Shifty attitudes: Indexical-shift vs. perspectival anaphora*

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Abstract

In cases of indexical-shift, so-called indexical pronouns like 'I', 'you', 'here' and 'now' refer to the *Speaker, Addressee, Location,* and *Time* of some other context than the utterance-context. In cases of perspectival anaphora, an anaphor tracks the perspective of some other individual than the utterance *Speaker* (or *Addressee*). Thus, both phenomena involve referential obviation of a pronoun or anaphor from the utterance-context. Such obviation also occurs under highly similar grammatical conditions, e.g. in the scope of an attitude predicate (e.g. 'say', 'think', 'perceive'). Here, I introduce the core properties of both phenomena and show that they actually stand in a subset-superset relation. The availability of indexical-shift in a given environment entails that of perspectival anaphora, but not vice-versa. I describe a plausible way to make sense of these insights within a unified model of attitude shift which in turn helps chart out clear avenues for future research.

Keywords: perspective-shift, indexical-shift, perspectival anaphora, perspective vs. context, intensionality, implicational shifty variation.

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1 Introduction

Indexicals are context-sensitive pronouns like 'I', 'you', 'here', and 'now'. In cases of indexical-shift, as in (1) Zazaki (Iranian, Turkey) indexicals can target the *Speaker*, *Addressee(s)*, *Location* and *Time* of some *other* context than the utterance-context (adapted from Anand and Nevins, 2004; Anand, 2006):

(1) Ahmed-i$_j$ (mi$_k$-ra) va [kɛ $\boxed{\text{ɛz}_{j/k}}$ dɛwletia].
Ahmed-OBL I-OBL.TO said that I rich.be.PRS

"Ahmed told me [that I am rich.]" (Standard Reading)

"Ahmed told me [that Ahmed is rich.]" (Shifted Reading).

In the standard reading, *ɛz* ('I') behaves just like English 'I', referring to the *Speaker* of the utterance-context. But in the shifted reading, it's reference has shifted from the speaker of the utterance-context to the speaker of the speech event associated with the verb *va* ('tell'), which is Ahmed. We can further show that the embedded clause does not constitute a direct quote on the part of Ahmed (e.g. 'Ahmed said, "I am rich."') In cases of perspectival anaphora, an anaphor (a bound nominal) must refer to a salient individual who holds a mental or spatial perspective towards some predication containing it. For instance, in the Norwegian equivalent of (2), the perspectival anaphor SELF can be bound by 'Maria' just in case the leftness of the bag is evaluated relative to the spatial perspective (i.e. location and spatial orientation) of Maria:

(2) $\boxed{\text{Maria}_i}$ placed the bag to the left of $\boxed{\text{self}_i}$.

Perspectival anaphors across languages are typically also perspective-shifted: i.e. the perspective-holder cannot be the *Speaker* (or *Addressee*) of the utterance-context.

Thus, both perspectival anaphora and indexical-shift involve referential obviation of a pro-form (pronoun or anaphor) from the utterance towards an attitude event, and also occur under strikingly similar grammatical conditions, namely under the scope of attitudes like 'say' or 'believe'. This forces us to confront a foundational question which has received surprisingly scant attention so far: are indexical-shift and perspectival anaphora (and perspective-shift, more broadly) really distinct phenomena? Or is indexical-shift just a kind of perspective-shift?

In this article, I present an overview of indexical-shift and perspectival anaphora and show that, although the two phenomena are undeniably similar in many ways, they ultimately delineate distinct operations in grammar. Concretely, we will see that the availability of indexical-shift entails that of perspectival anaphora, but that the reverse is not necessarily the case. At the end of the paper, I sketch a possible way to grammatically model these results in terms of a unified model of attitude shift. The model makes strong, testable predictions that can help define a fruitful research program on these topics, even if the predictions end up being ultimately disconfirmed.

2 Perspectival anaphora: an instance of perspective-shift

In this section, I will present the core properties of perspectival anaphora. In Section 2.1, we will see how such anaphors fit into the broader spectrum of PSIs in grammar. Section 2.2 will present an overview of the key aspects of perspectival anaphora.

2.1 Background on PSIs & perspective-shift

In a situation where Marie and Sue are at the same table, (3a) and (3b) cannot *both* be true (**Fig. 1, L**):

(3) A STANDARD DISAGREEMENT (both can't be true):
   a. Marie: There are exactly four apples on the table.
   b. Sue: No, there are exactly five apples on the table.

In contrast, (4a) and (4b) may both be true in the same situation (**Fig. 1, R**):

(4) A "FAULTLESS" DISAGREEMENT (both can be true):

a. Marie: This cake is yummy.

b. Jill: No, this cake is disgusting!

Figure 1: ©Colin Miller

This distinction is, of course, related to the fact that (4a)-(4b) involve *predicates of personal taste (PPTs)* (Lasersohn, 2005; Stephenson, 2007; McCready, 2007; Stojanovic, 2007; Pearson, 2013a; Bylinina, 2014, a.o.) like 'yummy' and 'disgusting' while (3a)-(3b) lack these ingredients. Per Lasersohn (2005), the truth of a proposition containing like such perspective-sensitive items (PSIs) is relativized, not only to a world and time, but also to a *judge* (but see Pearson, 2013a, for a judge-free alternative):

(5) $[\![\text{This cake is yummy}]\!]^{c,w,t,j} = 1$ iff this cake is yummy to j in w at t

(6) $[\![\text{yummy}]\!]^{c,w,t,j} = \lambda x_e.x$ is yummy to j in w at t

Sentences without PSIs, like (3a)-(3b) are, in contrast, *judge rigid*: i.e. the identity of the judge is irrelevant to their interpretation (Lasersohn, 2005; Anand, 2009). This captures the intuition that I cannot change the number of apples on the table merely by having an opinion about them.

The default judge for a PSI is assumed to be the *Speaker* of the utterance, e.g. Marie in (4a) vs. Jill in (4b). But the referent of the judge can be *shifted* in particular grammatical environments (e.g. by a special perspectival operator Bylinina et al., 2014; Korotkova, 2016, a.o.). Thus, under an attitude verb, as in (7), the PSI 'yummy' tracks, not the perspective of Marie (utterance-speaker), but that of Susan, the attitude-holder:

(7) *Marie to a friend*: Susan said that this cake is yummy.

In certain cases, e.g. special narrative structures that report the protagonist's mind (called Free Indirect Discourse (FID), Banfield, 1982; Steube, 1985; Doron, 1991; Eckardt, 2014) as in (8), the attitude is left implicit but is, nevertheless assumed to be there:

(8) Terror washed over him as he lay on the floor, with that funeral drum pounding inside him. Would it hurt to die? ...Yet it did not occur to him now to try and escape, to outrun Voldemort. It was over, he knew it, and all that was left was the thing itself: dying (J.K. Rowling, *Harry Potter and the Deathly Hallows*), p. 629).

(8) expresses, not the default perspective of the author, J.K. Rowling, but the shifted perspective of the protagonist, Harry. Thus, the factivity of 'know' in the last sentence is refracted through Harry's (mistaken) perspective, not the omniscient author's. As such, this knowledge may be licitly falsified and, later, it indeed is, with Harry surviving, even triumphing, over Voldemort (as Potterheads everywhere can attest).

