Second person contains first

Word count: 8350

Kaden Holladay
University of Massachusetts, Amherst

Abstract This paper sketches a compositional theory of person features which aims to capture the typology of local person inventories (Zwicky 1977, Harbour 2016). Following arguments made by Harbour, I show that the typology of person inventories is suggestive of a deep asymmetry in how utterance authors and hearers are morphosyntactically encoded. The analysis I give differs from Harbour's account in the locus of that asymmetry, and makes novel predictions about person indexicality. My analysis is informed also by the availability of bound-variable readings for local pronouns (specifically 'supersloppy' readings under VP ellipsis; Rebuschi 1994; Charnavel 2015, 2019). Charnavel's (2015) account of these fact involves an inventory of pronominal features in which first and second person are defined in relation to one another. I claim that defining at least some persons relationally is indeed the right move, and show how that treatment bears on the typology of person inventories in light of independently motivated conditions on the use of definite descriptions.

Keywords: Person; pronouns; typology; supersloppiness; competition; alternatives; indexicals

1   Introduction

The study of person has proceeded along two main avenues in recent years. There are, on the one hand, approaches to person which are principally concerned with its morphosyntactic typology (*e.g.* Noyer 1992, Harley & Ritter 2002, Harbour 2016). Generally speaking, these approaches aim to find a set of person features which are (by hypothesis) made available by Universal Grammar, and which derive the range of variation in person inventories (*e.g.*, the fact that some but not all languages make an inclusive/exclusive distinction in first-person pronouns) as well as special syntactic properties of person, such as person hierarchy effects.

On the other hand, there are approaches more concerned with how person is to be characterized semantically, where topics like indexical shift and bound variable readings (especially under focus) play a larger role. This kind of work may be expressly typological (Deal 2017, 2020), but on the whole there seems to have been less attention paid to the question of what person features UG makes available. Granted, it is not uncommon to decompose pronouns into their constituent features (including person features: Heim 2008, Kratzer 2009, Charnavel 2015), but that decomposition typically is not motivated by data from more than a few languages, or is not informed by the data that the first group of approaches are.

Thus, to the extent that these are distinct research programs, I believe they have not been as mutually informative as they could be, and this paper aims to make a modest contribution toward bridging the gap. My empirical focus will be rather narrow: I aim to capture a part of Harbour's (2016) person typology in tandem with the fact that non-third persons can bind each other under VP ellipsis (per Charnavel's 2015, 2019 analyses).

Each of these works contains an important insight about the data they are respectively concerned with. As they stand, however, there is a tension between them. Harbour's work suggests that utterance authors (speakers) are grammatically privileged with respect to their addressees – specifically in terms of how the two kinds of discourse participant are morpho-syntactically encoded. On Charnavel's (2015, 2019) analyses of a particular kind of bound variable reading, however, that encoding is symmetric in the sense that neither kind of participant is grammatically privileged over the other. My goal here is to offer a semantically compositional proposal about person features which, while retaining a key aspect of each author's work, obviates this tension.

1.1 Outline

The goal of the next section is to present the two kinds of data which motivate the theory of person I subsequently argue for. After laying out some working assumptions about the ontology of person and its interface with the grammar in Section 2.1, I discuss in Section 2.2 the data of the first kind: the typology of person inventories. I introduce the methods and key empirical findings of Harbour's (2016) study, and observe that he derives an important gap in his typology from an asymmetry in how authors and addressees are encoded by morpho-syntactic features. Section 2.3 introduces supersloppy readings of local pronouns under VP ellipsis, and summarizes Charnavel's (2015, 2019) analysis whereby first- and second-person pronouns can bind one another partially as a function of their feature contents. I then call attention to the tension between these two proposals.

In Section 3, preserving certain insights from Harbour and Charnavel, I argue for a particular inventory of person features which derives the typology of person inventories in tandem with independently-motivated pragmatic constraints on the use of definite descriptions. Section 4 concludes.

2 Person typology and bound variable readings

2.1 Assumptions about the ontology

For the purposes of this paper I will restrict attention to the *local* persons. (These are the persons for which, in order to formalize their meanings, one must make reference to the *authors* and *hearers* of linguistic utterances.) This decision is a natural one on the common (but not uncontroversial) view that third is best understood as a non-person (Benveniste 1966, Kayne 2000, *i.a.*). The relation between the local persons and third on the proposal developed here is discussed in Holladay (forthcoming).

I assume that the range of meanings that linguistic expressions can have is restricted by the *ontology* of natural language, in Harbour's (2016) sense. The ontology for person that I adopt is standard at the outset, though my account will motivate a slight departure from this later on. This standard ontology posits two kinds of discourse participants: utterance authors and their hearers, over which I will let a and h range as variables. For the time being, I will assume two things about authors and hearers: (i) that they are disjoint atomic individuals, and (ii) that these individuals are unique at every context of utterance. (ii) is somewhat counterintuitive in light of (i) and common-sense ideas about discourse (can't utterances have multiple addressees, after all?), but will be motivated shortly in Section 2.1.1.

I assume also that these elements of the ontology can only be accessed by the grammar in a way that is indifferent to semantic number. In other words, with Kratzer (2009), Harbour (2016), and much other work, I assume the distinction between atoms and pluralities is opaque to person. I motivate this assumption in Section 2.1.2.

Taken together, author/hearer uniqueness (which is a claim about the ontology) and number-indifference (which is a claim about the relation between that ontology and the meanings of linguistic expressions) define maximally three local persons, which are traditionally termed *first exclusive* (1EX), *first inclusive* (1IN), and *second* (2ND). When person plays a role in determining the referent of an expression (a free pronoun, *e.g.*), the relation between the person categories and the elements of the ontology (*a, h*) can be characterized as in (1), where the person categories are defined semantically by the mereological containment relation that holds between the discourse participants and the referent.

(1)

CATEGORY	REFERENT CONTAINS:
1EX	*a,* but not *h*
1IN	both *a* and *h*
2ND	*h,* but not *a*

As we will see shortly, not all of these persons are actually contrasted in the grammars of many languages – a fact which should inform any theory of person features. First, however, I will provide some justification for the aforementioned assumptions about the standard ontology and how it interfaces with linguistic meanings.

2.1.1 Authors and addressees are unique

While many linguistic utterances obviously have a sole author, others intuitively seem to have multiple (*e.g.*, the verses sung by a choir). It appears, however, that no language has a person system which tracks this distinction (Harbour 2016: 67-71). For instance: if I, speaking alone, intend to communicate that the members of my choir are off-key, the English sentence *We are off-key* does the job. Crucially, the person specification of the pronoun need not change for my choir, singing in synchrony, to communicate the same proposition. Here the morphological number of the pronoun says something about the cardinality of its referent, but neither number nor person carries any information about how many authors the utterance has.

Moreover, while utterances can intuitively be directed at a single addressee or multiple, apparently no language makes a morpho-syntactic cut that tracks *this* contrast either. For instance, in a situation where a teacher is speaking to her class, we can observe that the person specification of the pronoun in the sentence *Your homework is due tomorrow* needn't change as a function of whether all students are present (independently of how many students are in the class). Plural morphological number on *your*, if present, tracks the cardinality of the referent, not the cardinality of hearers, and second person is licensed so long as *some* student is a part of that referent. So person, *per se*, simply does not care about the cardinality of the two kinds of discourse participant.

To make this point in a different way, consider the prediction that arises if we assume a different ontology, one with two atomic hearers h_1 and h_2. (The reader may conduct a similar exercise to see the predictions of permitting multiple authors in the ontology.) Namely: some language should have a person system that makes the following contrasts.

(2)

CATEGORY	REFERENT CONTAINS:
1EX	a, but not h_1 or h_2
1IN	a, h_1, and h_2
1IN$'$	a and h_1, but not h_2
1IN$''$	a and h_2, but not h_1
2ND	h_1 and h_2, but not a
2ND$'$	h_1, but not a or h_2
2ND$''$	h_2, but not h_1 or a

No language is reported to have such a person system,[1] nor a person system whose categories distinguish multiple authors. This suggests that if grammars can access the atoms of the ontology individually, then both authors and hearers should be unique if the goal is to derive no more than three local persons.

I conclude (as is standard in the semantic literature on person) that the author and hearer of an utterance are unique at the utterance context. To make sense of utterances that have a plurality of intuitive authors or a plurality of intuitive addressees in light of the assumption that authors and hearers are atomic, for the time being we can adopt Harbour's view on this point (2016: 71), which holds that in the former case, each author fixes the value of a to herself, and that in the latter case, each hearer fixes the value of h to herself. So in group address, for instance, each hearer h egoistically interprets a pronoun like *y'all* (2ND.PL) as something like 'the plurality containing h'. (The proposal I develop in Section 3 won't require authors and hearers to be atomic, so this is a temporary supposition.)

2.1.2   Person is number-indifferent

Some languages have inventories of pronouns or agreement which, while contrasting for person, do not morphologically contrast for number. In such languages, the pronouns' ability to refer is not restricted as a function of the referent's cardinality. In Imonda, for instance, the pronoun *ka* may refer to any individual (atomic or plural) that contains the utterance author, so long as it does not contain the hearer. *Mutatis mutandis,* the pronoun *pǝl* refers to individuals that contain both the author and the hearer, while the pronoun *ne* refers to individuals that contain the hearer but not the author.

(3)   *Imonda* (Border > Waris; Seiler 1985)

1EX	ka
1IN	pǝl
2ND	ne

One can characterize the pronouns of Imonda in a way that does not invoke semantic number at all; rather, one need only consider whether a and h are a mereological part of the referent. (The inclusive pronoun, of course, cannot refer to atoms, but this already follows from the fact that it refers to entities that contain both a and h, which are disjoint.)

This fact about Imonda generalizes fully, to my knowledge. That is, I know of no pronominal inventory whose members display no morphological number contrasts but can refer only to atoms (or dyads, in the case of inclusives). On the view that authors

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[1] Granted, we might expect 1IN$'$ to not be contrasted with 1IN$''$, nor 2ND$'$ with 2ND$''$. (How could interlocutors reliably distinguish which addressee is h_1 and which is h_2?) Even if we allow for these distinctions to be done away with, the resulting person system still overpredicts in that is has two flavors of second person and two flavors of inclusive person.

and hearers are atomic and unique, what this suggests is that grammar can only access these individuals in a way that is *number-indifferent,* to use Daniel's (2013) term.

The number-indifference of person will be a crucial ingredient in my proposal to follow. I will show that if person is number-indifferent, then more than one local person has the ability to refer plural individuals which contain both *a* and *h.* It is precisely this property that allows local persons to compete pragmatically under certain circumstances, and this will be put to use in deriving a core part of the person typology.

2.2 The typology of person inventories: Zwicky's puzzle

We turn now to that typology of person inventories. As mentioned above, the maximum number of local persons that can be contrasted appears to be three. When a language has three local persons, they are always those that were given in (1), and that were exemplified transparently by the pronouns of Imonda, which are repeated below in (4).

