

THE LANDSCAPE OF PERSPECTIVE SHIFTING

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7-9 November, 2014

PRONOUNS IN EMBEDDED CONTEXTS AT THE SYNTAX-SEMANTICS INTERFACE, TÜBINGEN

1 Introduction

To evaluate the truth or falsity of statements like (1), one needs information about the ‘perspective’ or ‘point of view’ under which they are made:

- (1) a. *War and Peace* is an **interesting** book.
b. John is standing to the **left** of the tree.

(1-a-b) are only true or false with respect to the opinions and/or spatiotemporal location of a **Perspective Center** (PC).¹ Roughly, the above sentences mean (2).

- (2) a. *War and Peace* is an interesting book for the PC.
b. John is standing to the left of the tree looking from the PC’s location.

Perspective sensitivity is a property of particular words, which we call **Perspective Sensitive Items (PSIs)** like *interesting* or *left*. This kind of information does not affect the truths of sentences like (3), which don’t contain PSIs.

- (3) a. *War and Peace* is the seventh longest novel ever written.
b. John is standing to the north of the tree.
- (4) a. Lisa is 31 years old.
b. Eric ate sushi on March 6, 2014.
c. Yasu’s flat is on Whitechapel Road.

We observe that PSIs show the following common ‘shifting behavior’ (**Perspective Shifting**):

- Speaker-orientation in simple sentences (with complications; see below)
- **The PC shifts in various embedded contexts** (attitude contexts, questions, conditionals etc.)
- PSIs in the same ‘domain’ **shift-together**.

¹What we call a PC is often called differently by different researchers and also for different linguistic expressions. The terms include ‘point of view’, ‘judge’, ‘pivot’, etc. We will claim that they are one and the same thing.

According to this characterization, the following expressions are PSIs:²

1. Relative locative expressions (Mitchell 1986; Partee 1989; Oshima 2006)
e.g. **to the left** means ‘to the left of the PC’

to/on the left, to/on the right, leftward, rightward, forward, backward, in front, in back, behind, across, nearby, close by, distant, remote, local, regional, clockwise, up, down, upstream, downstream, uphill, downhill, upwind, downwind, around the corner, within reach, outbound, inbound, come, go, approach
2. Relative socio-cultural expressions (Mitchell 1986; Partee 1989; Oshima 2006)
e.g. **foreigner** is ‘somebody from a different country from the PC’

foreigner, foreign, at home, visiting (scholar), out of town, immigrant, alien, fellow citizen/student/passenger, compatriot, home ground, away/road game, home game, heathen
3. Perspective-sensitive anaphora (Abe 1997; Kuno 1972, 1973, 1987; Kuno & Kaburaki 1977; Nishigauchi 2014; Sells 1987; Sundaresan 2012):
 - Japanese *zibun* refers to the PC.
4. Subjective predicates (Lasersohn 2005, 2009; Stephenson 2007; McCready 2007; Pearson 2013; Bylinina 2014):
 - Vague predicates (gradable adjectives in the positive form):
e.g. **tall** means ‘tall according to the PC’s judgments’
tall, long, short, wide, narrow, old, young, clean, dirty
 - Predicates of Personal Tastes (PPTs):
e.g. **interesting** means ‘interesting to the PC’
interesting, boring, fun, tasty, beautiful, hurt
5. Epistemic modals (DeRose 1991; Dietz 2008; Stephenson 2007; Moltmann 2010; MacFarlane 2011; Rett 2012; Anand & Hacquard 2013):
e.g. **might** *p* means ‘It’s compatible with what the PC knows that *p*’.

might, may, possibly, likely
6. Evidentials (Garrett 2001; Speas & Tenny 2003; Sauerland & Schenner 2007; McCready 2007; Murray 2012; Koring 2013; Korotkova 2014):
e.g. **HEARSAY-EVID** *p* means ‘the PC has second-hand evidence that *p*’.³
 - (5) *Japanese evidentials*
 - a. *rashii* (inferential)
 - b. *soo-da* (hearsay)
 - c. *ppoi* (inference based on direct perception)
 - d. *STEM-soo-da* (inference based on direct perception)

²The following items might look like PSIs at first sight but they show different shifting behavior and will be excluded from the discussion: (i) indexicals, (ii) relative temporal expressions, (iii) kinship terms and certain socio-cultural terms, etc. See Appendix A for discussion.

