient for some *other* feature than ᴘᴇʀsoɴ. We could satisfy both conditions by having such anaphors be deficient for ɴᴜᴍʙᴇʀ or ɢᴇɴᴅᴇʀ features instead. Alternatively, or additionally, such anaphors could be deficient for a feature like ᴅᴇᴘ and show perspective-sensitivity for antecedence, as discussed earlier (see again Sundaresan (2012; 2017) and also Koopman & Sportiche (1989); Nishigauchi (2014); Charnavel (2015)) for arguments that this information is syntactically represented). Again, I will assume that the anaphor is simply unvalued for these features, rather than lacking these features entirely.

Finally, it must be understood that a nominal counts as anaphoric only if it lacks a value for *at least one* feature. This could be either a $\phi$-feature, like ɢᴇɴᴅᴇʀ or ɴᴜᴍʙᴇʀ, as discussed, or a non-$\phi$-feature that targets perspective-taking, like ᴅᴇᴘ. This doesn't need to be explicitly stipulated. Under the current system, semantic binding is triggered by feature-valuation in the syntax with another nominal (directly or indirectly via a functional head). If a nominal doesn't have any unvalued features, it will simply not enter into such an Agree relation. As a result, it will not be semantically bound: i.e. not count as an anaphor.

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

Consider now the 1/2 vs. 3 antecedence gap in (42), repeated below:

(48)   The pattern of an unambiguously anaphoric form allowing 1st/2nd-ᴘᴇʀsoɴ antecedents while simultaneously *dis*allowing 3rd-ᴘᴇʀsoɴ antecedents is crosslinguistically unattested.

3rd-PERSON anaphora are well-behaved with respect to this gap. Such an anaphor (e.g. German *sich*, Italian *si*), being featurally specified as $[-Author, -Addressee]$ would automatically *dis*allow 1st- and 2nd-PERSON antecedents and only allow 3rd. This can, in fact, be taken to be the identifying "signature" for this class of anaphora. A NULL-PERSON anaphor, like Chinese *ziji* or Albanian *vetja*, is also well-behaved with respect to (48). Having no value for PERSON, such an anaphor will in principle allow antecedents of all PERSON. Both classes of anaphor in this system are thus well-behaved according to the generalization in (48), just as desired.

The only scenario that would allow 1st/2nd-antecedence while disallowing 3rd would be if the anaphor were itself specified $[+Participant]$. But this seems to be independently ruled out. For instance, there *are* 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 (49):

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

However, such forms always *also* involve an indexical use. I.e. there aren't unique, dedicated anaphoric forms for 1st and 2nd-PERSON alone in any language, as far as I'm aware, though *why* this should be the case is admittedly still far from clear.[19]

### 5.2.2 PCC effects and anaphoric agreement

We made the following parallel observations for anaphora with respect to PCC effects and agreement. First, there is a fundamental asymmetry between traditional 1st- and 2nd-PERSON, on the one hand, and 3rd-PERSON, on the other, with respect to restrictions pertaining to the PCC and agreement. Second, anaphors in many languages, pattern like 1st- and 2nd-PERSON with respect to these restrictions, and unlike 3rd-PERSON. Concretely, this means that, in languages like

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[19] For perspectival anaphors, at least, there is strong empirical support for the idea that these are *obviative* in the sense that they explicitly *cannot* refer to the perspective of the utterance context participant (Bylinina et al. 2014; Sundaresan 2012; Sundaresan & Pearson 2014; Sundaresan 2017). Perspectival anaphors in Italian (Bianchi 2003; Giorgi 2010) and Icelandic (Hicks 2009; Reuland 2011: a.o.), for instance, are used only across subjunctive clauses (and are disallowed across indicatives) — a mood that has independently been noted to have an obviative function, in that it precludes the perspective of the utterance-speaker (Hellan 1988; Sigurðsson 2010). We can understand this to mean that perspective as relevant for anaphors is really about *perspective-shift* away from that of the participant's (in particular, the speaker's), which may be seen as the default. 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.

French, Italian and Kiowa, PCC restrictions apply to 1st- and 2nd-PERSON and to reflexive clitics in exactly the same way (cf. French (27a)/(29a), (27a)/(29a) and (30a)/(30b)); 3rd-PERSON clitics are exempt from these restrictions and are the outlier. In the context of agreement, anaphors trigger so-called "anaphoric agreement", which is subject to the same categorial and structural restrictions are agreement triggered by 1st- and 2nd-PERSON.

The PCC facts can be accounted for under the current system. As discussed earlier, anaphors that are sensitive to the person asymmetry for PCC cannot themselves be unvalued for PERSON. A 3rd-PERSON reflexive clitic that is specified $[-Author, -Addressee]$ is, by definition, valued for PERSON. If we can conceive of the PCC as a person restriction that affects all (weak) grammatical objects that are contentfully marked for PERSON, regardless of whether these are positively or negatively specified for it, 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.