PSIs span a range of grammatical elements: e.g. evidentials ('apparently', Speas and Tenny, 2003; Aikhenvald, 2004; Sauerland and Schenner, 2007; Murray, 2012; Korotkova, 2016, a.o.), spatial predicates ('come', 'to the left', Levinson, 2003; Oshima, 2006; Kracht, 2008; Barlew, 2016, a.o.), epithets and expressives ('damn', 'that idiot', Harris and Potts, 2009a, a.o.), and epistemic modals ('might', DeRose, 1991; Dietz, 2008; Moltmann, 2010; Anand and Hacquard, 2013, a.o.). One and the same PSI may shift differently across distinct grammatical environments. For instance, *famous* shifts *optionally* in the antecedent of conditionals, but *obligatorily* in questions:

(9) If that famous linguist walks in, Robert will be dumbstruck.
≈ If a linguist **who is famous according to Robert/me** walks in, Robert will be dumbstruck.

(10) Is that linguist famous?
≈ Is that linguist famous **according to you/✗me**?

Conversely, in a given environment, some classes of PSI systematically shift more readily than others. Pronominal PSIs (e.g. spatial adverbs, socio-cultural expressions like *home*, perspectival anaphora) seem to shift less than evidential PSIs (epistemic modals, evidentials, vague predicates like 'tall', PPTs) (Bylinina et al., 2014, 10):

Table 1: Shifting across classes of PSI

	VP-internal	conditional antecedents	questions	attitude contexts
Pro-PSIs	◊	◊	◊	◊
Evid-PSIs	◊	◊	□	□

(◊ = shift possible; □ = shift obligatory)

2.2 Core properties of perspectival anaphora

Perspectival anaphors (in many African languages, Japanese, Italian, Icelandic, and Tamil Sells, 1987; Kuno, 1987; Koopman and Sportiche, 1989; Giorgi, 2006; Reuland, 2011; Sundaresan, 2012, a.o.), are a kind of pronominal PSI which must be bound by a nominal that

denotes a (typically shifted) perspective-holder with respect to some predication containing it.

Unlike, for instance, epithets and expressives (e.g. 'damn', 'that idiot') which typically resist shifting (Quang, 1971; Cruse, 1986; Corazza, 2005; Potts, 2005, a.o.), perspectival anaphors across languages show an overwhelming tendency to shift, and thus cannot reflect the perspective of an utterance *Speaker* or *Addressee*. As such, many perspectival anaphors have special, *obviative* morphosyntax, which is incompatible with 1st and 2nd-person (cf. Section 4.3). Such anaphors often also locally co-occur with other obviative elements, such as subjunctive mood marking in Italian and Icelandic (Giorgi, 2010; Sigurðsson, 1991). Conversely, they often cannot locally co-occur with elements that *resist* shifting, like epithets ('that fool') (see e.g. Charnavel, To Appear, 2019, and Sundaresan, 2018b for discussion of this for French and Tamil, respectively) or with indicative mood marking.

Perspectival anaphors are notoriously structurally recalcitrant, compared to vanilla local reflexives. The antecedent of a more familiar anaphor like *himself* in English must be local to it and also c-command it, as regulated by Binding Condition A in Chomsky (1981). But the standard syntactic metrics of locality and c-command do not seem to apply to perspectival anaphors. What matters for their antecedence is perspective-holding. Thus, the antecedent of a perspectival anaphor does not need to be (and, in fact, in many languages, *cannot* be) local to it. In many languages, the anaphor can even refer "logophorically" to an extra-sentential antecedent. In sentences where anaphor is embedded under multiple clauses, its choice of antecedent may also be indeterminate: i.e. there can be more than one potential antecedent for an anaphor. Finally, in cases of so-called "backward binding" (Minkoff, 2003), involving psych-predicates like 'fear' or 'like', the antecedent does not even have to c-command the anaphor. In Tamil (11), the perspectival anaphor *taan* is anteceded by *Raman* which does not c-command it:

(11) [[Taan$_i$ eeɻæ-jaagæ irŭ-nd-adŭ] [avan$_i$ aɳɳaav-æ]$_j$ baadi-čč-adŭ.]
ANAPH[NOM] poor-ADJ be-PST-3NSG.NOM he.GEN brother-ACC affect-PST-3NSG
Lit: "[Self's$_i$ having been poor] bothered [[his$_i$] brother]$_j$."

Definition of perspectival anaphora (Sundaresan, 2018b)

(i) In every instance of perspectival anaphora, the anaphor is properly contained within a predication which is evaluated relative to the perspective, mental or spatial, of some sentient individual.

(ii) In many languages, this individual must be aware of the eventuality described by

this predication, at the time it happens.

(iii) The antecedent of the anaphor must denote this individual.

2.3 Classes of perspectival anaphor: mental vs. spatial

The perspective tracked by a perspectival anaphor can be mental or spatial. The question of what kind of perspective a perspectival anaphor reflects seems to vary from one language to another and, within a language, from one kind of predication to another.

2.3.1 Mental perspective-holding

Mental perspective-holding is typically discussed in the context of a logophor which refers to an individual "whose speech, thoughts, feelings, or general state of consciousness are reported" (Clements, 1975, 141). Logophors were canonically used to describe special pro-forms in many African languages, many of which also surfaced with special morphology (see e.g. Sells, 1987). The term is now used more broadly to encompass dependencies where the anaphor refers extra-sententially as well as in cases of long-distance anaphora (see e.g. Koopman and Sportiche, 1989, for Abe, Pearson, 2013b (Ewe), Kuno, 1987 (Japanese), Giorgi, 2010 (Italian), Jayaseelan, 1997 (Malayalam), Charnavel, 2019 (French), Sigurðsson, 1991 (Icelandic), and Sundaresan, 2018b (Tamil)). Here, the anaphor is bound within the sentence, but outside its own clause, as in Icelandic (12)-(13):

(12) $\boxed{\text{Barnið}_i}$ lét ekki í ljós [að það hef-ði verið hugsað vel um $\boxed{\text{sig}_i}$.
child put not in light that there had-SBJV been thought well about ANAPH
'[The child]$_i$ didn't reveal [that she$_{\{i,*j\}}$ had been taken good care of].'

(13) * $\boxed{\text{Barnið}_i}$ bar þess ekki merki [að það hefði verið hugsað vel um $\boxed{\text{sig}_i}$].
child bore of it not signs that there had been thought well about ANAPH
"[The child]$_i$ didn't look [as if she$_i$ had been taken good care of]."

Reuland (2001, p. 345) states that "The difference in acceptability between [(12)] and [(13)] can be attributed to the fact that in [(12)] the report is made from the child's point of view, i.e., it is the child, and not the speaker, who didn't reveal that he/she had been taken good care of, whereas in [(13)], it is the speaker who reports that the child didn't look as if he/she had been taken good care of." Thus, Icelandic *sig* is licensed under perspective-shift.

2.3.2 Spatial perspective-holding

In cases of spatial anaphora, the anaphor reflects the spatial location and orientation of its referent, as illustrated below for Tamil.

(14) *Scenario:* Raman's bag sits between me (utterance-speaker) and Raman. The bag is to Raman's left from Raman's spatial perspective, but to Raman's right from my spatial perspective (**Fig. (2)**). I can truthfully report this by saying either: "Raman's$_i$ bag is to his$_i$ right" or "Raman's$_i$ bag is to his$_i$ left."

Figure 2: Scenario: Spatial perspective

(15) Raman-oo**ɖ**æ$_i$ pai tan$_{\{i,*j\}}$ ✓ e**ɖ**adu-læ/✗ valadŭ-læ irukkŭ.
Raman-GEN bag.NOM ANAPH.GEN left-LOC/right-LOC is
✓ 'Raman's$_i$ bag is to his$_i$ left.'
✗ 'Raman's$_i$ bag is to his$_i$ right.'