- | |
|--|
| e. <i>mitai-da</i> (inferential)
f. <i>yoo-da</i> (inferential) |
|--|

Goals:

- Look closely at contexts that trigger Perspectival Shifting, where the PC gets systematically shifted to a different individual than the default.
- Identify two classes of PSIs that show similar but different shifting behaviour:
 - Pronominals PSIs: 1–3
 - Evidential PSIs: 4–6

In certain contexts, evidential PSIs (seemingly) obligatorily shift, while pronominal PSIs only optionally shift.

- Argue that these differences are compatible with a unified account of perspective-sensitivity.
- Propose that the split within the class of PSIs is due to evidence-sensitivity of evidential PSIs (so evidential PSIs are sensitive to both the perspective and the evidence).

2 Perspective shifting

In simple declarative sentences, PC is typically taken to be the speaker:

(6) *Pronominal PSIs*

- | | | |
|----|--|-------------------|
| a. | John was standing on the left . | Relative locative |
| | (≈ John was standing on the left from my point of view.) | |
| b. | John is a foreigner . | Socio-cultural |
| | (≈ John is from a different country from me .) | |
| c. | zibun -wa hoorensuu-ga kirai desu. ⁴
ZIBUN-TOP spinach-NOM hate COP.FORMAL.
'I don't like spinach.' | Anaphora |

(NB: the PC for *on the left* is not necessarily identical to the often implicit 'of'-phrase of *left*. *John was standing on the left of the desk* is still perspective-sensitive, as its truth depends on where the speaker is relative to John and the desk)

(7) *Evidential PSIs*

- | | | |
|----|---|-----------------|
| a. | The film is interesting . | PPT |
| | (≈ The film is interesting to me .) | |
| b. | John might have left. | Epistemic modal |
| | (≈ It's compatible with what I know that John left.) | |
| c. | John is tall . | Vague predicate |
| | (≈ In my judgment, John counts as a tall person.) | |

³Most Japanese evidentials are embeddable, while evidentials in other languages, e.g. Abkhaz Cheyenne, Cuzco Quechua, might not be; cf. Faller 2002; Murray 2012). See also (Koring 2013) for non-embeddability of Dutch evidential verbs. We don't have a lot to say about non-embeddable evidentials.

- d. Taro-wa Tokyo-ni kaetta soo-da.
 Taro-TOP Tokyo-to went.back HEAR.SAY.EVID
 ‘Taro went back to Tokyo, I hear.’
 (≈ According to what **I** heard, Taro went back to Tokyo.)

Evidential

Complications:

1. In typical conversational contexts, the default PC is generally the speaker, but:

- In narrative contexts, the PC can be the main protagonist.

(8) Mary went to the movies on Friday with her boyfriend. The movie was interesting, but she was bored the whole evening.
 (The movie was interesting for **her**)

- This main protagonist can easily be the second person in certain contexts.

(9) [on the phone] Can you go to my office? Are you there? Do you see the desk? OK, then there is a cabinet on the left. There is an envelope in it.
 (There is a cabinet on the left of the desk looking from where **you** are)

We don't have a lot to say about these kinds of shifting.

2. At least for some PSIs, the ‘default’ PC can be generic/objective.

- Objective readings of epistemics (Lyons 1977)
- Generic readings of PPTs (cf. Anand 2009; Moltmann 2010; Pearson 2013)
- Generic uses of *zibun*

These readings are concerning in assessing judgments, but we'll ignore them for the purposes of this talk.

But importantly, the choice of PC is more restricted than pronominal anaphora. For example, a pronoun can easily refer back to a committative phrase, (10), but the PC does not easily shift, so the PSIs in (11) are most naturally interpretative relative to the speaker, rather than to Wei.

(10) I went to a restaurant in Amsterdam with Wei yesterday. He was a little tired.

(11) I went to a restaurant in Amsterdam with Wei yesterday.

- The man sitting on the left was eating natto.
 (≈ The man sitting on the left from **my** / ***Wei's** perspective was eating natto)
- The waiter was a foreigner.
 (≈ The waiter was from a different country from **me** / ***Wei**)
- The food there was expensive.
 (≈ The food there was expensive according to **my** / ***Wei's** judgments)
- The duck was delicious.
 (≈ The duck was delicious to **me** / ***Wei**)
- It must have been around 9 pm.
 (≈ It is compatible with what **I know** / ***Wei knows** that it was around 9 pm)
- sono mise-wa ima totemo ninki rashii.
 this restaurant-TOP now very popular EVID.HEAR-SAY
 ‘This restaurant is very popular now, **I hear** / ***Wei hears**.’

⁴In certain dialects of Japanese, including Kanto/Tokyo dialect (which largely coincides with the ‘standard’ dialect), the first person use of *zibun* is associated with a particular type of formal register.