Other languages, however, contrast fewer persons. Jarawa, for instance, has a pronoun *mi* which is used for first-person exclusive and first-person inclusive meanings alike (5). (Like those of Imonda, the pronouns of Jarawa do not contrast for number or gender.)

(4)   *Imonda* (Waris; Seiler 1985)

1EX	ka
1IN	pəl
2ND	ne

(5)   *Jarawa* (Ongan; Kumar 2012)

1EX	mi
1IN	
2ND	ŋi

Jarawa *mi* is a sometimes called a *generalized* first-person pronoun; it is generalized in the sense that it covers the range of meanings that Imonda inclusive and exclusive first-person pronouns collectively do. We may understand the Jarawa paradigm in (5), then, as a less articulated version of the Imonda paradigm, where what are distinct categories in Imonda have fallen together. Put another way, the Jarawa pronominal paradigm is syncretic with respect to the Imonda one.

2.2.1 The typology of paradigmatic syncretisms

Any non-trivial theory of person should have something to say about the range of syncretisms which can overlay the three-person scaffold motivated by languages like Imonda. But as shown by Harbour (2016: 8-17), paradigmatic syncretisms are not a good window into the typology of person contrasts, for two reasons.

First, every logically possible syncretic pattern over the three local persons is attested. So in addition to the 1EX/1IN syncretism found in the Jarawa pronominal inventory, Harbour points out that South Efate features 1EX/2ND syncretism in a subject agreement paradigm, Bilua presents 1IN/2ND syncretism in an object agreement paradigm, and Hocąk has a three-way syncretism of 1EX/1IN/2ND in its pronouns.

Second, Michael Cysouw's (2003, 2005) work, which investigates the relative frequencies of paradigmatic syncretisms, indicates that one cannot simply sort the marginal from the common patterns, because there is no obvious cut-off point between the two. Rather, there is gradual cline in frequency among paradigmatic syncretisms. If the goal is to build a theory of *n*-celled person paradigms, no route forward seems non-arbitrary.

The situation changes drastically for the better once paradigms are taken to not be the sole or even primary source of data on the typology of person inventories. As Harbour and others (McGinnis 2005, Sauerland & Bobaljik 2013, *e.g.*) have recognized, there are much more tangible typological generalizations about the number of person contrasts at

the level of a language than there are about the number of contrasts in some paradigm that that language happens to employ. While the cells of any one paradigm might be subject to accidental homophony, one can generalize over a set of paradigms to discover the way that person is *partitioned* in the language. A language's person partition can be thought of as an upper bound on the number of person contrasts internal to any one paradigm.

2.2.2 Superimposing paradigms yields a partition

The analyst uncovers a language's partition by superimposing person paradigms (Harbour 2016: 17-29); the following illustrates a way of implementing this idea. Start by collecting all the person paradigms a language has to offer (or a representative subset, as I do here for the purposes of exposition). Consider the following two Kiowa agreement paradigms (*ibid.*: 14); these are defined by argument status (cross-referencing subjects vs. objects) and by number.

(6) *Kiowa*
Object agreement (PL)

1EX	gyát-
1IN	gyát-
2	bát-

(7) *Kiowa*
Subject agreement (NSG)

1EX	e-
1IN	ba-
2	ba-

Neither of these paradigms contrasts all three local persons (but observe in passing that the *grammar* of Kiowa simply must: every person can be distinguished from every other in at least one of the paradigms). We may use lowercase letters to represent which persons are morphologically contrasted in each of the above paradigms. We say that (6) has an 'aab' pattern to mean that 1IN and 1EX are associated with the same morphological form, but that 2ND is associated with a different one. (The order of the person cateogories – 1IN, 1EX, 2ND – is arbitrary but consistent throughout this paper.) By contrast, (7) has an 'abb' pattern.

These patterns are recorded in the left half of the table in (8). Restricting our attention to that left half, note that no two rows are identical – the first row (aa) is not the same as the second (ab), and neither is the same as the third (bb). Since each row is unique, we may associate each one with a distinct *uppercase* letter, as I do in the right half of the table.

(8)

	Paradigms			Partition
	(6)	(7)		
1EX	a	a	→	A
1IN	a	b	→	B
2	b	b	→	C

The rightmost column in (8), then, represents a generalization over the paradigmatic person contrasts. To say that Kiowa exemplifies an 'ABC' partition expresses that every local person can be distinguished from every other local person in at least some paradigm. Thus we may conclude from just two paradigms, (6) and (7), that Kiowa has the same local persons that Imonda wears on its pronominal sleeve.

But superimposing person paradigms doesn't suffice to yield a three-way contrast between local persons in all languages. English, for instance, has an AAB person partition, since 1EX and 1IN are collapsed in every paradigm in which both are effable. Both being effable is important, because it's wrong to conclude from the fact that the pronoun *I* can

be exclusive but not inclusive that English has a clusivity contrast. Rather, the meaning of inclusive person is simply incompatible with the meaning of singular pronominal number, which the pronoun in question also bears. So, setting the singular pronouns aside for that reason, English uses the nominative plural pronoun *we* to convey exclusive and inclusive meanings alike, but uses a different form, namely *you*, for second person (aab). Plural agreement in the simple past tense does not contrast for person at all (aaa). So on and so forth – but no matter how many more paradigms of English one considers, those paradigms will converge on an AAB partition. 1IN and 1EX are contrasted nowhere in the grammar of English. (The meanings may be distinguished only perphrastically: *you and us* vs. *us, but not you*, for instance.)

2.2.3 The typology of person partitions

I mentioned in the last section that the typology of partitions is a much more tangible problem for the theorist than the typology of paradigms is. This is because there are some logically possible partitions of person which are unattested (Harbour 2016: 40). The absence of some partitions sets the stage for stronger theories of person, because now there are negative data to derive, data which didn't exist in the world of paradigms where everything is possible. So (in the interest of informing such a theory): which partitions are attested, and which aren't?

There are five possible ways of partitioning three local persons (9).

(9)   Five logically possible partitions over three local persons

	Type I	Type II	Type III	Type IV	Type V
1EX	A	A	A	A	A
1IN	B	A	B	B	A
2ND	C	B	B	A	A

How well-attested some of these patterns are attested depends on at least two things. First, it depends on which paradigms are understood to show person contrasts. Harbour's study takes a rather liberal approach in this respect, in that paradigms of spatial deixis are taken to contrast for person, as spatial deictics often anchor to a discourse participant (English *here/there*, *this/that*, and *hither/thither* are examples of such paradigms). Harbour notes that the assumption that these kinds of paradigms contrast for person is not standard in the generative literature, and that "including spatial data [. . .] opens up a richer array of partitions than would otherwise be available" (p. 45).

Second, it depends on whether a partition is in fact taken to be a generalization about a grammar. I introduced it that way above, but Harbour envisions a different method for superposition: for him, a partition may be constructed by superimposing a particular subset of the person paradigms a language has to offer; specifically those associated with some syntactic *domain* below the level of the grammar. A domain is "hermetically sealed in terms of syntactic operations" from the other domains in the language, though the domains of a language use "the same features and [share] elements of functional structure" (*ibid.*: 45-46). Harbour reasons that in agreement-dominant languages where pronouns are used only in restricted circumstances, but have some degree of grammatical autonomy – can occur in isolation from verbs, for example – pronouns and agreement should be taken to represent distinct domains, and the superposition of paradigms should be applied to each of these domains independently. Whereas if "argumental nouns and pronouns are obligatory, one can reasonably take the verbs to copy all person and number features from nominals, thus making pronouns and verbs a single domain in the sense

of containing only a single set of interpreted features, propagated through the syntax by copying"; p. 47. In principle, of course, two domains from a single language may turn out to be partitioned differently – and thus the relative frequencies of some partitions is a function of what those partitions are taken to be partitions *of*.

I will depart from Harbour on both of these points. Regarding the first, I grant that there are many interesting correlations between the morphological patterns we see for person and for those we see for other kinds of perspectival expressions (see especially Harbour 2016: Ch. 7). However, the two systems can be teased apart to some degree. English *here* can anchor to a third-person pronoun in free indirect discourse, for instance, while personal pronouns cannot:

(10)   Emilio$_j$ believed that {he$_j$, *I$_j$} would feel at home here on Mars.

The typology of indexical shift also seems to support this move. Deal (2017, 2020) argues that spatial indexical shift asymmetrically entails person indexical shift across a range of languages – an unexpected fact if person is necessarily the perspectival anchor for spatial indexicals.

Regarding the second point, I suggest that domain-specific partitions (which are sub-grammatical generalizations) are a slippery slope analytically. Harbour uses the grammatical independence of classes of linguistic expressions to delineate domains, but the grammatical independence of those classes is decided on a case-by-case basis. So nothing in principle would prevent the analyst from associating two varieties of verb agreement – with ergative vs. absolutive arguments, for instance – to disjoint domains. Those two flavors of agreement are certainly independent by some measure, and one can occur without the other. Herein lies the problem; once it's allowed to superimpose only a subset of person paradigms in a language, it seems hard to stop the process from snowballing. The analyst might even look at no more than a single paradigm, at which point superposition is vacuous and all conceivable data are attested once again. I would like to resist positing sub-grammars without clear criteria for identifying them, so in what follows I will not give weight to sub-grammatical generalizations.

More specifically, I will be assuming (i) that only pronouns, pronominal clitics, and agreement show person contrasts, and (ii) that a person partition is a generalization at the level of a language. Given these assumptions, the attestation of the logically possible partitions in (9) is, to my knowledge, what is given below.

(11)   Partitions over three local persons

	Type I	**Type II**	**Type III**	**Type IV**	**Type V**
	common	common	unattested	unattested	unattested
1EX	A	A	A	A	A
1IN	B	A	B	B	A
2ND	C	B	B	A	A

In the first partition type (ABC), all three of the local persons listed in (1) are grammatically contrasted. This person inventory is common across geographically and genetically diverse languages (of which Imonda was one – note that any 'abc' paradigm entails an ABC partition). The second type, AAB, is exemplified by Jarawa, the languages of Europe, and many other languages besides: it appears to be the most common kind of person system.

There are three unattested patterns: ABB, ABA, and AAA. An ABB partition would be exemplified by a language with two local persons (like English or Jarawa), but where the *second* person would never be grammatically contrasted with inclusive first. ABA

partitions would contrast inclusives with exclusive-cum-second, while AAA partitions would contrast no local persons.

For the purposes of this paper, I will focus our attention on a subset of this typology: Types I-III. These three partitions are sufficient to contextualize an important insight of Harbour's about the inventory of person features that UG makes available. (Types IV-V, and the relation between local persons and third, are investigated in detail in Holladay [forthcoming]).