Turning now to anaphoric agreement, many of the patterns can be covered by the feature system as it stands. For instance, the facts that anaphoric agreement patterns with 1st- and 2nd-PERSONagreement can be accounted for in much the same way as the PCC effects: we might posit that such agreement is regulated by sensitivity to a PERSON-feature, regardless of whether this positively or negatively specified. This then picks out only 1st, 2nd, and 3rd-PERSON, in the current system. We also saw that anaphoric agreement in a given language is "special" in that it is distinct from any other form used in the $\phi$-paradigm in that language (see again Exx. (31) vs. (32) 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 or other (e.g. DEP) features, what is to distinguish it from another nominal (e.g. a non-anaphoric 3rd-PERSON pronoun) which has these features valued inherently? The only way to derive a special agreement form, in such cases, would be to underspecify the SpellOut rule for agreement. But this seems clearly the wrong way to go, because it doesn't explain why such agreement is triggered by an anaphor as opposed to any other pro-form with these features.

The second challenge comes from sentences like (50), repeated from (34):

(50)  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.'

Languages like Chicheŵa, which show anaphoric agreement also allow their anaphors to take 1st- and 2nd-PERSON antecedents in addition to 3rd. While this doesn't challenge the 1/2 vs. 3 antecedence condition in (48), it does pose a genuine challenge for the idea that anaphoric agreement is triggered by a 3rd-PERSON anaphor. After all, the defining property of such an anaphor, as we saw, is that it doesn't allow 1st and 2nd-PERSON antecedents, only 3rd — a restriction that directly follows from its feature-specification. Patterns like (50), which are also reported for other Bantu languages like Ndebele (Bowern & Lotridge 2002) and Swahili (Woolford 1999) — show us that, while the feature specification of the anaphor cannot be *completely identical* to that of all other nominals, it cannot, at the same time, be *completely disjoint* from that of 1st- and 2nd-PERSON forms.

I mentioned earlier that animacy seems to play a central role in tying together nominals that behave alike with respect to the PCC, in many languages (e.g. in Kiowa as discussed in Adger & Harbour (2007)). So this seems like a good candidate for the common feature that underlies all nominals with contentful PERSON. Indeed, Adger and Harbour assume something very much along these lines for Kiowa. I will thus assume a privative $[anim]$ feature that encodes semantic animacy that marks 1st, 2nd, and 3rd-PERSON nominals but crucially doesn't mark NULL-person. Note that this already gets us much of the way. We can use the presence of the $[anim]$ feature to explain why (3rd-PERSON) anaphors pattern like 1st and 2nd with respect to the PCC and for purposes of agreement; NULL-person (standard "3rd-PERSON") is the outlier. To explain the possibility of 1st and 2nd-PERSON antecedence in sentences like (50), we simply have to allow featural underspecification: specifically, I argue that in such cases, the anaphor is simply specified as $[anim]$. Assuming that no other nominal in the language has precisely this feature-specification, we can then also straightforwardly explain the specialness of the anaphoric agreement form. I simply label this category "REFL" because, under the current model, only anaphors have this feature specification.

Assuming that this is correct, we then have three distinct classes of anaphor, which are distinguished in terms of this feature system, not two. This is illustrated below:

Table 11: Person Classification: $[\pm Author]$, $[\pm Addressee]$ & $[Anim]$

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

Table 12: Three Classes of Anaphor

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

## 5.3 Perspectival anaphora

While I have motivated two classes of anaphor in the previous sections, these are, ultimately, defined and distinguished in terms of their $\phi$-features. NULL-PERSON anaphors are PERSON-less while 3rd-PERSON anaphors are contentful for PERSON; for a subset of these languages, I have just argued that there is an additional REFL class, which is an underspecified variant of 3rd-PERSON anaphors that is marked only for animacy. But we saw earlier that anaphors in certain languages have something "extra": their antecedence is defined, not (only) in terms of $\phi$-features but, in terms of perspective-holding with respect to some predication containing the anaphor.

In the current system, perspectival anaphora comes out as a strictly orthogonal category. As such, perspectival anaphors can be defined for NULL-PERSON anaphors as well as for 3rd-PERSON anaphors. Dravidian *ta(a)n* is a 3rd-PERSON anaphor in the current system, but it is perspectival. Such an anaphor would thus be spelled out by the following rule (after having had the [DEP] feature valued

by its binder):

(51)    [-Author, -Addressee, anim, Dep: *x*, sg] ↔ *taan*

We saw earlier that, in certain dialects (e.g. the Palakkad dialect) of Tamil, it is possible to have two locally bound reflexive forms — *avan* (non-perspectival) and *ta(a)n* (perspectival) (cf. (24) vs. (25)), from Sundaresan (2012). In the current system, the anaphor *avan* would be spelled out by the following rule:

(52)    [-Author, -Addressee, anim, m, sg] ↔ *avan*

The anaphoric and pronominal variants of *avan* would be distinguished in terms of which features they are born with: the former would be born with underspecified GENDER and/or NUMBER features which would be valued by its antecedent in the course of the derivation, driving semantic binding at LF. The latter would be born with all its $\phi$-features inherently valued. Post-valuation, however, the two pro-forms would both have the same $\phi$-features, and would thus both be subject to the SpellOut rule in (52), yielding syncretic *avan* in this dialect.