The perspectival anaphor *taan* may refer to Raman only if reflects *Raman's* spatial perspective. Thus, only the statement that Raman's bag is to his left is allowed with *taan*. Spatial anaphors in other languages show analogous behavior. Thus, Norwegian *seg* is "used when the physical aspect of the referent of the binder is in focus" (Lødrup, 2007, 183), and Japanese *zibun*, when used spatially, reflects the "camera angle" of its referent (Kuno, 1987).

2.3.3 Interactions between types of perspective-holding

Sells (1987) observed that perspectival roles for anaphora are implicational, as in (16):

(16) SOURCE (speaker) > SELF (attitude-holder) > PIVOT (spatio-temporal center)

(16) captures the crosslinguistically robust tendency that, if a perspectival anaphor in a given language can be bound under a predicate that provides a PIVOT, it will also necessarily be licensed under one that provides a SELF and, in turn, under one that provides a SOURCE. Further support comes from (Charnavel and Mateu, 2015; Charnavel, 2019), showing that, in e.g. French and Spanish, the perspectival role for an anaphoric clitic demarcates binding domains which directly condition its co-occurrence with other pro-forms.

2.4 Classes of shifty environment for perspectival anaphora

Culy (1994) reports for thirty-two languages that the environments that license an anaphor

are also implicationally ordered, as in (17):

(17) Intensional hierarchy for perspectival anaphora:
Speech > Thought > Knowledge > Direct perception
Implication: if an anaphor is licit in the scope of a certain predicate-class, it is necessarily also licit in the scope of all predicate-classes to its left on the hierarchy.

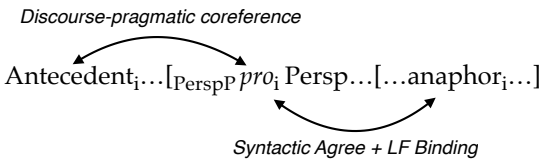
Concretely, this means that, if an anaphoric element is licensed under a direct perception predicate (e.g. 'see'), it is also licensed in the scope of knowledge (e.g. 'know', 'realize'), thought (e.g. 'believe', 'think'), and speech (e.g. 'say', 'tell') predicates. But if it is possible in the scope of a knowledge predicate, it is also licensed under thought and speech predicates, but is not necessarily licensed under direct perception verbs; and so on. (17) has been shown to underlie the availability of a range of other grammatical phenomena such as: evidentiality (Speas, 2004), embedded root transformations (like VP-preposing or topicalization, which typically apply to *un*embedded *root* clauses,), embedded verb-second (Wiklund et al., 2009), as well as the relative ordering and scope of different adverb classes (Cinque, 1999).

2.5 Modelling perspectival anaphora in grammar

The structural recalcitrance of perspectival anaphors prompted early proposals that they are not syntactically implemented (Clements, 1975) or that the "well-behaved" cases alone are syntactic (see e.g. Chomsky, 1986a; Pica, 1987; Huang and Tang, 1991, and Progovac, 1993), with the residue being outsourced to the discourse-pragmatics. At the same time, Sells (e.g. 1987); Koopman and Sportiche (e.g. 1989) observe that perspectival anaphors in many languages influence the morphology of their environment, e.g. the shape of complementizers and mood-marking. I argue based on agreement evidence from Tamil (Sundaresan, 2012, 2018b, in progress) that perspectival anaphora involves a two-stage syntax + discourse-pragmatic dependency (see also Charnavel, 2019; Nishigauchi, 2014).

Two-stage model of perspectival anaphora

The perspectival anaphor enters into a *local, syntactic* dependency with a silent perspectival pronoun hosted on a Perspectival Phrase (PerspP). This syntactic dependency then feeds variable binding in the interpretive component (LF). The perspectival pronoun discourse-pragmatically corefers with the antecedent which denotes a salient perspective-holder. The anaphor and its antecedent thus never



corefer directly, but only *transitively* via the perspectival pronoun.

Summary of key points for perspectival anaphora:

1. A perspectival anaphor must refer to a (mental or spatial) perspective-holder with respect to some predication containing the anaphor.
2. Perspectival anaphors are typically perspective-shifted.
3. Perspectival roles for anaphora are implicationally ordered as: SOURCE > SELF > PIVOT.
4. Perspectival environments for anaphora are similarly implicationally ordered.
5. Perspectival anaphors is implemented not only in discourse-pragmatics but also in syntax-semantics.

3 Indexical-shift

Let us now turn to the other kind of shifty element under discussion, namely shifted indexicals. In Section 3.1, I briefly discuss what makes indexicals special, and distinct from other types of referring expression. In Section 3.2, we will dive into the core properties of shifty behavior with respect to indexical pronouns.

3.1 Why indexicals are special

An utterance doesn't exist in a vacuum; it is tied to an *utterance-context*, a speech event that takes place at a particular *Time*, *World* and *Location*, which involves a *Speaker* and *Addressee(s)*. We can thus envision a context as a tuple that consists of these parameters: <*Speaker, Addressee, Time, World, Location*>.An indexical is a pronoun which targets these contextual coordinates: i.e. 'I' (targets *Speaker*), 'you' (targets *Addressee*), 'here' (targets *Location*) and 'now' (targets *Time*). An indexical is purely context-sensitive in the sense that its reference, unlike those of other pronouns like 'she', 'there' and 'then', necessarily changes from one context to the next. Thus, in (18), the referents of *I* and *you* are Maria and Ali, namely the *Speaker* and *Addressee*, respectively, of the utterance in (18); but in (19), the roles are switched: *I* denotes Ali, who is the *Speaker* of (19) while *you* denotes Maria, its *Addressee*. In contrast, the referent of *her* remains constant as Susan across both contexts of utterance:

(18) *Marie to Ali*: $\boxed{\text{I}_{Marie}}$ think $\boxed{\text{you}_{Ali}}$ should speak to $\boxed{\text{her}_{Susan}}$.

(19) *Ali to Marie:* No, $\boxed{\text{you}_{Marie}}$ speak to $\boxed{\text{her}_{Susan}}$! $\boxed{\text{She}_{Susan}}$ doesn't like $\boxed{\text{me}_{Ali}}$.

This is also why Piglet's answer of *Today* is funny in **Fig. (3)**. Since the day of the utterance context is *always* today, regardless of what day it actually is, such an answer, while undeniably true, is also fantastically uninformative.

In a seminal paper (Kaplan, 1989), philosopher David Kaplan noted that indexicals are also special in that they cannot scope under attitudes. Consider the example below:

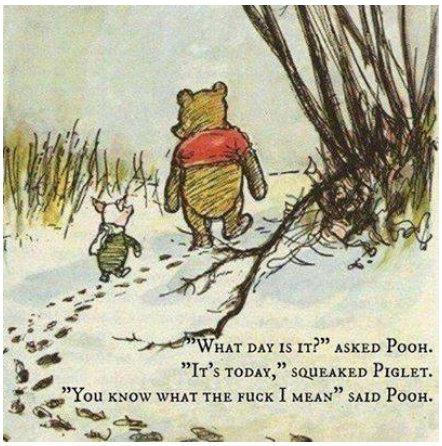


Figure 3: ©inkediron

(20) *Jill and Susan are hanging out at a Berlin pub at 5pm on May 9. Jill utters (21) to Susan about Mary, their mutual friend in Leipzig.*

(21) Mary told me in Leipzig this past Monday that $\boxed{\text{I}}_{Jill}$ am always tired.