2.2.4 Zwicky's puzzle

Purely in light of the meanings that the local person categories seem to have (1), it is totally surprising that there are so many AAB partitions but no ABB partitions. Under an AAB partition, a language doesn't distinguish individuals that contain the author a from those that contain the author-hearer sum $a \oplus h$. That is, (when used referentially) the generalized first person is used to refer to individuals that contain the author, *irrespective* of whether they contain the hearer.

The unattested ABB partition is the symmetric counterpart of the attested AAB partition: an ABB pattern would be a generalization about a grammar which doesn't distinguish individuals that contain h from those that contain $h \oplus a$ ($= a \oplus h$). This kind of system would have what I'll call a *generalized second* person (because the form used for second person meanings is generalized to cover inclusive meanings); this would be used to refer to individuals that contain the hearer, irrespective of whether they contain the author. Despite its formal resemblance to the commonplace AAB partition, this kind of person system is not attested.

Authors, then, are grammatically privileged over their addressees, in the sense that author containment is more important than hearer containment when inclusive meanings are morpho-syntactically encoded akin to some other local person category (i.e., in languages with two local persons). But why does inclusive always class with exclusive? That is, why does no language grammatically privilege *hearers*? This question was originally posed in Zwicky (1977);[2] I offer an adapted version of it below.

(12)   **Zwicky's (1977) puzzle**:
        Given that ABC and AAB partitions are common, why does no language have an ABB partition?

Note that there is nothing in the ontology that we've been working with thus far which sheds light on this puzzle, since exclusive meanings have the same relationship to inclusive meanings as second person meanings do ($a : a \oplus h :: h : a \oplus h$). Assuming the ontology itself is sound, the typology of partitions needs to derive something else. Person hierarchies (Zwicky 1977) and geometries (Harley & Ritter 2002) don't provide any real explanation, as they stipulate the solution outright.

The central insight of Harbour (2016), in my view, is that an answer to Zwicky's puzzle comes not from the way the person ontology is structured, but rather from the ways that the denotations of person features *interface with* the ontology.

To see why the way that grammars access the ontology matters, consider the implications of the following idea about person features. Recalling that ABC person systems have three local persons – which are (at least partially) semantically defined by the containment relation that holds between the referent on the one hand, and the author or hearer

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[2] Harbour calls the generalized form of the question (namely: which partitions are attested, which aren't, and why?) 'Zwicky's problem' for this reason.

on the other – we might imagine that there are two universal person features, AUTHOR and HEARER. The first of these (if present) determines that the author is a part of the target referent, while the second (if present) determines that the hearer is. Assuming that feature co-occurrence is commutative and interpreted as something like conjunction, we land the on following picture.

(13)

CATEGORY	REFERENT CONTAINS:	FEATURES:
1EX	a, but not h	AUTHOR
1IN	both a and h	AUTHOR, HEARER
2ND	h, but not a	HEARER

(13) says, for instance, that 1IN is specified for both person features, while 1EX and 2ND are specified only for one. This feature inventory correctly predicts that maximally three local persons can be contrasted, because there are only three ways of valuing a morpho-syntactic expression with at least one person feature.

As Harbour notes, however, what this inventory does *not* offer is a solution to Zwicky's puzzle. To derive AAB partitions, we must adopt the view that one feature specification in the right-hand column of (13) can be conflated with another in some languages – specifically, we must allow for AUTHOR to be conflated with AUTHOR, HEARER to admit languages like Jarawa and English.

Herein lies the problem. No matter the mechanism by which we achieve that conflation (contextual neutralization, *e.g.*), it's not possible to limit that process, except by stipulation, from allowing HEARER to be conflated with AUTHOR, HEARER – which erroneously derives the unattested ABB partition.

This isn't a problem unique to monovalent (privative) features, nor do semantics of feature co-occurrence matter in any important way. The problem with the feature inventory in (13) is the way those features' denotations interface with the ontology of person. AUTHOR and HEARER, whose denotations govern the mereological containment of a and h in the referent, put the two discourse participants on the same footing, grammatically speaking: the elements of the ontology (a, h) each correspond to a feature which determines their inclusion in the target referent.

2.2.5   Harbour's solution: no direct access to h

The contents of the preceding section motivate feature inventory that doesn't put the speaker and hearer on grammatical par. This is precisely the kind of inventory that Harbour (2016) argues for in light of Zwicky's puzzle. His solution, in the abstract, is virtuously simple: eschew HEARER. On Harbour's view, Universal Grammar simply offers no direct way to access the addressee, nor the containment relation it may bear to a referent.

In lieu of HEARER, Harbour uses PARTICIPANT; this feature governs whether both a and h are included in the referential target. His solution retains a correlate of the AUTHOR feature (which, as before, governs author inclusion). Now the features are no longer on par, in the sense that the set of things that PARTICIPANT associates with, namely $\{a, h\}$, is a proper superset of the set of things that AUTHOR does, namely $\{a\}$.

At this juncture the reader will likely wonder how Harbour's AUTHOR and PARTICIPANT actually derive ABC and AAB partitions without deriving ABB. Unfortunately, there isn't space here to delve into the details of his proposal, which involves a lot of technical machinery not relevant to the point at hand. For our purposes, what matters is this: Harbour derives a gap (*viz.*, the unattested ABB) in the typology of person systems with

an inventory of features that grammatically encode *a* and *h* not symmetrically, but rather asymmetrically.

(14)   **Harbour's (2016) insight**:
        Context authors and hearers are treated asymmetrically in their morpho-syntactic encoding. Something intrinsic to the inventory of person features privileges the encoding of context authors.

The proposal I develop in §3 is motivated in part by (14), and in part by the data discussed in the next section. The data to follow contrast with those discussed above in a weird (and illuminating) way: while Zwicky's puzzle suggests there is an asymmetry in how participants are encoded grammatically, second and generalized first person have a deeply symmetric relationship when it comes to binding.

2.3   Supersloppy readings under VP ellipsis

Rebuschi (1994, 1997) observed that the interpretation of singular first- and second-person pronouns in Romance languages involve a *quirky dependence*; later studies (Bevington 1998; Chung 2000; Charnavel 2015, 2019) have shown similar facts to hold in English. I will base the contents of this section on Charnavel's work, since her data set is the most empirically comprehensive (for English), and since her analysis is the least ad hoc (see Charnavel [2019: §2.2] for justification on this point).

   Quirky dependence can be observed under focus and under VP ellipsis (VPE); for reasons of space I'll restrict attention to the VPE cases in this paper. The phenomenon can be seen in the context of VPE only when the elided expression and its antecedent are contributed by different discourse participants; this is illustrated in the dialogues between Romeo and Juliet below. In (15a) Romeo provides the antecedent to Juliet's response (15b) which contains an ellipsis site (△). Her response is ambiguous between a strict reading and what Charnavel calls a *supersloppy* reading. The structurally converse scenario – where the subject is second person and the object is first person – shows the same pattern and is exemplified by (16).

(15)   (Charnavel 2015)
        a.   ROMEO: I love you.
        b.   JULIET: I do △ too.
             (15b) can mean 'Juliet loves Juliet too' (strict)
             (15b) can mean 'Juliet loves Romeo too' (supersloppy)

(16)   (example mine)
        a.   ROMEO: You bother me.
        b.   JULIET: You do △ too.
             (16b) can mean: 'Romeo bothers Romeo too.' (strict)
             (16b) can mean: 'Romeo bothers Juliet too.' (supersloppy)

The supersloppy readings of Juliet's utterances are notable in that they do not follow from the usual theories of VP ellipsis if a naïve semantics for the singular first- and second-person pronouns of English is assumed – whereby the value of *I/me* is the context author and *you* their hearer.

   By 'the usual theories' of VPE I mean those that aim to provide a unified analysis for the two readings of sentences like (17) (which illustrates the classic strict/sloppy ambiguity) by appealing to the notion of *interpretational parallelism* (18).

(17)   Amy loves her mother. Zoë does △ too.

    a.   Amy loves Amy's mother. Zoë loves Amy's mother. (strict)
    b.   Amy loves Amy's mother. Zoë loves Zoë's mother. (sloppy)

(18)   **Parallelism requirement for elided DPs**:
    A DP contained in an ellipsis site must be interpreted in parallel fashion to its
    structurally-defined correspondent in the antecedent.

(17) may satisfy (18) in two ways. One way to satisfy the parallelism requirement is for
the elided possessor to adopt the extension of its correspondent in the antecedent. Since
its structural correspondent is the overt *her*, and since that expression's extension is Amy,
the elided possessor can adopt that extension too. In this way, the *referential parallelism*
that holds between *her* and the elided possessor derives the strict reading.

    Alternatively, since *her* could well have been a variable (bound by *Amy*), the elided
possessor can be interpreted as a variable too (but now necessarily bound by Zoë). This
binding parallelism derives the sloppy reading (17b).

    It's easy to see how referential parallelism can derive strict readings of (15b) and (16b)
above: the extension of Romeo's *you* in (15) is Juliet, and so the object DP in Juliet's
ellipsis site can have that extension too; *mutatis mutandis* for (16).

    The supersloppy readings, however, do not follow trivially from (18). In contrast to
(17), where construing *her* as a bound variable derives the sloppy reading for the elided
possessor, in (15) and (16) the overt object pronouns don't have a binder. Or do they?

    Charnavel (2015, 2019) shows that there are two important restrictions on the avail-
ability of supersloppy readings. These restrictions, she argues, suggest the objects in (15)
and (16) are in fact bound by those sentences' subjects: *I* can bind *you* and vice versa.
Below, I introduce the conditions on the availability of supersloppy readings, and then
summarize her analysis of supersloppiness.

2.3.1   Sensitivity to c-command implicates binding

For supersloppiness to obtain, it's necessary to have one local pronoun (first or second)
c-command the another local pronoun (second or first) in both the antecedent utterance
and the one that contains the ellipsis site. In (19) and (20), for example, where one of
the pronouns is buried inside a relative clause, we observe that the supersloppy reading
is no longer available.

(19)   (Charnavel 2015)

    a.   *Romeo*: The man [I hate] loves you.
    b.   *Juliet*: The woman [I hate] does △ too.
        (19b) can mean: 'The woman Juliet hates loves Juliet, too.' (strict)
        (19b) **can't** mean: 'The woman Juliet hates loves Romeo, too.'

(20)   (example mine)

    a.   *Romeo*: The man [you hate] loves me.
    b.   *Juliet*: The woman [you hate] does △ too.
        (20b) can mean: 'The woman Romeo hates loves Romeo, too.' (strict)
        (20b) **can't** mean: 'The woman Romeo hates loves Juliet, too.'

Given that c-command is a precondition for binding, Charnavel reasons, the fact that
supersloppy readings disappear in its absence suggests that these readings are derived
via binding parallelism. This is a natural move, given that the *other* kind of parallelism

(namely: referential) already explains the *other* reading (namely: strict) that sentences like (15b) and (16b) have.

To that end, of course, first- and second-person pronouns must be act as bound variables. But binding must be restricted in a principled way, since supersloppiness obtains only in the absence of third-person expressions, as I now show.