We will see another restriction on perspective-sensitivity, i.e. ‘Shift Together’, in §3.

Perspective Shifting: When a PSI is embedded in certain syntactic contexts, the PC can refer to a non-default individual. We will look at the following embedding contexts.

- §2.1: Modifiers on object and other VP-internal positions
- §2.2: Antecedent of conditionals
- §2.3: Questions
- §2.4: Attitude contexts

We will see that pronominal PSIs exhibit optional shifting behavior in all these contexts, while evidential PSIs seem to obligatorily shift in the latter two contexts.

2.1 Modifiers on object and other VP-internal positions

A PSI contained in a modifier on the object can be relative to the subject.

- (12) *Pronominal PSIs* Optional shifting; PC = John or speaker
- a. John introduced a man on his left to my friend.
(≈ John introduced a man who was on his left from **John’s / my** perspective to my friend.)
 - b. John introduced a foreigner to my friend.
(≈ John introduced someone from a different country than **him / me** to my friend.)
 - c. John-wa [zibun-o shitteiru] otoko-o shootaishimashita.
John-TOP [ZIBUN-ZCC know] man-ACC invited.POLITE
‘John invited a man who knew **him / me**.’
- (13) *Evidential PSIs* Optional shifting; PC = John or speaker
- a. John read an interesting book.
(≈ John read a book that’s interesting for **him / me**.)
 - b. John talked to a man who might be his mother’s old friend.
(≈ John talked to a man who **he / I** thought could be his mother’s old friend.)
 - c. John introduced a tall man to my friend.
(≈ John introduced somebody who is tall according to **his / my** judgments to my friend.)
 - d. John-wa [roshiago-o hanashi-soo-na] otoko-o shootaishita.
John-TOP [Russian-ACC speak-EVID.INF-COP] man-ACC invited
‘John invited a man who **he / I** thought might speak Russian.’

The subject can be quantificational, in which case the PC can be bound by it (Lasersohn 2009)

- (14) *Pronominal PSIs* Optional shifting; PC = John or speaker
- a. Nobody introduced a man on the left to my friend.
(≈ Nobody introduced a man who was on the left from **their / my** perspective to my friend.)
 - b. Nobody introduced a foreigner to my friend.
(≈ Nobody introduced someone from a different country than **them / me** to my friend.)
 - c. daremo [zibun-o shitteiru] otoko-o shootaishimasendeshita.
anybody [ZIBUN-ACC know] man-ACC invited.POLITE.NEG
‘Nobody invited a man who knew **them / me**.’
- (15) *Evidential PSIs* Optional shifting; PC = John or speaker

- a. Nobody introduced a tall man to my friend.
(≈ Nobody introduced somebody who is tall according to **their / my** judgments to my friend.)
- b. Nobody read an interesting book.
(≈ Nobody read a book that's interesting for **them / me**.)
- c. Nobody talked to a man who might be his mother's old friend.
(≈ Nobody talked to a man who **they / I** thought could be his mother's old friend.)
- d. daremo [roshiago-o hanashi-soo-na] otoko-o shootaishinakatta.
anybody [Russian-ACC speak-EVID.INF-COP] man-ACC invited.NEG
'Nobody invited a man who **they / I** thought might speak Russian.'

Notice that perspective shifting is **optional** in these examples. The PC in these examples can be the speaker or John.

By contrast, PSIs in subject-internal positions cannot take the object as the PC.

- (16) *Pronominal PSIs* No shifting; PC = speaker
- a. A man on the left introduced John to my friend.
(A man standing on the left from ***John's / my** perspective introduced John to my friend.)
 - b. A foreigner introduced John to my friend.
(A person from a different country from ***John / me** introduced John to my friend.)
 - c. [zibun-o shitteiru] otoko-ga John-o shootaishita.
[ZIBUN-zcc know] man-NOM John-ACC invited
'A man who knew ***John / me** invited John.'

- (17) *Evidential PSIs* No shifting; PC = speaker
- a. A tall man introduced John to my friend.
(A man who is tall according to ***John's / my** judgments introduced John to my friend.)
 - b. A funny man introduced John to my friend.
(A man who ***John / my** finds funny introduced him John to my friend.)
 - c. A man who might be a murderer introduced John to my friend.
(A man who ***John / I** thought could be a murderer introduced John to my friend.)
 - d. [roshiago-o hanashi-soo-na] otoko-ga John-o shootaishita.
[Russian-ACC speak-EVID.INF-COP] man-NOM John-ACC invited
'A man who ***John / I** thought might speak Russian invited John.'