The utterance-context for (21) involves the following parameters: $<Speaker_{Jill}$, $Addressee_{Susan}$, $Time_{5pm\ on\ May\ 9}$, $World_{actual}$, $Location_{Berlin\ pub}>$. But there is another context here, namely that of *Mary's* own speech event. The parameters of this *intensional context* are: $<Speaker_{Mary}$, $Addressee_{Jill}$, $Time_{May\ 4}$, $World_{intensional}$, $Location_{Leipzig}>$. But even though there are two competing contexts, the embedded indexical *I* targets only the utterance-context: i.e. it refers to Jill, the utterance-speaker, and not Mary, the intensional speaker. This contrasts strikingly with the behavior of PSIs in such environments. Thus, the PSI *tired* reflects *Mary's* point-of-view about Jill, not Jill's about herself.

Kaplan thus postulated that indexicals uniquely satisfy both conditions below:

(22) Context-sensitivity: Indexicals are *purely context-sensitive* expressions: they derive their meaning purely from a speech or thought context.

(23) Intensional insensitivity: Indexicals are *rigid designators*: i.e. their reference is *rigidly* fixed to the utterance-context.

In other words, Kaplan's proclamation was that indexicals *cannot shift* under attitudes. An intensional operator that seeks to shift the *character* of an indexical, i.e. its context of reference, is claimed not to exist. In a now famous passage, Kaplan likened such an operator to a fictitious monster in grammar, saying:

(24) "no operator can control the character of the indexicals within their scope, because they will simply leap out of its scope to the front of the operator ... Operators like

'In some contexts it is true that' which attempt to meddle with characters, I call *monsters*. I claim that none can exist in English (without sneaking in a quotation device)." (Kaplan, 1989, 510-11)

Thus, per Kaplan, the only way to shift the value of an indexical like 'I' is to enclose it within a quotation:

(25) Jill to Susan: Mary said "I was tired".
$[\![I]\!]$= Mary; $[\![I]\!] \neq$ Jill

3.2 Core properties of indexical-shift

One of the most exciting linguistic discoveries of the last two decades has been that Kaplan's conjecture is, in fact, empirically falsified in cases of *indexical-shift*. For instance, in Uyghur (Turkic, China & Kazakhstan), the indexical *men* ('I') must denote the *Speaker* of the intensional context. Thus, (26) can only mean that Ahmet said that he (Ahmet) left; it cannot mean, as its counterpart indeed must in English, that Ahmet said that the *Speaker* of the utterance left (from Shklovsky and Sudo, 2014, 383, Ex. 4b):

(26) Ahmet [men ket-tim] di-di.
Ahmet [1SG leave-PST.1SG say-PST.3
✓ 'Ahmet$_i$ said that he$_i$ left.' (literally 'Ahmet$_i$ said that I$_i$ left.')
✗ 'Ahmet$_i$ said that I$_{speaker}$ left.'

We can also show that the embedded clause does not constitute a direct quote (compare (25) in English). Quotations "form a closed domain with respect to syntactic and semantic operators" (Anand, 2006, 81, Ex. 230). Thus, a speaker should not be able to question something inside a quoted string since this would involve syntactic extraction of the questioned element across the clause (27). In contrast, such movement is perfectly licit out of an indirect speech report (28):

(27) * Who$_i$ did Ali say "I saw ~~who$_i$~~"?

(28) Who$_i$ did Ali say that I saw ~~who$_i$~~?

A *wh*-element in Uyghur *can* be extracted out of an embedded clause with *men*, showing that the clause is not quoted:

(29) Tursun [men kim-ni kör-dim] di-di? (Shklovsky and Sudo, 2014, Ex. 7, 384)
Tursun 1SG who-ACC see-PST.1SG say-PST.3

'Who did Tursun$_i$ say that he$_i$ saw?' (literally, 'Who did Tursun$_i$ say that I$_i$ saw?')

Thus, in both (26) and (29), *men* ('I') is context-sensitive, satisfying (22): i.e. it denotes the *Speaker* of a context. However, it violates (23) because it is evaluated, not against the utterance-context, but against the intensional one pertaining to the speech verb *di* ('say')). This in turn suggests that Kaplan's "monsters", which shift the context-of-evaluation for an indexical are, in fact, real (pace Maier, 2016). Indexical-shift can also obtain under non-speech attitude verbs like 'believe' and 'think'. The attitude-holder here is not a *Speaker* but a believer or thinker. To cover such cases, the attitude-holder of an intensional context is more broadly referred to as its *Author*.

Definition of indexical-shift

- In cases of indexical-shift, an indexical pronoun refers to an *Author, Addressee, Time, World* or *Location* of an intensional context which is associated with an attitude, rather than the utterance-context.

3.3 Classes of shifted indexical

The person dimension (targetting *Speaker* and *Addressee*) is not the only one that can shift. Speas (1999) notes for Navajo that temporal adverbials like *tomorrow* may be evaluated with respect to the context of the speech report, rather than that of the utterance; similarly, Giorgi (2010) proposes that sequence-of-tense effects in Romanian, Russian and Japanese involve nothing other than temporal indexical-shift. The world parameter may be shifted as well: Schlenker (2003a) argues that such indexical-shift characterizes the so-called *Konjunktiv I* (reportative subjunctive) phenomenon in German, and Quer (2005) reports similar modal indexical-shift for Catalan Sign Language. The question of what indexicals may shift varies both across languages and individual structures. An orthogonal type of variation, which obtains across languages, has to do with whether indexical-shift is optional or obligatory or never possible.

And yet, shifty variation is not random but restricted, both across languages and individual structures. Two types of restriction have been noted. Per the Shift Together constraint (Anand and Nevins, 2004), in a structure with multiple indexicals that are capable of shifting, either all indexicals must shift, or none can shift: i.e. "mixed" shifted + unshifted readings are ruled out in many languages (see sidebar). In my own work (Sundaresan, 2018a), I have argued that while Shift Together is crosslinguistically robust, genuine exceptions to it are attested in languages like Tamil, Korean, and potentially also late Egyptian and Mishar Tatar (Podobryaev, 2014).

Shift Together Constraint

The Shift Together constraint is illustrated below for Zazaki (Iranian; Turkey) (Anand and Nevins, 2004, 4, Ex. 13), and holds robustly in many other languages:

(30) *Scenario:* Ali tells Hasima:

Vɨzeri Rojda Bill-ra va kɛ ɛz to-ra miradiša
Yesterday Rojda Bill-to said that I you-to angry.be-PRES
LIT. 'Yesterday Rojda said to Bill that I am angry at you.'

READING 1: ✓ Yesterday Rojda said to Bill that I_{Rojda} am angry at you_{Bill}.'

READING 2: ✓ Yesterday Rojda said to Bill that I_{Ali} am angry at you_{Hasima}.

READING 3: ✗ Yesterday Rojda said to Bill that I_{Ali} am angry at you_{Bill}."

READING 4: ✗ Yesterday Rojda said to Bill that I_{Rojda} am angry at you_{Hasima}.

Based on such patterns, Anand (2006, Ex. 297, 100). proposes the Shift Together Constraint in (31):

(31) "All shiftable indexicals within an attitude-context domain must pick up reference from the same context."

Another restriction curtails what classes of indexical may be shifty, to begin with. Indexical-shift seems to be curtailed by the hierarchy in Tabel 2 (Deal, 2017, 24):

Table 2: Hierarchy of shifty indexicals: 1ST> 2ND > HERE

	Shifty 1st	Shifty 2nd	Shifty HERE
Matses	✓	✓	✓
Uyghur	✓	✓	—
Tamil	✓	—	—
English	—	—	—

Thus, there is no language that shifts 'you' to the exclusion of 'I' or 'here' to the exclusion of 'you' (and 'I'). But the reverse pattern is amply attested. Such an implicational pattern also seems to be mirrored language-internally, in individual structures. For instance, Nez Perce allows shifty 'here', 'you', and 'I'. But in a clause containing all three, 'you' cannot shift to the exclusion of 'I' and 'here' cannot shift to the exclusion of 'you' (and 'I') — though again, the reverse is grammatical.