2.3.2   The restriction to local pronouns motivates a relational semantics

The second restriction on the availability of supersloppy readings is that they come about only in cases where a local pronoun c-commands another local pronoun (one with a different person specification) in both the antecedent utterance and the utterance containing containing the ellipsis site. If one of the DPs is not specified for a local person, supersloppiness vanishes once again, as (21) illustrates.

(21)   (Charnavel 2015; adapted)
    a.   *Romeo*: I love you.
    b.   *Juliet*: Count Pâris does △ too.
         (21b) can mean: 'Count Pâris loves Juliet too.' (strict)
         (21b) **can't** mean: 'Count Pâris loves Romeo too.'

That the supersloppy reading is anti-licensed when both local pronouns are not present suggests that there is something specific to the meaning of the local pronouns *I/me* and *you* which allows them to bind one another – but not to bind, or be bound by, third person DPs. With Rebuschi (1994, 1997), Charnavel argues that these pronouns' meanings are relational in the following sense: the value of *I/me* is determined as a function of who the hearer is, and the value of *you* is determined as a function of who the author is. I show in the next section how this intuition is cashed out formally.

2.3.3   Charnavel's account of supersloppiness

Charnavel's (2015) analysis of supersloppy readings has two components. The first is an inventory of local person features (specifically, one that allows for the relational semantics just discussed) which can be used to construct English first- and second-person singular pronouns. Her inventory is given in (22). I have bolded the features to distinguish them as expressions of the object language, and note that interpretation proceeds with respect to an author-hearer tuple $\langle a, h \rangle$.

(22)   a. $[\![\mathbf{A}]\!]^{\langle a,h \rangle} = A = [\ \lambda x\ .\ y : \langle x, y \rangle \in \{\langle a, h \rangle, \langle h, a \rangle\}\ ]$
        b. $[\![\mathbf{a}]\!]^{\langle a,h \rangle} = a$
        c. $[\![\mathbf{h}]\!]^{\langle a,h \rangle} = h$

The feature **A** in (22a) denotes an *addresseehood relation* which holds symmetrically and irreflexively between the context author and hearer. The value of **a** is fixed by the author, and that of **h** by the hearer.

On Charnavel's account, the English pronouns *I* and *you* each contain two features drawn from the inventory in (22). Specifically: both pronouns contain **A**, and are distinguished from one another as a function of the other feature they contain (**a** or **h**). The denotations of the features a pronoun contains compose (via Function Application) in the following way.

(23)   a. $[\![$ I/me $]\!]^{\langle a,h \rangle} = [\![$ **A h** $]\!]^{\langle a,h \rangle} = A(h) = a$
         b. $[\![$ you $]\!]^{\langle a,h \rangle} = [\![$ **A a** $]\!]^{\langle a,h \rangle} = A(a) = h$

Note that because the relation A maps an individual to their discourse partner, the *first*-person pronoun contains a feature whose semantic value is determined by the *hearer* coordinate of the context tuple, while the *second*-person pronoun contains a feature whose value is determined by the *author* parameter. On Charnavel's account, then, there's a loose sense in which the meaning of *I/me* is 'your addressee', while the meaning of *you* is 'my addressee'. This semantic interdependence plays an essential role in restricting supersloppy readings to configurations where one local pronoun binds another.

   The second component of Charnavel's account is the binding mechanism – one which, in tandem with (23), allows these pronouns to bind each other, but not to bind, nor be bound by, non-local pronouns. To this end Charnavel adopts Cable's (2005) idea that Predicate Abstraction (PA) is sensitive to person. For the general case, Cable assumes the standard implementation of PA (Heim & Kratzer 1998) whereby (i) movement leaves a trace, (ii) the trace is interpreted as a variable, and (iii) argument movement (to Spec, TP) triggers the insertion of an abstraction operator below the landing site which binds that variable. He augments the standard implementation, however, by proposing that PA can proceed in a different way when the local pronouns move. When first-person pronouns move, they may trigger the insertion of a special abstraction operator relativized to first person, which I'll call λ**a**; it serves to bind a variable situated in the author coordinate of the context tuple $\langle a,h \rangle$. The movement of second-person pronouns optionally triggers the insertion of an operator relativized to second person, namely λ**h**; this allows the hearer coordinate to be recast as a bound variable. The mothers of λ**a** and λ**h** are interpreted via the monstrous (*i.e.*, context-overwriting) rules in (24).

(24)   a.
$$\left[\!\!\left[\ \widehat{λ\mathbf{a}\ \ \mathrm{XP}}\ \right]\!\!\right]^{\langle a,h \rangle} = \quad λx \, . \, [\![\ \mathrm{XP}\ ]\!]^{\langle x,h \rangle}$$

         b.
$$\left[\!\!\left[\ \widehat{λ\mathbf{h}\ \ \mathrm{XP}}\ \right]\!\!\right]^{\langle a,h \rangle} = \quad λx \, . \, [\![\ \mathrm{XP}\ ]\!]^{\langle a,x \rangle}$$

Charnavel assumes that the traces of first- and second-person pronouns are interpreted identically to their moved counterparts – that is, as relational nominals like (23). The relational semantics for pronouns and traces, in conjunction with Cable's person-sensitive predicate abstraction, suffices to capture supersloppiness.

   Recall that when Romeo says *I love you*, Juliet's response (15b), namely *I do △ too*, can mean that Juliet loves Romeo. A derivation of Juliet's ellipsis site on this reading is given in (25). (I denote the trace of the pronoun *I*, which consists of the features **A** and **h**, with 't$_\mathrm{I}$' and 't$_\mathbf{Ah}$')

(25) $[\![$ VP(15b) $]\!]^{\langle j,r \rangle} =$
         $[\![$ λ**a** [t$_\mathrm{I}$ love you] $]\!]^{\langle j,r \rangle} =$ by (23)
         $[\![$ λ**a** [t$_\mathbf{Ah}$ love **Aa**] $]\!]^{\langle j,r \rangle} =$ by (24a)
         $λx \, . \, [\![$ t$_\mathbf{Ah}$ love **Aa** $]\!]^{\langle x,r \rangle} =$ by (22)
         $λx \, . \, A(r)$ LOVES $A(x) =$ by (22)
         $λx \, . \, x$ LOVES $A(x)$

So Juliet's ellipsis site denotes the property of loving one's addressee. The direct object in the ellipsis site denotes $A(x)$, which contains a variable bound by $λx$. This property can take as argument the value of Juliet's *I* (namely j), and the resulting expression means

that Juliet loves Juliet's addressee. Crucially, the expression in (25) could equally well apply to the value of Romeo's *I* (namely r), which would assert that Romeo loves Romeo's addressee – which is exactly what Romeo said. For Charnavel, supersloppiness derives from binding parallelism, just as garden-variety sloppy readings do.

The same ingredients derive the supersloppy reading of Juliet's utterance in dialogue (16), the configuration where a second-person pronoun c-commands first, as shown below.

(26) $[\![$ VP(16b) $]\!]^{\langle j,r \rangle}$ =
        $[\![$ $\lambda \mathbf{h}$ [t_{you} bother me] $]\!]^{\langle j,r \rangle}$ =   by (23)
        $[\![$ $\lambda \mathbf{h}$ [$t_{\mathbf{Aa}}$ bother $\mathbf{Ah}$] $]\!]^{\langle j,r \rangle}$ =   by (24b)
        λx . $[\![$ $t_{\mathbf{Aa}}$ bother $\mathbf{Ah}$ $]\!]^{\langle j,x \rangle}$ =   by (22)
        λx . A(j) BOTHERS $A(x)$ =   by (22)
        λx . x BOTHERS $A(x)$

Juliet's VP denotes the property of bothering one's addressee; this property's argument is her overt *you*, the value of which is Romeo. Again, since Juliet's VP may as well have been Romeo's (*i.e.*, Romeo would've communicated the proposition that Juliet bothers Romeo if his VP denoted what Juliet's does), ellipsis is licensed by binding parallelism.

Moreover, on Charnavel's supersloppy readings for (19b) and (20b) are correctly predicted to be unavailable, albeit by the stipulation that the movement of third-person nominals (*Count Pâris, the woman*) cannot trigger the insertion of the abstraction operator that would be required for Juliet's VP to match Romeo's with respect to binding.

2.3.4   A tension

Harbour's insight about Zwicky's puzzle was that the author and the hearer of an utterance are cashed out morpho-syntactically in a fundamentally asymmetric fashion. Working with a different set of data, Charnavel gets empirical mileage out of the idea that there's a syntactic object whose denotation invokes a relation between the author and hearer.

In its present form, the latter proposal is at odds with the former. Charnavel's idea about the feature contents of first- and second-person pronouns invokes a fundamental symmetry in how authors and hearers are morpho-syntactically encoded: the first-person pronoun consists of the features $\mathbf{A}$ and $\mathbf{h}$, while the second-person pronoun consists of $\mathbf{A}$ and $\mathbf{a}$. Crucially, nothing internal to her feature inventory privileges one discourse participant over another.

Reconciliation is possible, however. In my view, the key to marrying these ideas is to recognize that while an author-hearer encoding asymmetry provides an answer Zwicky's puzzle (Harbour) and a relational semantics is at play in supersloppy readings (Charnavel), that the feature whose denotation calls on that relation need not be carried by both first and second persons in languages with an AAB partition. In the next section, I will argue that the relational feature is found in second person, but not in generalized first, and moreover that whether this feature is present is the *only* thing that distinguishes these persons.

3   Second person contains first

Throughout this section, I will assume that the meanings of linguistic expressions are determined by an interpretation function which is relativized to a context of utterance

c; a circumstance of evaluation *j*, and an assignment function *g* – though I will often ignore the latter two when they are not relevant to the point at hand. The context records information surrounding the actual speech/sign event, while the circumstance records information that allows the extensions of expressions to be recovered from their intensions (Kaplan 1989). The assignment is a partial function from the domain of natural numbers onto the domain of entities (à la Heim & Kratzer 1998). I assume moreover that the interpretation of morphologically or syntactically complex expressions proceeds via Function Application (following Heim & Kratzer 1998: 44 and ultimately Frege).

(27) **Interpretation**
    a.   The interpretation function is relativized to a context c, a circumstance j, and an assignment g. Notationally: $[\![\cdot]\!]^{c,j,g}$
    b.   *Function Application*
        If γ is a branching node, $\{\alpha, \beta\}$ is the set of γ's daughters, and $[\![\alpha]\!]^{c,j,g}$ is a function whose domain contains $[\![\beta]\!]^{c,j,g}$, then $[\![\gamma]\!]^{c,j,g} = [\![\alpha]\!]^{c,j,g}([\![\beta]\!]^{c,j,g})$

The domain of the interpretation function consists of linguistic expressions, for which I will adopt the recursive definition in (28).

(28) **Linguistic expressions**
    a.   If α is a syntactic feature, then it is a linguistic expression.
    b.   If α and β are linguistic expressions,
        then the phrase $\overset{\displaystyle\frown}{\alpha\ \ \beta}$ is a linguistic expression.