More generally, a PSI in a VP can be relative to the subject. In all of the following examples, the PC can be John or the speaker.

- (18) *Pronominal PSIs* Optional shifting; PC = John or speaker
- a. John turned left here.
 - b. John took this picture in some foreign country.
 - c. John-wa [zibun-ga katta] jitensha-de dekake mashita.
John-TOP [ZIBUN-NOM bought] bike-by went.out POLITE
'John went out on the bike that **he / I** bought.'

- (19) *Evidential PSIs* Optional shifting; PC = John or speaker
- a. John sat next to an attractive linguist.
 - b. John sat next to an tall linguist.
 - c. John sat next to a linguist who might have reviewed his paper.

- d. John-wa [Mary-ga katta rashii] jitensha-de dekaketa.
 John-TOP [Mary-NOM bought EVID.INF] bike-by went.out
 ‘John went out on the bike that Mary seemed to **him / me** to have bought.’

Furthermore, the PC can be a linearly preceding internal argument. If the PSI precedes the internal argument, the shift of the PC to that argument is much harder to get, although probably not impossible.

- (20) *Pronominal PSIs* Optional shifting; PC = Mary, John or speaker
- a. John introduced Mary to the man on the left.
- b. John introduced Mary to a foreigner.
- c. John-wa Mary-ni zibun-no hon-o agemashita.
 John-TOP Mary-to ZIBUN-GEN book-ACC gave.POLITE
 ‘John gave Mary **John’s/Bill’s/my** book.’
- (21) *Evidential PSIs* Optional shifting; PC = Bill, John or speaker
- a. John introduced Mary to an attractive linguist.
- b. John introduced Mary to a tall linguist.
- c. John introduced Mary to someone who might be a murderer.
- d. John-wa Mary-ni [roshiago-o hanas-e-soo-na] otoko-o shookaishita.
 John-TOP Mary-to [Russian-ACC speak-can-EVID.DIR.INF-COP man-ACC introduced
 ‘John introduced to Mary a man who looked like a Russian speaker.’

But if the PSI is the main predicate itself or part of it, perspective shifting is not observed. This is hard to observe with pronominal PSIs for semantic reasons, but the following examples containing evidential PSIs illustrate this clearly:

- (22) *Evidential PSI* no shifting; PC = speaker
- a. John is handsome.
 (≠ John finds himself handsome)
- b. John is tall.
 (≠ John finds himself tall)
- c. John might be sick.
 (≠ It is compatible with what John knows, he might be sick.)
- d. John-wa byooki rashii.
 John-TOP sick EVID.HEAR.SAY
 ‘John is sick, I hear / *he hears.’

2.2 Conditional Antecedents

Similarly, optional perspective shifting takes place in conditional antecedents.

- (23) *Pronominal PSIs* Optional shifting; PC = John or speaker
- a. If a man on the left moves, John will be startled.
- b. If a foreigner comes in, John will be startled.
- c. zibun-no hahaoya-ga kuru nara, John-wa kimasen.
 ZIBUN-GEN mother-NOM come if, John-TOP come.NEG.POLITE
 ‘If **his / my** mother comes, John will not come.’

- (24) *Evidential PSIs* Optional shifting; PC = John or speaker

- a. If a handsome man comes in, John will be startled.
- b. If a tall man comes in, John will be startled.
- c. If it might rain, John will take an umbrella.
- d. ame-ga furu ppoi nara, John-wa kasa-o motteiku.
rain-NOM fall EVID.DIR.INF if, John-TOP umbrella-ACC take
'If it looks like it will rain, John will take an umbrella.'

In this case, the PC can shift to John, which is the subject of the consequent.

Basically the same is observed for other adjuncts like temporal clauses (data omitted here).

2.3 Questions

In questions, the PC can shift to the hearer.⁵

- (25) *Pronominal PSIs* Optional shifting; PC = hearer or speaker
- a. Was John standing on the left?
(≈ Was John standing on the left from **your / my** point of view?)
 - b. Is John a foreigner?
(≈ Is John from a different country from **you / me**?)
 - c. zibun-ga yarimasu ka?
ZIBUN-NOM do.FORMAL Q
'Should **I** do it?' ⁶
 - d. zibun-ga yaru no?
ZIBUN-NOM do Q
'Are **you** going to do it?'
- (26) *Evidential PSIs* Obligatory shifting; PC = hearer
- a. Is the movie interesting?
(≈ Is the movie interesting to **you / ??me**?)
 - b. Is John tall?
(≈ In **your / ??my** judgment, does John count as a tall person?)
 - c. Might John have left?
(≈ Is it compatible with what **you / ?*I** know that John left?)
 - d. ?Taro-wa Tokyoo-ni kaetta soo-na no?
Taro-TOP Tokyo-to went.back HEAR.SAY.EVID Q
'Do **you / ?* I** have hearsay evidence that would lead you to conclude that Taro went back to Tokyo?'