3.4 Classes of shifty environment for indexical-shift

Like with perspectival anaphora, the environments that license indexical-shift also vary across languages and classes of shifty indexical. In Sundaresan (2012, 2018a) I show that indexical-shift is an embedded root phenomenon, which obeys the pattern in (32):

(32) For a given grammar (language or dialect), if indexical-shift is effected in the scope of a non-speech attitude predicate, it must also be effected in the scope of a speech predicate.

Evidence for (32) comes from fieldwork on indexically shifted agreement that I have been conducting in Tamil Nadu, India, among 40 native speakers of Tamil ranged across six dialects. This dialectal pattern is supported at the crosslinguistic level from twenty-eight languages spanning 20 sub-families or genera (see sidebar). Deal (2017) shows, for a smaller sampling of languages, that the hierarchy might be more articulated, along the lines of (33):

(33) Intensional hierarchy for indexical-shift:
Speech > Thought > Knowledge
Implication: if an indexical shifts in the scope of a certain predicate-class, it is necessarily also shift in the scope of all predicate-classes to its left on the hierarchy.

Note that (33) conforms to the predicate hierarchy observed to condition perspectival anaphora, in (17). We will see later that this parallel between indexical-shift and perspectival anaphora is not accidental.

3.5 Modelling indexical-shift in grammar

What is the nature of the "monstrous" operator that shifts the context of evaluation? How is shifty variation across languages and grammatical environments captured?

Under the context-overwriting view of Anand (2006); Shklovsky and Sudo (2014); Deal (2017, a.o.), the monster is an operator selected by the attitude verb; it simply replaces the utterance-context with the intensional one. All indexicals are assumed to be capable of shifting, in theory. As such, an indexical that occurs in the scope of a context-overwriting operator will necessarily shift. The absence of shift occurs when the attitude verb simply fails to select a monster operator: all indexicals are evaluated against the utterance-context by default, in this case. The quantifier binding view of Schlenker (1999, 2003b, et seq.) places the onus of shiftability on the indexicals themselves. All attitude verbs are monstrous, binding context variables in their scope. But indexicals vary according to whether they can optionally shift (e.g. 'I' in Amharic), never shift ('I' in English), or always shift (e.g. 'I' in Uyghur) nder such verbs. This property is assumed to be hardwired into their meanings.

The two approaches thus make clearly distinct empirical predictions wrt. shifty variation. For instance, the context-overwriting approach derives Shift Together for free: after all, if multiple indexicals, all shifty, are merged under a context-overwriting operator, they will *have no choice* but to all shift. The quantifier binding view must say something extra to capture this. Likewise, both analyses make distinct predictions about shifty variation across different intensional environments (cf. (33)). Under the context-overwriting view, a monster is *selected* by a particular kind of attitude verb: so shifty variation across distinct attitude predicates can, in theory, be captured. Under the quantifier binding view, the monster cannot be separated from the verb, so shifty variation under different attitude verbs can be captured at its core. At the same time, something additional must be said to capture the fact that such variation is *implicational* in the way described in (33), and not random. Given that it has been independently argued that the hierarchy has a structural basis (see e.g. Cinque, 1999; Cristofaro, 2005), I have proposed that such effects should be outsourced to the syntactic component of grammar.

Summary of key points for indexical-shift:

1. A shifted indexical refers to the parameters (*Speaker, Addressee, Time, World, Location*) of an intensional context, and not the utterance-context.
2. Indexical-shift can obtain optionally, obligatorily or never.
3. Classes of shifted indexical stand in the implicational hierarchy 1ST > 2ND > HERE, across languages and intensional environments.
4. In many (but not all) languages, all shiftable indexicals in an intensional domain must shift together.
5. Intensional environments for indexical-shift are implicationally ordered.
6. The jury is out about whether the monster is a context-overwriting operator or a contextual quantifier: but the role of syntax seems to be required regardless.

4 Indexical-shift vs. perspectival anaphora

On the strength of systematic empirical distinctions holding between perspectival anaphora and indexical-shift, I will argue for the following in the sections below:

I. Indexical-shift and perspective anaphora share a common core but are ultimately distinguished syntactically, semantically, and morphologically.

II. There is an *implicational hierarchy* between perspectival anaphora and indexical-shift: specifically, the latter entails the former, but the former does not entail the latter.

4.1 Indexical-shift & perspectival anaphora: core parallels

In a world where 'I' and 'you' were always rigidly unshifting, like in English, distinguishing indexicals from PSIs would be a relatively straightforward task. Indexicals would be special by virtue of being "rigid designators", pronouns that remain anchored to the utterance-context even under an attitude predicate. A PSI would differ by virtue of lacking this property and perspectivally shifting in attitudinal environments. In this hypothetical world, an indexical like 'I' and a PSI like 'funny' in (34)-(35) would thus be easily distinguishable wrt. their shifty behavior:

(34) *Sandhya to Tom:* $\boxed{\text{I}_{Sandhya}}$ am $\boxed{\text{funny}_{Sandhya}}$.
≈ **Sandhya** is funny **according to Sandhya**.

(35) *Sandhya to Tom:* Jill said that $\boxed{\text{I}_{Sandhya}}$ am $\boxed{\text{funny}_{Jill}}$.
≈ that **Sandhya/✗ Jill** is funny **according to Jill/✗ Sandhya**.

But, as we now know, this is not an accurate representation of the world as it actually is. Not all indexical pronouns are rigid designators: some shift in intensional environments. In an indexically shifting language like Amharic, (35) would instead have the reading in (36):

(36) *Sandhya to Tom:* Jill said that $\boxed{\text{I}_{Jill}}$ am $\boxed{\text{funny}_{Jill}}$.
≈ that **Jill/✗ Sandhya** is funny **according to Jill/✗ Sandhya**.

The difference between 'funny' and 'I' in such a language lies merely in the property ascribed to the (shifted) attitude-holder: funny vs. (contextual) *Author*. The availability of indexical-shift in some languages thus blurs the distinction between indexicals and PSIs, prompting the question of whether a shifty indexical is just another kind of PSI.

The distinction becomes even less obvious when we compare shifty indexicals with perspectival anaphors. There are, after all, categorical and functional differences between a PSI like 'funny' (adjective, modificational) and an indexical like 'I' (pronoun, referring). In contrast, a perspectival anaphor like Icelandic *sig* or Tamil *taan* is a *pro-form* (pronoun or anaphor), just like 'I'. We can, of course, argue that a perspectival anaphor continues to be distinct by virtue of being anaphoric, rather than pronominal. But this is not a sufficiently useful metric given that indexicals can also be used anaphorically in their so-called "fake indexical" use (Partee, 1989; von Stechow, 2002; Kratzer, 2009, a.o.), as in (37). In fact, certain prominent analyses of indexical shift (e.g. von Stechow, 2002) derive indexical-shift from such fake indexicality:

(37) I am the only one who finished my beer.
INDEXICAL READING: For all other x, x did not finish *my* beer.
FAKE-INDEXICAL READING: For all other x, x did not finish x's beer.