In other words, I am assuming that interpretation is compositional at all scales; this is not standard. Features, for my purposes here, are ordinary syntactic objects which Merge to form phrases.

As something of an aside – on the face of it, semantically ordinary feature composition obfuscates the notion of a syntactic head, since a featurally complex head can just be called a phrase, and a featurally simplex head can just be called a feature. Without augmenting (28) by deriving or stipulating the existence of heads, some syntactic problems arise – for instance, how to distinguish head movement from phrasal movement. These problems won't be relevant in the present paper, so I won't dwell on them much, except to say the following.

On the standard view, a head is notionally a syntactic atom, regardless of how many features it carries. This has one of two consequences, depending on whether, when several features are carried by a single head, those features are understood to be hierarchically structured with respect to one another. If heads have internal structure, something beyond the syntactic component needs to imbue them with it. Harley & Ritter (2002), for instance, who in light of cross-linguistic evidence argue that 'bundles' of φ-features are in fact internally structured, gave this job to the morphological component. By contrast, if heads do *not* have internal structure, a combinatoric semantic operation beyond Function Application is needed to cover the cases when a head carries three or more semantically interpretable features (Function Application is strictly binary). Kratzer (2009: 220-221) goes this route in her analysis of person features.

I don't know how to derive heads, but the reader who is uncomfortable with stipulating them in light of (27) and (28) may take some solace in the fact that the account presented below avoids both problems; a structure-building operation beyond Merge is not required, and neither is an operation for meaning composition beyond Function Application.

The rest of this section is organized as follows. I will contextualize my account of pronominal person features (whose *raison d'être,* recall, is to derive the typology of person partitions) by summarizing Elbourne's (2005, 2008) analysis of English demonstratives. The goal there is to introduce a way of thinking about how the different components of meaning that indexical words contain can be put together compositionally, and Elbourne's template will guide the analysis of local pronouns that I develop in §3.2. In that section, I introduce a conjecture regarding the way utterance contexts are structured formally, and explore its implications on what kind of person features are definable. The resulting inventory of person features predicts a class of pronouns which are predicted to compete pragmatically with one another under certain conditions, and (I argue) they *do* in fact do so, and moreover they do so in a way that derives Zwicky's asymmetry.

3.1 Indices, indexicals, and deferred reference

Local persons and local pronouns belong to the larger class of indexical expressions. I use the term *index* as Nunberg does, to refer to "the contextual element picked out by the linguistic meaning of an indexical expression like *you,* as well as for the thing picked out by a demonstration associated with the use of a word like *that*" (Nunberg 1993: 4). He is careful here to not equate indices with the referents of indexical expressions, the reason being that index and referent are teased apart in cases of *deferred reference.*[3] Nunberg illustrates the distinctness of indices and referents with the following example (*ibid.*: 24).

> ... suppose I point in sequence at two sample plates in my china shop, the first sitting in front of me, the second on a table across the room. I say:
>
> (i)   *These* are over at the warehouse, but *those* I have in stock here.
>
> If I had "really" been pointing at the referents of the terms, it would have made more sense to have reversed *these* and *those*.

In (i), sets of plates are being referred to, but reference is 'deferred' in the sense that it's not the *sets* of plates that are being pointed at, but rather the individual sample plates that serve as the indices (*i.e.*, the entities used to *recover* the referent).

Note that the proximate/distal contrast in (i) does not track the proximity of the referent, but rather the proximity of the index. Interestingly and by contrast, grammatical number tracks the cardinality of the referent, not that of the index – the words used in (i) weren't 'this' and 'that' despite the sample plates being atoms. This shows that the paradigmatic contrasts between an indexical expression like *those* and the expressions with which it alternates may come in different flavors.

(29)

		referent	
		SG	PL
index	PROX	this	these
	DIST	that	those

The takeaway is that while some paradigmatic contrasts relay information about the index itself, others relay information about the referent that the index is used to recover. The former kind of contrast has to do with what Nunberg calls the *indexical component* of a demonstrative (or an indexical expression more generally). This component introduces

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[3] Also known by Quine's original term, *deferred ostension.*

the index to the semantic derivation, and may also introduce features which assert or presuppose certain things about that index – *e.g.*, that the index is distal to the speaker in the case of *that* and *those*. The latter kind of contrast belongs to the *classificatory component*, which deals in the characterization of the referents of (nominal) indexical words, and to which the contrasts in grammatical number in (29) belong.

There is a third component to indexical expressions, namely the *relational component*, which determines how indices and the referents they aid in recovering relate to another. For the china shop example, this relation would be the one a display plate bears to the corresponding sets for sale.

Elbourne (2005, 2008), building in part on Nunberg's work, put forward an idea about how these components are syntactically arranged. That idea is illustrated in (30).

(30)   A template for indexicals, à la Elbourne
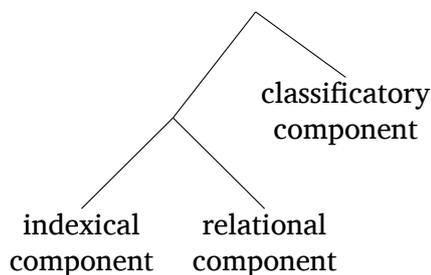
The components are arranged such that that the relational component, which Elbourne understands to introduce a function from indices to referents determined contextually, is situated between the two: indices are introduced, are (potentially) modified in certain ways, and then mapped to a referent, at which point the classificatory component can modify that referent. By way of illustration, the demonstrative *those* can be decomposed along the lines of (31), where *n* is a variable over numerals (numeric indices, in the other sense of *index*), whose values are fixed by a contextually-given assignment function, and *R* is a variable over functions from indices to referents.

(31)   *those*, à la Elbourne
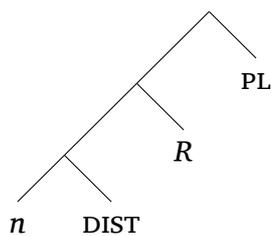
Here the indexical component consists of the smallest phrase containing the numeric index *n* and the distal feature DIST. We could imagine that the English DIST feature denotes an identity function over entities, one whose output is defined only for entities distal to the speaker.

(32)   a. $[\![\, n \,]\!]^{c,g} = \ g(n)$
        b. $[\![\, \text{DIST} \,]\!]^{c,g} = \ \lambda x_e \,.\, x$, only if x is distal to a
        c. $\left[\!\left[\, \overset{\frown}{n \ \ \text{DIST}} \,\right]\!\right]^{c,g} = \ g(n)$, only if $g(n)$ is distal to a

R stands in for the relational component, and can be valued by the reader's favorite pragmatic mechanism. The indexical component [*n* DIST] and the relational component

R come together to form the phrase $[\,[\,n\ \text{DIST}\,]\,R\,]$, which by Function Application denotes the referent. The plural feature, which constitutes the classificatory component, rounds off the demonstrative by contributing the assertion or presupposition that the referent is a plural individual (again, by the reader's favorite mechanism).

In (31) there is a single instance of a component-internal phrase, namely $[\,n\ \text{DIST}\,]$, but other components could contain multiple features in principle. The western Romance languages, for instance, which have two forms of *those* as a function of grammatical gender, show that another feature (*e.g.*, FEM) can join PL in the classificatory component. (My picture in (30) seems to indicate that FEM and PL would have to form a constituent, but this isn't necessary – a feminine feature could Merge with the top node of the graph in (31) to give us the Spanish demonstrative *esas* 'those.FEM', for instance.)

Elbourne's treatment of English demonstratives is notable not only in that it features binary branching and is semantically compositional throughout. It is, in addition, a proof of concept that a single Nunbergian component (indexical, relational, or classificatory) may, in principle, contain multiple features which *themselves* are situated under binary-branching nodes that Function Application can use as fodder. I adopt this approach to morphological decomposition in the next section, which returns to the topic of person.

3.2   Local pronouns from the ground up

The task now is to find a set of features (some indexical, some relational, and some classificatory – because as we will see, personal pronouns consist of the very same components) which are fully compositional and which do not over-generate the typology of person contrasts. The indexical component will be tackled first.

3.2.1   Second-person indices are derived compositionally

I will claim that the source of Zwicky's asymmetry lies ultimately in the way discourse contexts are structured. I define a context of utterance as a tuple whose elements include an author a and a discourse situation $s\star$. Here the context author actually need not be an atomic individual, but it must be unique (for reasons given in Section 2.1.1). I take the discourse situation to stand in the parthood relation to a world, and define it as the smallest situation which contains all the participants of the utterance: the author(s) and the addressee(s).

a and $s\star$ are termed *coordinates* of the utterance context. Nothing in this paper hinges on whether locations or times constitute independent coordinates, or whether $s\star$ determines them. Crucially, however, I conjecture that contexts do *not* contain a hearer coordinate. We can understand $s\star$ as being *centered* on a unique entity, the author.

(33)   **Utterance contexts**

    a.   Utterance contexts are centered situations; their center is the author. There is no hearer coordinate.

    b. $c = \langle a, s\star \rangle$
            $c \neq \langle a, h, s\star \rangle$

I take (33) to be the case, and will show in the following pages how it derives a new kind of solution to Zwicky's problem, which makes disjoint predictions from Harbour's account, one of which I discuss in Section 4.

The main effect of (33) is that while the author index can be introduced into a semantic derivation by a single feature (i.e., AUTH below), the addressee index cannot: the feature

HEARER is simply not available to UG since its denotation, h, is a free variable not valued by any context.

(34)   a.   AUTH is a **possible** feature.
                $[\![$ AUTH $]\!]^c = \quad [\![$ AUTH $]\!]^{\langle a, s\star\rangle} = \quad a$
         b.   HEARER is an **impossible** feature.
                $[\![$ HEARER $]\!]^c = \quad h$ (note: h cannot be valued by the context)

Empirically, of course, second person has a very real morpho-syntactic and semantic life, so it must be resurrected in a way consistent with (33). I suggest that second person is derived compositionally by applying an *addressee relation* of type $\langle e, e\rangle$ to the denotation of AUTH. This relation is introduced into the semantic derivation by a feature I term ADDR, whose job is to map authors to their addressees. Just as a is free to be atomic or plural, this relation's co-domain includes both kinds of entity.

(35) $[\![$ ADDR $]\!]^c = \quad \lambda x_{\mathrm{e}} \, . \, y_{\mathrm{e}} : [y \lesssim s\star] \wedge \neg[x \leqslant y]$

'$\leqslant$' denotes mereological parthood, a relation between entities, while '$\lesssim$' is the relation of parthood that holds between an entity and a situation. So given an individual x, (35) returns an individual y which is in $s\star$ and which does not reflexively contain x.

ADDR is inspired by (and in spirit quite similar to) the feature **A** proposed in Charnavel (2015) and discussed in §2.3.3 above, in that it provides a way of mapping authors to their addressees. The main difference between her feature and mine is that ADDR doesn't offer a symmetric mapping: since HEARER is an impossible feature in the system I'm arguing for, the relation ADDR denotes simply can't apply to an addressee.