We have classified Chinese *ziji* as a NULL-PERSON anaphor. We have additionally treated it as a perspectival anaphor given its sentience restrictions with respect to sub-command (cf. (22) vs. (23)). But, of course, it could also be a REFL anaphor. Being featurally [*anim*], its sentience restriction would follow automatically. How do we decide? Ultimately, a perspectival feature like DEP encodes a syntactic restriction that triggers semantic perspective-holding on the part of the antecedent at LF. Thus, while such perspective-holding *entails* semantic animacy, it involves much more. This makes its presence felt empirically. With *ziji*, for instance, 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 & Tang 1991; 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 (53):[20]

(53)    [Dep:*x*] ↔ *ziji*

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[20] This raises the interesting question of whether we can ever "tell" the difference between a NULL-PERSON perspectival anaphor and a REFL perspectival anaphor, on the surface. Perhaps not. It might be possible that the latter is simply 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.

# 6 Empirical predictions

The true test of a model is the empirical predictions it can fulfill. The current system makes a range of testable empirical predictions. Below, I show that many of these are, indeed, confirmed, while one of them remains to be tested in future work.

## 6.1 $\phi$-matching and its absence

The current model derives $\phi$-matching between an anaphor and its antecedent in two ways. With a NULL-PERSON anaphor, $\phi$-matching could happen featurally, in the syntax proper, 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 via syntactic feature-valuation; PERSON-matching is always enforced in the semantics, as a result of referential identity between the anaphor and its binder, as described earlier.

This distinction can be tested empirically. In particular, matching via valuation should imply $\phi$-feature identity since the features on the anaphor (Probe) will have been copied from those on its binder (Goal) 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*. In other words, a single referent cannot be simultaneously 1st and 2nd-PERSON, ruling out a sentence like (54), repeated from (40):

(54)   *Du$_i$ schlugst mich$_i$.
       you   hit       me.ACC
       'You hit yourself.' (Intended)

But this is ultimately a looser condition than the one of strict $\phi$-featural identity, which is imposed syntactically. It thus predicts that we should observe $\phi$-mismatches between the anaphor and its antecedent, 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 sentences with so-called "monstrous agreement", reported for Tamil in Sundaresan (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. Sundaresan 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-PERSONagreement 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. The 1st-PERSON on the binder is interpreted relative to the speech event associated with the matrix speech verb, whereas the 3rd-PERSON on the anaphor is associated with the utterance-context. 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.

The current model makes sense of two further facts, namely that *ta(a)n* is a 3rd-PERSON anaphor, as indicated by the fact that it only allows 3rd-PERSONantecedents. After all, if it were a NULL-PERSONanaphor, its PERSON feature would be syntactically valued and strict $\phi$-identity would be the result. Second, that this particular inconsistency can obtain for PERSON and not for the other $\phi$-features. Note that 3rd-PERSON anaphors are defined by being valued for PERSON, but can be unvalued for other $\phi$-features.

### 6.2 PCC effects

Under the current system, anaphors that behave like 1st- and 2nd-PERSON with respect to the PCC belong to the category of 3rd-PERSON anaphora or REFL. This entails that NULL-anaphora should not be restricted like 1st- and 2nd-PERSON for PCC.

Indeed, this prediction seems to be confirmed. Nevins (2007) explicitly discusses this tendency, stating that "Impersonals and all-purpose reflexives [should be] immune to PCC due to ∅-value for [Author] and [Participant]" (p. 310); under the current system, this is a ∅-value for [Author] and [Addressee], but the effect is a lack of value for PERSON in each case. Thus, in Bulgarian, a language that shows the Weak PCC, PCC effects do not obtain with the reflexive clitic *se* (Rivero 2004: 500):

(55)  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 1, 2, and 3. Assuming that anaphora in Bulgarian is non-perspectival, we then also predict that it will have no animacy restrictions placed on its antecedence.

Conversely, if it has no animacy restrictions placed on its antecedence, we can conclude that its anaphoric dependencies are non-perspectival.

## 6.3 Animacy effects

The current model also makes clear predictions about the animacy restrictions on anaphors, given the restrictions on their antecedence and their behavior with respect to the PCC and agreement.

I have argued that an anaphor that triggers anaphoric agreement, as in Bantu languages like Swahili, Chicheŵa, Lubukusu and Ndebele, 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 antecedents that are inanimate in the 3rd-PERSON. Such a restriction does, indeed, seem to exist for Swahili, one of the languages in this sample. For instance, Woolford (1999), citing Vitale (1981), mentions that only animate objects may trigger agreement in this language. Assuming that anaphoric agreement is a type of object agreement, it then follows that this, too, is subject to the same restriction.

This same animacy restriction should hold for reflexive clitics in Romance or Kiowa that behave like 1st and 2nd-PERSON clitics, assuming these are all also marked [*anim*]. This does, indeed, seem to be true for a number of languages with PCC effects, though further research must be undertaken to test for potential exceptions.

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