Thus, at their core, both perspectival anaphors and shifty indexicals are pro-forms with obviative reference. Furthermore, shifty variation for both is conditioned by the same implicational hierarchy of attitude environments, as noted earlier. These striking similarities have not gone unnoticed in the literature: indeed, Schlenker (1999, 2003a, and subsequent) proposes that a logophor is nothing other than an obligatory shifted indexical.

Technically of course, a perspectival anaphor involves *perspectival* obviation from the utterance while a shifty indexical involves *contextual* obviation from the utterance. In asking about the distinction between perspectival anaphora and indexical-shift, we are thus ultimately asking about the difference between the notions of perspective and context. I will argue here that this distinction is not trivial, and that the grammatical representations of perspective and context are in a subset-superset relation. To this end, I show that: (i) the distribution of shifted indexicals is more restricted across grammatical environments, and within a particular environment; (ii) many perspectival anaphors show person obviation syntax and morphology, while shifted indexicals do not.

4.2 Context-shift entails perspective-shift

The distribution of shifted indexicals and perspectival anaphora across languages shows that the availability of the former entails that of the latter, but not vice-versa. Further support for this at the level of individual environments for shift, comes from locality effects on indexically shifted agreement in languages like Tamil, which perspectival anaphors are exempt from. Taken together, these suggest that indexical-shift entails perspective-shift but not the other way around.

4.2.1 Distributional differences

We have already observed that perspectival anaphora and indexical shift are conditioned by the same hierarchy of intensional environments:

(38) Intensional hierarchy for perspectival anaphora & indexical-shift
Speech > Thought > Knowledge (> Direct perception)
Implication: if an anaphor or shifted indexical is licit in the scope of a certain predicate-class, it is necessarily also licit in the scope of all predicate-classes to its left on the hierarchy.

At the same time, there is reason to believe that perspectival anaphora and indexical-shift are subject to different distributions in a given language. Based in large part on fieldwork conducted amongst native speakers, I have shown for Tamil (Sundaresan, 2012, 2018b) that

perspectival anaphora is available in a much wider range of environments than indexically shift. The perspectival anaphor *taan* (like perspectival anaphors in many other languages) can be licensed under all the attitude predicate classes in (38). It can additionally be licensed even in the absence of an attitude verb: e.g. inside a prepositional phrase (39), or a temporal or spatial adjunct clause (40), or logophorically in a root clause:

(39) Spatial prepositional adjunct:

Raman$_i$ tan-akkŭ$_{\{i,*j\}}$ meelæ orŭ plane-æ paar-tt-aan.
Raman.nom anaph-dat above a plane-acc see-pst-3msg
"Raman$_i$ saw a plane above himself$_{\{i,*j\}}$."

(40) Temporal clausal adjunct:

Raman$_i$ [Seetha$_j$ tann-æ$_{\{i,*j\}}$ kiḷḷ-in-æ poɻŭdŭ] ka-tt-in-aan.
Raman Seetha anaph-acc pinch-pst-rel time yell-pst-3msg
"Raman$_i$ yelled [when Seetha$_j$ pinched him$_{\{i,*j\}}$]."

In contrast, indexical-shift in Tamil, which is reflected as 1st-person verb-agreement triggered by a silent 1st-person indexical, obtains predominantly under speech predicates and, in certain dialects, it can only occur under thought predicates. It is almost invariably marginal under other classes of predicate on the hierarchy and is never possible in spatial or temporal adjuncts or logophorically. These results are not exclusive to Tamil: crosslinguistically, indexical-shift obtains in a proper subset of environments that license perspectival anaphora.

Recent work in Bylinina et al. (2014) suggests that indexical-shift entails perspective-shift more broadly. Based on an initial sampling of languages, Bylinina et al. show that perspective-shift involving perspectival anaphora, spatial predicates, epithets and appositives, PPTs, vague predicates, and evidentials is possible in all grammatical environments where indexical-shift is available, for a given language or dialect; the reverse is, however, not the case: (Bylinina and Sudo, 2015; Bylinina et al., 2014, 30):

Table 3: Distribution of indexical-shift vs. perspective-shift:

	Attitude contexts	Questions	Conditionals	VP-internal	Generic
Indexicals	✓/*	*	*	*	*
PSIs	✓	✓	✓	✓	✓

4.2.2 Locality differences in shifty agreement

Additional evidence for this asymmetry comes from locality effects on indexical-shift in Tamil. Perspectival anaphora and indexical shift in Tamil leave different morphological reflexes on

verbal agreement in sentences that are otherwise identical. The former is manifested as 3rd-person agreement while the latter is exponed as 1st-person agreement.

But the two types of agreement show distinct locality effects. Indexically shifted 1st-person agreement is restricted to the *immediate* complement of a speech predicate, whereas perspective-shift, involving perspectival anaphora, is again more flexible.[1] We see this in (41), where, even though the matrix predicate is a speech verb, indexically shifted 1st-person verb-agreement *-een* in the most deeply embedded clause is impossible, because the intermediate clause has the verb 'think', which itself does not trigger indexical-shift in its complement in this dialect.

(41) * Seetha$_i$ [taan$_j$ ʤej-čč-een-nnŭ] nene-čč-aaḷ-ŭnnŭ] Mia$_j$ so-nn-aaḷ.
Sri ANAPH win-PST-1SG-COMP think-PST-3FSG-COMP Mia say-PST-3FSG
Intended "Mia$_j$ said [that Seetha$_i$ thought [that she$_j$ had won the contest]]."

In contrast, perspective-shift *can* operate over such distances. (42), shows the same double embedding of 'say' and 'think', but this time without indexical-shift, as shown by the fact that verb agreement in the innermost clause is 3FSG *-aaḷ*:

(42) Seetha$_i$ [taan$_j$ ʤej-čč-aaḷ-nnŭ] nene-čč-aaḷ-ŭnnŭ] Mia$_j$ so-nn-aaḷ.
Seetha ANAPH win-PST-3FSG-COMP think-PST-3FSG-COMP Maya say-PST-3FSG
"Mia$_j$ said [that Seetha$_i$ thought [that she$_j$ had won the contest]]."

But here, the perspectival anaphor *taan* in the deepest embedded clause *can* be anteceded by the subject of the nearest attitude predicate, here Seetha, but it can also be anteceded by the subject of the higher predicate, here Maya.

Now we can go one step further, beyond what is in principle possible to see the implicational relation between the two in concrete structures, again using double embedding:

(43) ONLY ONE POTENTIAL ANTECEDENT WITH INDEXICAL-SHIFT:
Seetha$_i$ [taan$_{\{i,*j\}}$ ʤej-čč-een-nnŭ] so-nn-aaḷ-ŭnnŭ] Mia so-nn-aaḷ.
Seetha ANAPH win-PRS-1SG-COMP say-PST-3FSG-COMP Mia say-PST-3FSG
'Mia$_j$ said [that Seetha$_i$ said [that she$_{\{i,*j\}}$ had won the contest]].'

In (43), we have double embedding under two instances of 'say'. While either of these predicates could have triggered indexical-shift, we see it showing up on the agreement morphology of the most deeply embedded clause. Given what we learned from (41), this means that it must have been triggered by the intermediate 'say' verb, which has Seetha as its subject.

[1] Why does such a restriction exist? Deal (2018, In progress) argues that true shifted indexicals do not involve such a constraint on their choice of referent and that this is actually a characteristic of indexiphors — 1st (or 2nd-)person logophors that must be bound by a local logophoric operator. But given that the shifty 1st-person agreement otherwise follows the distributional pattern of bonafide shifted indexicals crosslinguistically, further research is warranted.