I suggest that the indexical component of a second-person pronoun comes about compositionally when AUTH and ADDR constitute a phrase, as in (36b). This a non-simplex indexical component, just as the indexical component of *those* is.

(36)   a.   **The (generalized and exclusive) first person index**
                $[\![$ AUTH $]\!]^c = \quad a$
         b.   **The second-person index**
                $\left[\!\!\left[\; \overset{\frown}{\underset{\text{ADDR}\;\;\text{AUTH}}{}} \; \right]\!\!\right]^c =$ by Function Application
                $[\![$ ADDR $]\!]^c([\![$ AUTH $]\!]^c) =$ by (34a), (35)
                $[\lambda x_{\mathrm{e}} \, . \, y_{\mathrm{e}} : [y \lesssim s\star] \wedge \neg[x \leqslant y]\,](a) =$ β-reduction
                $y_{\mathrm{e}} : [y \lesssim s\star] \wedge \neg[a \leqslant y]$

When composed with AUTH in this way, we see that ADDR serves to pick out the maximal participant that does not contain the author – and this is simply an addressee or an addressee plurality. Note that the second-person indexical component is strictly more complex than the first-person indexical component; this will be a key element of my solution to Zwicky's asymmetry.

A short aside is warranted about the relation between Harbour's account and mine. Recall that Harbour's inventory consists of AUTHOR and PARTICIPANT, and that these associate with a and $a \oplus h$ respectively. Nothing associates with only h, which rules out ABB partitions (though I glossed over the reasons why, since it involves a lot of technical background). But the upshot is that Harbour codifies Zwicky's asymmetry in a hypothesis about features that UG makes available and their denotations. By contrast, I am offering a hypothesis about how interpretation proceeds, not about the kinds of morphemes UG does and doesn't make available. That is, the feature inventory *isn't* the hypothesis here, rather it *follows* from the hypothesis. Consequently, my account has an answer to the

question of why there isn't a HEARER feature (namely: it's impossible to define one, given the structure of utterance contexts).

That said, my solution does resemble Harbour's in a deep way: contexts, as I envision them, are a tuple $\langle a, s\star \rangle$. Note that the sum of entities in $s\star$ is just the sum of participants, so the relationship between a and $s\star$ on my account is very similar to the relationship between a and $a \oplus h$ on Harbour's. There's a resemblance here because Harbour's insight into Zwicky's puzzle (that there *exists* an author-hearer grammaticalization asymmetry) is, I believe, on the right track.

Because I am situating the author-hearer asymmetry in the interpretation algorithm, though, new predictions follow from this account; particularly strong ones are made about indexical shift. Because there is only one non-derived person index in this system – namely the author index, from which all persons are built – any operator that manipulates the value of that person index will necessarily affect the interpretation of all personful expressions that are evaluated with respect to it. So for instance it's predicted that, in the complement of an attitude verb, clause-mate first- and second-person pronouns cannot shift independently of one another.[4]

A final difference between the proposals, and an advantage of the current one, is that there is independent need for centered situations; these (in the guise of 'doxastic alternatives') have productively been put to use in analyzing the semantics of attitude verbs, for example. (Perhaps not coincidentally, it is in the precisely in scope of attitude verbs that person indexical shift occurs.) The structure of Harbour's solution, by contrast, is tailored only to the purpose of providing an answer to Zwicky's puzzle.

Now, I am claiming that (36a) is the indexical component of first-person pronouns only of the exclusive and generalized variety. One might wonder at this point whether the logical negation can be removed from (35) to yield a feature – call it INCL – that would, in conjunction with AUTH, build an indexical component that at least sometimes would pick out an inclusive index (namely when x is a *proper* part of y).

(37) $[\![\text{INCL}]\!]^c = \quad \lambda x_e \, . \, y_e : [y \lesssim s\star] \wedge [x \leqslant y]$

As will be shown later, however, in this system (37) is doomed, and cannot be used to create pronouns. I'll argue that the only way to create inclusive indices is to sum (36a) and (36b).

Now, both expressions in (36) denote individuals which are the indices of the pronominal words that contain them, so I will call each of the maximal *constituents* therein an "index" as well (a sloppy but standard terminological convenience). Note that (36b) actually contains two metalanguage indices: the one that AUTH denotes, and the one that the phrase [ADDR AUTH] does.

Strictly type-wise, $[\![\text{ADDR}]\!]^c$ is free to compose with any expression of type e (*i.e.*, no selectional requirements are stipulated). However, the first conjunct in its denotation requires that its argument be a part of the discourse situation. This means that expressions like $[\![\text{ADDR}]\!]^c([\![\textit{Andreas}]\!]^c)$ will be undefined even when $[\![\textit{Andreas}]\!]^c$ is of type e if whoever *Andreas* refers to is not a part of $s\star$. Thus, relativizing the relation of addresseehood to the discourse situation mitigates a kind overgeneration resulting from ADDR's sister being anything other than AUTH.

---

[4] Deal (2017, 2020) and others have argued that in some languages (just Slave, Tamil and Malayalam, to my knowledge), first person is able to shift in the complement of attitude verbs without second person doing so. None of these languages uncontroversially demonstrates this, however (Keren Rice [p.c.] for Slave, Spadine [2020: 88-92] for Malayam and Tamil, and see Holladay [forthcoming] for more on this point).

As mentioned, I will for the moment refrain from discussing inclusive indices. Instead, I'll introduce a feature inventory for the relational and classificatory components of personal pronouns. The inventory is partial (for instance, I won't discuss number or gender features), but taken in tandem with the indices in (36) and an independent fact about definite descriptions, it is sufficient to derive the commonness of the standard AAB tripartition and the absence of ABB patterns.

3.2.2   The referential and classificatory components of local pronouns

The relationship between the person index and the referent of the pronoun it anchors is prototypically one of mereological containment.

(38)   Oh no, we're running late!

If (38) is spoken by Zoë, then Zoë is the (atomic) index of the pronoun her utterance contains. Presented out of the blue like this, we readers can't determine which plural individual *we* refers to – it may or may not contain her adressee(s), for instance – but it is most naturally understood to refer to a plural individual one of whose atoms is Zoë.
  For that reason, I take it that the relational component of local pronouns consists of (or at least includes) something like R in (39).

(39) $[\![$ R $]\!]^{c,j} = \quad \lambda x_e \,.\, y_e : [x \leqslant y]$ at j

Beyond referring to an individual the author stands in the parthood relation to, the pronoun *we* in (38) contributes at least two further aspects of meaning: that the referent is a plurality (the sentence is unacceptable if Zoë intends to refer to herself *qua* singleton with that pronoun, at least in American English), and that each of its atoms are animate (it's also unacceptable if she intends *we* to refer to the sum of her and her car without personifying the car). The plurality and animacy conditions on *we* characterize the referent, and thus belong to the classificatory component.
  The animacy condition is notable, by the way, because it appears to be a universal property of local pronouns across languages. I don't know of any reason why it should be the case. (As we've seen from languages like Jarawa and Imonda, though, number distinctions in pronouns are not universal.) The pronominal animacy feature I'll make use of is given below.

(40) $[\![$ ANIM $]\!]^{c} = \quad \lambda x_e \,.\, x$, only if $\forall y [\mathrm{atom}(y) \wedge y \leqslant x] \to \mathrm{animate}(y)$

ANIM denotes an identity function over entities, and is defined only for those entities all of whose atoms are animate. In the next section, setting aside grammatical number for simplicity, I'll put forward an idea about the makeup of Jarawa pronouns that makes use of (40).

3.2.3   Pronominal competition

Recall that Jarawa has the same local persons as English (second and generalized first). This is the common AAB pattern. Recall also that the crux of Zwicky's puzzle is why the ABB pattern is never found, where inclusive meanings are communicated with the same pronoun as second-person meanings are.
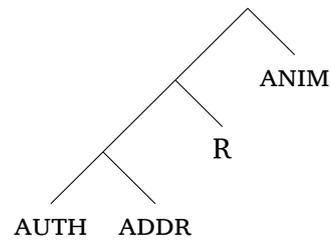
(41)   *Jarawa* (Ongan; Kumar 2012)

1EX	mi
1IN	
2ND	ŋi

Suppose that *mi* and *ŋi* are just the ways that the phrases in (42) and (43), respectively, are pronounced by Jarawa speakers. These phrases have the meanings given in (44) and (45).

(42)

```
            ANIM
      /\
  AUTH  R
```

(43)

```
                ANIM
          /\
       /\   R
  AUTH  ADDR
```
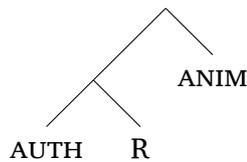
(44) $[\![(42)]\!]^{c,j} =$ $x_e : [a \leqslant x]$ at j ,
                  only if $\forall y [\text{atom}(y) \wedge y \leqslant x] \rightarrow \text{animate}(y)$

(45) $[\![(43)]\!]^{c,j} =$ $x_e : [\, [\, [\, z_e : [z \lesssim s\star] \wedge \neg [a \leqslant z]\,] \leqslant x\,]$ at j ,
                  only if $\forall y [\text{atom}(y) \wedge y \leqslant x] \rightarrow \text{animate}(y)$

(44) picks out a potentially plural individual whose atoms are animate and to which the context author stands in the parthood relation at the circumstance of evaluation, while (45) picks out a potentially plural individual whose atoms are animate and to which a (potentially plural) addressee stands in the parthood relation at the circumstance of evaluation. These, I think, are the desired meanings for number first- and second-person pronouns: the former refers to animate individuals that contain the author; the latter refers to animate individuals that contain at least one addressee.

A crucial point about (44) and (45) is that in terms of their literal (*i.e.*, non-enriched) meanings, the set of individuals they can refer to are not disjoint for any values of c and j. If the intended referent contains the author but no addressee, then only (44) can be used; if the referent contains an addressee but not the author, only (45) can be. But both are truth-conditionally valid ways to refer to individuals that contain an author-addressee sum. Because of this, I will say that there is an overlap in the *reference potential* of (44) and (45); the reference potential of these pronouns overlaps precisely where inclusive meanings are concerned.

(44), however, derives from a less complex phrase than (45) does. As it happens, there is independent reason to think that the more syntactically parsimonious of two competing definite descriptions is preferred when both have the same value. I illustrate this with (46), which is from Marty (2017: 157), and with (47). Each (a) example is judged to be less acceptable than its (b) counterpart.

(46)   Context: *It is presupposed that the person named 'Mary' married her childhood sweetheart. The speaker wants to express the thought that she is about to leave.*

a.   # The wife of Mary's childhood sweetheart is about to leave.

b.   Mary is about to leave.

(47)   Context: *Scarecrow and Dorothy are sitting with Dorothy's only dog, whose coat is brown. Scarecrow says to Dorothy about the dog:*

   a.   # <u>Your brown dog</u> is so well-behaved!
   b.   <u>Your dog</u> is so well-behaved!

It's hard to imagine how *the wife of Mary's childhood sweetheart* could possibly refer to Mary, even though the context provided biases us toward this interpretation, and likewise *your brown dog* is a totally infelicitous way of referring to Dorothy's only dog. (Note that (47a) would be fine if *brown* is interpreted intersectively, *e.g.* against a context with multiple dogs, but it isn't interpreted in that way here. To the extent (47a) means anything against the context given, it seems to convey Scarecrow's surprise that dogs with brown coats can be well-behaved. So *your brown dog* doesn't do what *your dog* does in (47b).)

   An intuition about the deviance of the (a) examples is that the underlined expressions therein are somehow too roundabout a way of referring to the individuals that the underlined expressions in the (b) examples successfully do. The (a) examples do not fail because their truth-conditional meaning prevents them from picking out the referent, though. Rather, they seem to fail because there is a more parsimonious alternative that is available. With Schlenker (2005), Katzir (2007), Marty (2017), and others, I'll cash out the relevant notion of parsimony syntactically, specifically with (48).

(48)   ***Minimize definite descriptions!***
        Let α and β be any syntactic constituents. β is a deviant way of referring to what α refers to at c, j if all three of the following hold:

   a. α and β can both be spelled out morpho-phonologically, and the morpho-phonological reflexes of these expressions are non-identical
   b. α can be derived from β by a finite number of node deletions within β
   c.   The set of possible referents for $[\![\beta]\!]^{c,j}$ is not a proper subset of the set of possible referents for $[\![\alpha]\!]^{c,j}$ when both are well-defined

If all three conditions hold, I'll say that α and β are competitors, and that α is the parsimonious alternative. For the purposes of illustrating how (48) works, consider again the contrast between (47a) and (47b). The phrase spelled out as *your brown dog* is ill-formed because all three conditions are met: the morpho-phonological strings *your brown dog* and *your dog* are distinct, the phrase spelled out as *your dog* can be derived from the one spelled out as *your brown dog* by deleting the Adjective node, and finally, the set of possible referents for the latter phrase is not a proper subset of the set of possible referents for the former.

   Put another way, *your brown dog* brings with it additional syntactic material (and, incidentally, additional morpho-phonological material), but that material doesn't serve to restrict the range of referents that the expression might pick out. Now, (47a) is totally well-formed if the context specifies that there are two dogs and only one is brown. In such a context it *is* the case that the referent set for the phrase pronounced as *your brown dog* is a proper subset of the referent set for phrase pronounced as *your dog* (assuming the latter is defined), the two phrases are not competitors, and the speaker is free to use the more syntactically complex expression.

   Returning now to pronouns: imagine that you are a Jarawa speaker, and that you want to refer to an individual that contains both the author and hearer. You don't have an inclusive pronoun, but in terms of their literal interpretations, either (42) or (43) can do the trick. (Recall that these pronouns overlap in reference potential exactly in the space

of inclusive meanings.) Per (48), the second person pronoun (43) pronounced as *ŋi* is deemed deviant: its pronunciation and that of (42) are distinct, it can derive the other if the ADDR node is deleted, and it does not have a narrower range of possible referents than the other. This derives Zwicky's asymmetry: a generalized first-person pronoun and a second-person pronoun each can refer to inclusive referents, but they compete by (48), and the parsimonious alternative – the first-person pronoun – wins out.

3.2.4 Inclusive indices and inclusive pronouns

Above, I claimed that that the indexical feature in (37), repeated below as (49), could not be used to create an inclusive pronoun in this system.

(49) $[\![$ INCL $]\!]^c = \quad \lambda x_e \, . \, y_e : [y \lesssim s\star] \wedge [x \leqslant y]$

To see why this is the case, let's put INCL into the indexical component and observe how the competition between pronouns shakes out. Analogously to ADDR, INCL will occur inside the indexical component, and its sister will be AUTH.

(50)

```
              ANIM
          ∕∖
         ∕   R
        ∕  ∕∖
   AUTH  INCL
```
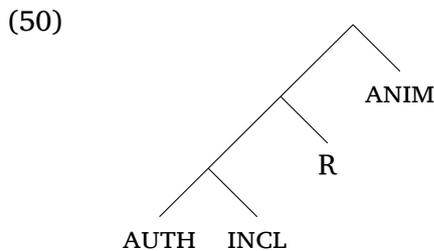
(51) $[\![(43)]\!]^{c,j} = \quad x_e : [\,[\,[\,z_e : [z \lesssim s\star] \wedge [a \leqslant z]\,]\,] \leqslant x\,]$ at j,
only if $\forall y [\text{atom}(y) \wedge y \leqslant x] \rightarrow \text{animate}(y)$

In terms of its literal meaning, (51) refers to individuals which, at the circumstance of evaluation, contain a (potentially plural) individual z that is both a part of $s\star$ and that contains the author. Importantly, however, this is not a *stronger* meaning (in terms of reference potential) than would be provided by a pronoun whose indexical component consists only of AUTH. It is in fact weaker, since z can be valued by author-participant sums in addition to the author. This means that the domain for the relation that R denotes is not smaller when R is sister to [INCL AUTH] than it is when R is sister to just AUTH. In turn, this entails that the generalized/exclusive pronoun (42) can be used to refer to everything that (50) can. Per (48), if these two pronouns have distinct morphophonological reflexes, they will compete, and (42) will *always* be the parsimonious alternative. In short, while the feature INCL is in principle a possible one, *Minimize Definite Descriptions!* prevents it from ever being used as it is in (50).

   What, then, can the indexical component of an inclusive pronoun consist of? One idea, found in Kratzer (2009) and elsewhere, is that inclusive indices are simply sums formed from the author and hearer indices. This idea plays nice with *Minimize Definite Descriptions!*, and there is suggestive morphological evidence for it as well (namely that the inclusive pronoun in some languages is transparently composed of the exclusive and second-person forms: Tok Pisin, for example, has *yumi-* for 1IN, *yu-* for 2ND, and *mi-* for 1EX). We'll need another a feature in our arsenal whose denotation sums two entities. I'll call this feature SUM; its denotation is given in (52).

(52) $[\![$ SUM $]\!]^c = \quad \lambda x_e \, . \, \lambda y_e \, . \, x \oplus y$

SUM may not be an indexical person feature specifically; some analyses of conjunction recruit a semantically similar object. The graph below uses this feature to create an inclusive index.

(53)

```
                              AUTH
                         SUM
               AUTH   ADDR
```
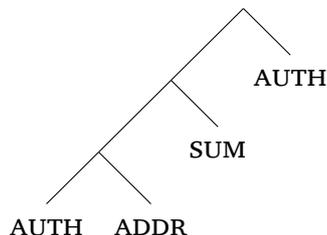
(54) $[\![(53)]\!]^{c,j} = \quad [\ z_e : [z \lesssim s\star] \wedge \neg [a \leqslant z]\ ] \quad \oplus \quad a$

What's notable about (54) in relation to the failed inclusive indexical component in (51) is that while the latter characterizes individuals that necessarily contain the author but may or may not contain an addressee, the former characterizes individuals which in addition to the author *necessarily* contain an addressee. This matters a great deal, because both the domain of indices and the co-domain of referents for the relation denoted by R is now strictly smaller that it would've been if the indexical component consisted of either AUTH or [ADDR AUTH]. When fed (53), R returns only those referents that contain the author *and* some addressee.

Inclusive pronouns thus have a strictly stronger meaning (in terms of reference potential) than generalized/exclusive pronouns do. In other words, one form is associated with a meaning that wholly subsumes that of the other, though as they're actually used by speakers the forms are associated with usually disjoint interpretations. Stating this in terms independent of meaning, we observe that one form has *general* applicability while the other is more *specific*. As far back as Pāṇini, the following sort of relation between the general and the specific has been observed: in contexts where both the specific and general forms should be applicable, by some mechanism the specific one appears to *block* the general one, such that the specific form must be used in that context, not the general one. The corollary is that the general form is used only when the specific one doesn't apply. I capture this generalization with (55).
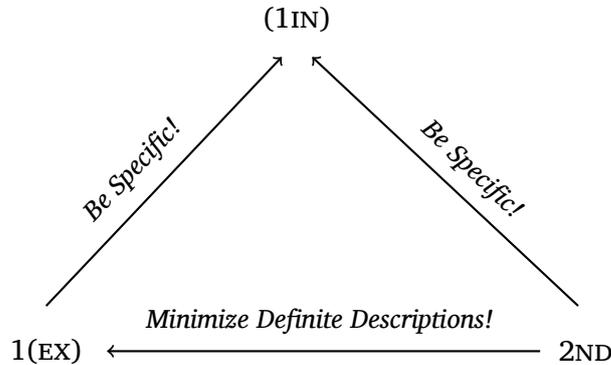
(55)   ***Be Specific!***
         Don't use a definite description α if there's a grammatical alternative β such that the set of potential referents given by $[\![\ \beta\ ]\!]^{c,j}$ is a proper subset of the potential referents given by $[\![\ \alpha\ ]\!]^{c,j}$

In AAB languages like Jarawa, *Be Specific!* won't ever adjudicate between the second-person pronoun and the generalized first-person pronoun. This is because at any circumstance of evaluation, and at any context that includes at least one addressee, neither of the set of referents these pronouns determine is a subset of the other. (Only the first-person pronoun can be used to refer to the atomic author, for instance, and only the second-person pronoun can be used to refer to an atomic addressee.) But in languages like Imonda that *do* have an inclusive form, *Be Strong!* will force that pronoun to be used for inclusive meanings, even though the (exclusive) first-person pronoun and the second-person pronoun would be valid ways of picking out such referents in terms of their literal meanings.

The interaction between *Minimize Definite Descriptions!* and *Be Specific!* is graphically represented in (56). The three nodes are identified with three kinds of pronoun: the bot-

tom left node with (42), the bottom right with (43), and the top node with the pronoun whose indexical component looks like (53). The arrows point to the winners of the pairwise competitions between two pronouns which can, in terms of their truth-conditional meanings, refer to the same referent.

(56)   **Competitions between pronominal definite descriptions**

$$(1\text{IN})$$

Be Specific!   *Be Specific!*

Minimize Definite Descriptions!

$1(\text{EX}) \longleftarrow \qquad\qquad 2\text{ND}$

1IN is in parentheses because not all languages make use of it, while EX is in parentheses because this kind of pronoun only gets restricted (by *Be Specific!*) to exclusive meanings when there's an inclusive pronoun in the same language.

I've now shown that three features internal to the indexical component (AUTH, ADDR, and SUM) are sufficient to build the indexical component of each of the three kinds of local pronouns. Depending on whether SUM is recruited, from these one can concoct either a pronominal system like that of English or Jarawa (generalized first vs. second) or a system like Imonda's (exclusive first vs. inclusive vs. second). Under either kind of person partition, pragmatic constraints partially determine which kinds of syntactic phrases can be used to refer to which individuals.