The crucial datum then is that the perspectival anaphor in that most deeply embedded clause now can *only* be anteceded by Seetha, not by the higher attitude holder Maya. In other words, perspective-shift involving perspectival anaphora on its own would be flexible in this case, as shown by (42), allowing shift to the perspective holder associated with *either* of the higher attitude predicates. But when we get indexical-shift, this forces perspective-shift to follow suit. That is, the context-shift diagnosed by monstrous agreement entails a matching perspective-shift, restricting the possible antecedence of the perspectival anaphor considerably more than would have been found in the absence of context-shift.

4.3 Perspective-shift doesn't entail context shift

While both perspectival anaphora (for the most part) and indexical shift involve obviation from the utterance-context, only in the former does this result in *person obviation* effects: i.e. in person morphosyntax that stands in opposition to 1st and 2nd-person.

4.3.1 Person obviation effects with perspectival anaphora

Person obviation effects on perspectival anaphors are reflected in: (i) their person morphology and person restrictions placed on their antecedence; (ii) person agreement and person hierarchy effects involving such anaphors.

In most languages, the dedicated anaphoric form (perspectival and otherwise), e.g. German *sich*, Romance *se*, Japanese *zibun*, and Dravidian *taan*, is only compatible with 3rd-person antecedence. The forms used for 1st- and 2nd-person anaphors in these languages (e.g. German *mich* and *dich*) look the same as those of their pronominal counterparts. While some languages have special anaphoric forms (e.g. Chinese *ziji*) that are compatible with 1st and 2nd-person, these crucially also allow 3rd-person antecedents. Others like Lezgian (Haspelmath, 1993) and English (e.g. *myself, yourself, herself/himself/itself*) have dedicated anaphoric forms for 1st, 2nd, and 3rd-person antecedence. But *no* language seems to allow the following pattern (a typological gap noted as early as Comrie, 1999): the anaphor shows *special* morphology only for 1st and 2nd-person antecedence, not 3rd. This is further reflected in the morphology of fake (or bound-variable) indexicals (cf. (37)): as far as I know, indexicals do not have a dedicated morphology for their bound variable use in any language.

Anaphors (perspectival or otherwise) are thus sensitive to the person dichotomy between 1st/2nd vs. 3rd. *No* anaphor is born with person features which could result in dedicated person morphology for 1st- and 2nd-person alone, but not 3rd. Formally, this could be taken to mean that anaphors either underlyingly lack person features altogether, or are explicitly specified 3rd-person (as I argue in Sundaresan, 2020). A relevant case to consider in this

context is that of "indexiphors" — perspectival anaphors that are argued to have 1st- and 2nd-person features (see sidebar) which, in certain cases, could present a counter-example.

Bound vs. free: indexiphors vs. shifted indexicals

Deal (2017, 2018, building on Anand, 2006) proposes the existence of an "indexiphor", a putative element that straddles the divide between shifted indexical and perspectival anaphor. Like a perspectival anaphor, an indexiphor must be *bound*. But, like a shifted 'I' or 'you', it is marked 1st or 2nd-person. The semantic contrast between an indexiphor and indexical is that in (44a) vs. (44b):

(44) a. $[\![log_n]\!]^{c,g} = g(n)$ b. $[\![1sg]\!]^{c,g} = Author(c)$

Since indexiphors cannot be distinguished from shifted indexicals on the surface, Deal proposes that they can be recognized via two subtle *interpretive* tests. (i) The De Re Blocking Effect (Percus and Sauerland, 2003). This is a locality restriction on the binding of *de se* pro-forms: it states that an intervening *de re* pronoun disrupts binding of a *de se* pronoun. [a] Thus, in (45) (Pearson and Dery, 2013, Ex. 4, 323), only three of four logical possibilities are attested:

(45) Pooh dreamed that he was Piglet and he was stealing his honey.
- ✓ Reading A: Piglet steals Piglet's honey. (*de se* + *de se*)
- ✗ Reading B: Pooh steals Piglet's honey. (*de re* + *de se*)
- ✓ Reading C: Piglet steals Pooh's honey. (*de se* + *de re*)
- ✓ Reading D: Pooh steals Pooh's honey. (*de re* + *de se*)

Since the De Re Blocking Effect only applies to *bound* forms, it should only affect indexiphors. ; (ii) Shift Together. Shift Together, in contrast is expected only to apply to shifted indexicals, not indexiphors.

[a] A *de se* attitude is a first-person attitude about oneself. I.e. the attitude-holder is *aware* that the self-attitude is about herself. E.g. *Jill$_i$ said that she$_i$ is sick* ≈ *Jill said, "I am sick."*

A *de re* attitude is a 3rd-person attitude about oneself. I.e. the attitude-holder is *unaware* that the self-attitude is about herself. Such a reading typically arises in *mistaken identity* scenarios. E.g. *Jill$_i$ said that she$_i$ is sick* ≈ *Jill$_i$ said, "She$_i$ is sick."*

Verbal agreement triggered in the scope of anaphors supports this conclusion. In many languages, anaphors cannot trigger (person) agreement at all, a property termed the Anaphor Agreement Effect and first noted in Rizzi (1990). This has been attributed to the idea that such anaphors themselves lack a person feature (Kratzer, 2009; Sundaresan, 2016; Murugesan, 2019). In other languages, e.g. in Bantu languages like Swahili (Woolford, 1999), Chichewa (Baker, 2008), and Ndebele (Bowern and Lotridge, 2002), and in Warlpiri (Legate, 2002) — the anaphor triggers "anaphoric agreement" on the verb, special agreement marking

that obtains only under an anaphor. Often, such anaphors are crucially also incompatible with 1st- and 2nd-person antecedents. I have thus recently argued that such anaphors stand in featural opposition to 1st- and 2nd-person indexicals (Sundaresan, 2020). In a similar vein, Raynaud (2019) argues in detail that such anaphors form a natural class with 1st- and 2nd-person indexicals (rather than with 3rd-person pronouns) but are ultimately distinguished from them. This point is underscored in *person hierarchy effects*: i.e. clitic clusters in many languages which involve speech act participants (1st and 2nd-person clitics) cannot co-occur with 3rd-person perspectival pronouns (Pancheva and Zubizarreta, 2018; Charnavel and Mateu, 2015).

4.3.2 Indexical-shift doesn't yield person obviation effects

In striking contrast to this, indexical-shift for 'I' and 'you' does not yield person obviation effects. Shifted 'I' and 'you' are superficially indistinguishable from their unshifted counterparts and can also trigger 1st- and 2nd-person agreement morphology. Shifted person indexicals thus have 1st- and 2nd-person morphosyntax despite also being obviated from the utterance-context. At the very least, this indicates that perspective-shift is intrinsically different from indexical-shift.

More concretely, it indicates that person features are computed relative to a *context*, not a perspective, of evaluation. This distinction is directly hardwired into the definitions of 1st- and 2nd-person, as shown below (adapted from Halle, 1997; Nevins, 2007):

(46) [+AUTHOR] = the reference set contains the speaker of the evaluation context

(47) [+ADDRESSEE] = the reference set contains the hearer(s) of the evaluation context

When we indexically shift 1st- or 2nd-person pronouns in a given language, what we actually shift is the context of evaluation for their person features. The default context of evaluation is the utterance-context. But in cases of indexical-shift for 'I' and 'you', this context is shifted to the intensional one associated with an attitude verb like 'say' or 'think'.