This analysis moreover predicts there is no way to get ABB patterns.[5] The only local person indices possible are ⟦AUTH⟧, ⟦⟦ADDR AUTH⟧⟧, and their sum, and the pronouns these indices partially constitute necessarily compete along the lines of (56).

3.3   Back to supersloppiness

With an idea about the feature contents of local pronouns in hand, we're in a position to revisit supersloppy readings. A full analysis of these readings is beyond the scope of this paper; my only aim here is draw a parallel between supersloppy readings and another kind of sentence (the 'Tanglewood' sentence) discussed by Kratzer (1991). That sentence remains poorly understood, but given the formal similarity between it and the supersloppy cases, the hope is that a solution for one will provide the solution for the other.

Recall that supersloppy readings are available when both the anaphoric clause and its antecedent have local pronouns in structurally parallel positions (57), but are not available when one of the DPs is not specified for a local person (58):

---

[5] Except via systematic accidental homophony.

(57)   (Charnavel 2015)
     a. ROMEO: I love you.
     b. JULIET: I do Δ too.
        (57b) can mean 'Juliet loves Juliet too' (strict)
        (57b) can mean 'Juliet loves Romeo too' (supersloppy)

(58)   (Charnavel 2015; adapted)
     a. *Romeo*: I love you.
     b. *Juliet*: Count Pâris does Δ too.
        (58b) can mean: 'Count Pâris loves Juliet too.' (strict)
        (58b) **can't** mean: 'Count Pâris loves Romeo too.'

On the current proposal, all local pronouns contain at least one instance of the indexical feature AUTH, and third-person expressions don't contain this feature. Suppose, then, that interpretational parallelism somehow requires the relation between (59a) and (59b) to hold in order for supersloppy readings to be available. (The vP in grey is what's elided.)

(59)   a. *Antecedent clause:*
        $_{DP1}$[... AUTH ...] $_{vP}$[... V ... $_{DP2}$[... AUTH ...]]
     b. *Clause containing the ellipsis site:*
        $_{DP3}$[... AUTH ...] $_{vP}$[... V ... $_{DP4}$[... AUTH ...]]

There's an instance of AUTH both outside and inside the ellipsis site, and the locations of these features match across the antecedent and elliptical utterances. If this sort of match in (59) is necessary for supersloppiness, then the direct object in the ellipsis site in (58b) would fail to pick out Romeo because *Count Paris* does not contain an instance of AUTH in one place Romeo's utterance does, namely in the subject pronoun *I*.

3.3.1 The Tanglewood puzzle

I don't know why (59) should be a necessary. But perhaps not accidentally, the pattern resembles Kratzer's (1991) 'Tanglewood' example, a variant of which is given in (60) below.

(60)   a. SPEAKER A:
        (What a copy-cat you are!) You went to Block Island because I did. You went to Elk Lake Lodge because I did. And you went to Tanglewood because I did.
     b. SPEAKER B:
        (No, you're exaggerating!) I only went to *Tanglewood* because you did Δ.

By uttering (60b), Speaker B is denying that exactly two properties hold of her: going to Block Island because A went to Block island, and going to Elk Lake Lodge because A went to Elk Lake Lodge. So we want our theory of focus to return something like the following list of properties as focus alternatives to the matrix verb phrase; with the help of *only*, the first of these will be self-ascribed by B while the others are rejected.

(61) λx_e . x went to Tanglewood because A went to Tanglewood
     λx_e . x went to Block Island because A went to Block Island
     λx_e . x went to Elk Lake Lodge because A went to Elk Lake Lodge

What's notable about (61) is that both place names in each property vary with respect to the names in the other properties, and more specifically the two names in each property *co*-vary: when *Tanglewood* is the prepositional object in the matrix clause, it is the prepositional object in the subordinate one, and when the prepositional object is *Elk Lake Lodge* in the matrix clause it's *Elk Lake Lodge* in the subordinate one as well. In a sense, the elided *Tanglewood* in (60b) is being interpreted 'sloppily'.

Kratzer presented the Tanglewood sentence as a challenge to Rooth's (1985) theory of focus, which always allows focused proper names to be interpreted *in situ*, even when elided, and for that reason over-generates focus alternatives for the verb phrase in (60b). The focus structure that Rooth's theory would give to (60b) is given in (62).

(62)   I only went to [Tanglewood]$_F$ because you did $_{vP}$[go to [Tanglewood]$_F$]

Observe in passing the resemblance that (62) bears to (59) – in each case, there are two instances of an expression of entity type (*Tanglewood* or AUTH); one instance occurs outside the ellipsis site, and the other occurs within it. Moreover, each instance has a structurally-defined counterpart in the antecedent utterance.

On Rooth's theory the focus alternatives of each proper name are calculated independently from (62); nothing forces the two names to co-vary. This results in nine combinations of proper names, and thus nine focus alternatives for the matrix verb phrase (63). These focus alternatives are represented schematically in (64).

(63) λx_e . x went to Tanglewood because A went to Tanglewood
        λx_e . x went to Tanglewood because A went to Block Island
        λx_e . x went to Tanglewood because A went to Elk Lake Lodge
        λx_e . x went to Block Island because A went to Block Island
        λx_e . x went to Block Island because A went to Elk Lake Lodge
        λx_e . x went to Block Island because A went to Tanglewood
        λx_e . x went to Elk Lake Lodge because A went to Elk Lake Lodge
        λx_e . x went to Elk Lake Lodge because A went to Block Island
        λx_e . x went to Elk Lake Lodge because A went to Tanglewood

(64) λx_e . x went to l because A went to m
        (where $l, m \in$ {Tanglewood, Block Island, Elk Lake Lodge})

There's no reading of (60b) where all but the first of the properties in (63) is denied by Speaker B, though, so co-variance of the proper names needs to be imposed somehow. In other words, we need to find a way of winnowing (64) to (61).

(65) λx_e . x went to l because A went to l
        (where $l \in$ {Tanglewood, Block Island, Elk Lake Lodge})

In (65) we have two things of entity type – one overt, one elided – being converted to the *same* variable.

3.3.2   Indexical covariance in supersloppy readings

There are a couple of ways to guarantee (61)/(65). What I will do here is, I think, faithful to the spirit of Kratzer's proposal, but departs from it in its technical implementation.[6]

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[6] Kratzer gets (61) by assuming that in (60b), *Tanglewood* ATB-moves at LF to a position where it c-commands into both VPs, leaving behind two empty categories with which it is co-indexed:

Suppose that in saying (60a), Speaker A puts the property in (65), as well as the set of things l ranges over ({Tanglewood, Block Island, Elk Lake Lodge}) in the interlocutors' common ground. Suppose further that Speaker B can use (65) *itself*, and not any particular clause of (60a), as the antecedent to their elliptical utterance. This would ensure that the proper name outside the ellipsis site matches the one inside, since both are represented by the same (contextually-valued) variable in the antecedent.

This idea can be grafted on onto the supersloppy cases in the following way. Assuming the feature inventory argued for above (but ignoring the classificatory features for simplicity), Romeo and Juliet's dialogue in (57) would look morpho-syntactically like this:

(66)   a.   ROMEO: [AUTH R] $_{vP}$[love [[ADDR AUTH]R]]
         b.   JULIET: [AUTH R] do $_{vP}$[love [[ADDR AUTH]R]] , too

Just as Speaker B in (60b) is using the template in (65) as the antecedent for their elliptical utterance, we may understand Juliet to be using (67) as hers, where the two instances of AUTH have been replaced with the same variable, a', in the course of interpretation. (ADDR need not be converted to a variable in the way that AUTH is, since the $s\star$ variable its denotation contains is held constant across the two utterances.)

(67) $[a'\,[\![R]\!]^c]$ LOVES $[[[\![ADDR]\!]^c\,a']\,[\![R]\!]^c]$
         (where $a' \in \{r, j\}$)

The set $\{r, j\}$ contains two individuals, Romeo and Juliet. Just as Speaker A listing locations in (60a) makes available the set of those locations, whose elements can value the variable l in (65), we might imagine that the use of person indexicals makes available the set of interlocutors (i.e. the set of potential context centers, whose elements can value the author index). So the Romeo-Juliet dialogue provides just this two-element set, and in this way (67) ensures that the antecedent conditions on ellipsis are met when Juliet responds *I do △, too*. And Juliet cannot respond with *Count Pâris does △, too* to get a supersloppy reading of the elided pronoun, as the proper name doesn't introduce any instance of a' that would allow her response to match (67).

Now, as mentioned above, this is by no means a complete analysis of supersloppy readings. For instance: nothing I've said here explains why Romeo's utterance determines (67) as Juliet's antecedent, rather than something that doesn't have co-varying variables. The point is just that some mechanism is independently needed to ensure that two instances of entity-denoting expressions are translated to the same variable in order to get the Tanglewood sentence, and if that mechanism – whatever it is – applies to AUTH in the case of the Romeo-Juliet dialogue, supersloppiness would follow.

4   Conclusion

In this paper I have aimed to put us in a position where an answer to Zwicky's (1977) puzzle (why ABC and AAB, but never *ABB?) and an analysis of supersloppy readings are simultaneously accessible. I envision (*pace* Harbour) that the ultimate source of the AAB/*ABB asymmetry lies not in the inventory of features that are taken to be available,

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(i)   I PST only [Tanglewood$_1$]$_F$ [$_{VP}$ [$_{VP}$ go to e$_1$] because you did [$_{VP}$ go to e$_1$]].

The focus alternatives for the matrix verb phrase are now determined a single F-marked expression. Any element of the set of focus alternates for *Tanglewood* (namely {Tanglewood, Block Island, Elk Lake Lodge}) that is chosen will reconstruct into both prepositional complement positions, and this ensures covariance.

but in the structure of discourse contexts, which in turn *determine* the kinds of features that are definable; in particular, the lack of a hearer coordinate rules out the feature HEARER. Here the feature inventory flows from the semantics, which puts us a bit closer toward explanation.

Charnavel's work on supersloppiness taught us that personal pronouns are at least sometimes semantically relational. I incorporated that insight by building second person from two features, one denoting the author index and the other a relation of addresseehood. Second-person pronouns are thus more syntactically complex than generalized/exclusive first-person pronouns, which correctly predicts – in light of an independently motivated condition on definite descriptions – that the former cannot refer to inclusive referents in the way that the latter can. The use of specialized inclusive pronouns remains possible, despite these having greatest syntactic complexity, due to the referential specificity they bring along. A characteristic of the resulting system is that each personful expression contains AUTH, the author indexical feature, which may allow us to cut analyses of supersloppy readings and of Kratzer's (1991) Tanglewood sentence from the same cloth.

Abbreviations

DIST = distal, EX = exclusive, IN = inclusive, NSG = non-singular, PROX = proximal, SG = singular, PL = plural

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