The 1st and 2nd-person features of these indexicals are thus computed against the shifted context and end up denoting the *Author* and *Addressee(s)* of this context. In contrast, the person features on a perspectival anaphor must continue to be evaluated against the *utterance*-context. Since such an anaphor typically cannot reflect the perspective of the utterance *Speaker* or *Addressee*, this results in person morphology that is incompatible with them. The larger import of this is that perspective-shift is possible without (accompanying) context-shift.

Perspectival anaphora vs. indexical-shift:

(i) Perspectival anaphora and indexical-shift share deep parallels: both involve obviation of a pro-form from the utterance-context towards an attitudinal event; both are regulated by the same implicational hierarchy of intensional environments.

(ii) But while the availability of indexical-shift entails that of perspectival anaphora, the reverse is not necessarily the case.

a. Indexical-shift is licit in a proper subset of the environments that license perspectival anaphora (and perspective-shift, more broadly); in certain cases, shows greater locality effects.

b. Perspectivally shifted anaphora involves perspective-shift but not context-shift: unlike shifted indexicals, it thus shows person obviation effects.

5 A unified model of attitude shift & the road ahead

Assuming these findings are on the right track, it should be plausible to develop an overarching model of *attitude shift* (**Fig. 35**) which derives the one-way implicational relationship between indexical-shift and perspectival anaphora (and potentially other PSIs) in terms of *independent* principles of grammar.

It has been proposed (Deal, 2017; Sundaresan, 2018a) that the monstrous contextual operator for indexical-shift sits at the periphery of the clause, and realizes a type of special complementizer (like 'that'). As discussed earlier, it has been analogously argued (Charnavel, 2019; Sundaresan, 2018b) that perspectival anaphora is due to a perspectival operator which also realizes a special complementizer at the edge of the clause. An attractive way to derive the asymmetric implication between indexical-shift and perspectival anaphora might thus be in terms of asymmetric structural entailment based on containment, as in (48):

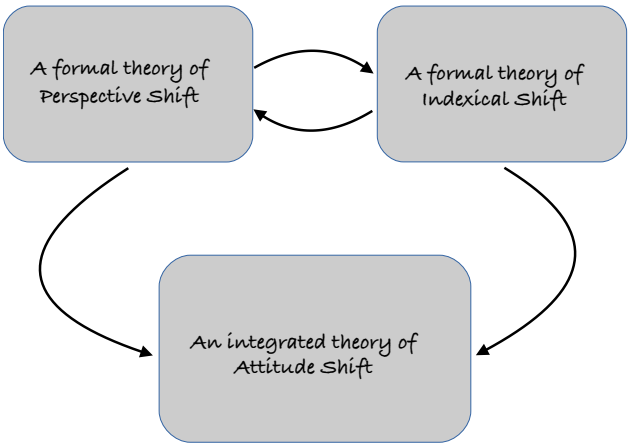
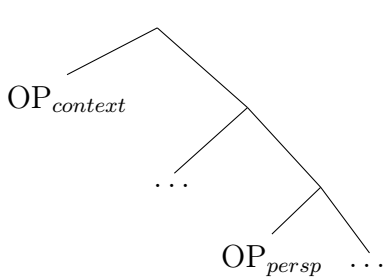


Figure 4: Model of attitude shift

(48)



The crucial assumption here would be that heads that are higher in the structure (e.g. the head that hosts the contextual operator) depend on those lower down (e.g. the head that hosts the perspectival operator), but not vice-versa. The one-way implicational dependency between the two is thus reconfigured in terms of a structural dependency stemming from independent assumptions about clausal syntax. Of course, one could also imagine hardwiring the subset-superset relation between indexical-shift and perspectival anaphora semantically, e.g. by encoding the dependency on perspective-shift as a presuppositional restriction into the definition of context-shift. Ultimately, the question of how this is derived is an empirical one: for instance, if it is captured syntactically, along the lines described here, we expect to see syntactic reflexes of this elsewhere.

At the same time, the tree in (48) has been simplified for the purposes of exposition. As noted earlier, there are implicational relationships that hold *within* classes of shifty indexical and perspectival anaphor. This suggests that a contextual and perspectival operator are each themselves further articulated into distinct classes of operator which also stand in an implicational relation to one another.

5.1 Extending the model to other classes of shifty element

An important research goal of such a project would also be to test whether and how other types of perspective-shift fit into this implicational model. We have already seen preliminary evidence that evidential PSIs (epistemic modals, evidentials, vague predicates like 'tall', predicates of personal taste like 'funny') shift more than pronominal ones (spatial adverbs, socio-cultural expressions like 'foreigner', perspectival anaphora) in a given environment (cf. Table 1). Bylinina et al. (2014) propose that this shows that evidential PSIs, unlike pronominal PSIs, are sensitive not only to perspective, but also to evidence. This lends itself quite nicely to an implicational system, where the nature of evidential PSIs *monotonically subsumes* that of pronominal PSIs. More indirect indications of implicational hierarchies come from *cumulative effects* for perspective-shift. For instance, experimental evidence shows that perspective-shift for appositives and expressives is more frequent in constructions that contain other PSIs like predicates of personal taste (Harris and Potts, 2009b). Psycholinguistic

evidence further shows that people's willingness to assume the perspective of a protagonist in Free Indirect Discourse significantly correlates with how good they are at spatial perspective-taking (Cohen and Kaiser, 2012).

If correct, this yields the strong hypothesis that a *single* implicational continuum of attitude shift should subsume traditional PSIs, shifted indexicals and any intermediate elements, as provisionally described in (49):

(49) Unshifting indexicals > Shifting indexicals (1ST > 2ND > HERE) > Indexiphors(?) > Expressives > Hearsay-Evidentials > Indirect evidentials, potentially certain PPTs & perspectival-anaphors (SOURCE > SELF > PIVOT)> Relative spatial adverbs > ... > Non-perspectival pro-forms

For a given language/dialect and grammatical environment, if an element in this hierarchy can shift, then all elements to its right can also shift. Of course, the *actual* inventory and ordering of shifty elements on this continuum must be established via careful investigation involving experimental methods and fieldwork on primary linguistic data across many languages.

As we have already seen in Section 2.1, a single class of PSI may also show distinct shifting potential across different grammatical environments (Bylinina et al., 2014). It is unclear at this stage in our knowledge whether all classes of shifty element are sensitive to the same kind of variation across grammatical environments. Definitely, indexical-shift and perspectival anaphora both seem to be conditioned by the same implicational hierarchy of intensional environments, as in (38). Assuming that this is also true for other classes of shifty element, the strong hypothesis is that there is a single implicational continuum of shifty environments that licenses bonafide perspective-shift, indexical-shift and any intermediate type of shift, as in the provisional template in (50):

(50) Speech > Thought > Indirect Knowledge > Direct Knowledge > ...

For a given shifty element, in a given language/dialect, if it can shift in a particular grammatical environment, it should also shift in all enviroments to the left in the hierarchy. But as with (49), working out the actual details of (50) requires careful empirical work on a range of different languages.

Such a *two-dimensional* model is based on the strong hypotheses that classes of shifty element are implicationally ordered relative to their shifty behavior, and also that classes of shifty environment are implicationally ordered with respect to their ability to shift elements in their scope. But it is necessrily speculative at this stage, given the state of our knowledge. One or both of these assumptions might be false. The utility of this idea is that it makes strong predictions that define a research program that should yield fruitful results whether

the predictions hold up or are disconfirmed.

Key questions for future research:

1. Should the one-way implicational relation between indexical shift and perspectival anaphora be modelled syntactically or semantically?
2. Can we model all classes of shifty element along a single continuum?
3. Can we model all shifty intensional environments along a single continuum?
4. What should a unified model of attitude shift look like?

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