As indicated above, pronominal PSIs optionally shift, while evidential PSIs strongly prefer shifted readings. We will claim later on that the latter's preference for shifted readings is essentially pragmatic and in certain (unnatural) contexts, the speaker-oriented reading is licensed.

⁵In the literature on evidentials, this is often called 'interrogative flip'.

⁶In Tokyo dialect, the second person use of *zibun* is limited in distribution and register. Also the second person use is not appropriate in a polite register, which explains why (25-c) only has a speaker-oriented reading. Similarly, since the first person use of *zibun* is associated with a formal register, the casual example in (25-d) only has a second-person oriented reading.

⁷A question containing an evidential marker has an 'echoic flavor' of some kind. (26-f) for instance suggests that the questioner has some grounds for believing that the hearer has some hear-say evidence that Taro went back to Tokyo. We will not give an account of this aspect of the meaning, and focus on PC-shifting.

2.4 Attitude contexts

As in the case of questions, pronominal PSIs optionally shift and evidential PSIs seem to obligatorily shift.

- (27) *Pronominal PSIs* Optional shifting; PC = Mary or speaker
- a. Mary thinks that John is standing on the left.
 - b. Mary thinks that John is a foreigner.
 - c. Mary-wa John-ga zibun-o aisiteiru to omotteimasu.
Mary-Top John-Nom ZIBUN-Acc love C think.POLITE
'Mary thinks that John loves **her / me**.'
- (28) *Evidential PSIs* Obligatory shifting; PC = Sam⁸
(Stephenson 2007, 24)
- a. Sam thinks that the dip is tasty.
 - b. Sam thinks that Mary is tall.
 - c. Sam said that it might be raining. (Stephenson 2007, 22)
 - d. Sam-wa ame-ga fut-tei-soo-da to itta.
Sam-Top rain-Nom fall-prog-Evid-Cop C said
'Sam said it was likely to be raining.'

The attitude does not have to be expressed by a verb for perspective shifting to be licensed (unlike for indexical shifting).

- (29)
- a. **From John's perspective**, Mary is a foreigner.
 - b. **In John's view**, this is long.
 - c. **As far as John is concerned**, this book is interesting.

Embedded interrogatives: with *wonder*-type predicates, the PC stays the attitude holder, but with *ask*-type predicates, the PC gets shifted to the reported hearer ('embedded interrogative flip'). Pronominal PSIs optionally shift in all contexts, and with *ask*-type predicates, the PC can be either the reported questioner or hearer.

- (30) *Pronominal PSIs* Optional shifting; PC = John or speaker
- a. John wonders who is on the left.
 - b. John wonders who is a foreigner.
 - c. John-wa zibun-ga byooki-ka siritagatteimasu.
John-TOP ZIBUN-NOM sick-Q wonder.POLITE
'John wonders if he is sick.'
- (31) *Evidential PSIs* Obligatory shifting; PC = John
- a. John wonders if the movie is interesting.
 - b. ?John wonders if Mary must have left.
 - c. ?John-wa Mary-ga kaetta ppoi ka shiritagatteiru.
John-TOP Mary-NOM left EVID.DIR.INF Q wonder
'?John wonders if Mary seems to have left.'
- (32) *Pronominal PSIs* Optional shifting; PC = John, Bill or speaker

⁸Epistemic modals and evidentials sometimes may trigger 'harmonic readings' (aka evidential concord) with attitude predicates, where the meaning of the evidential seems to be absent. This only happens with certain semantically determined combinations, e.g. *say* and a hear-say evidential. We will avoid this here by selecting semantically unrelated combinations.

- a. John asked Bill if Mary was on the left.
- b. John asked Bill if Mary was a foreigner.
- c. John-wa Bill-ni zibun-ga byooki-ka kikimashita.
John-TOP Bill-to ZIBUN-NOM sick-Q ask.POLITE
'John asked Bill if he is/I am sick.'

(33) *Evidential PSIs*

Obligatory shifting; PC = Bill

- a. John asked Bill if the movie was interesting.
- b. John asked Bill if Mary must have eaten.
- c. John-wa Bill-ni Mary-ga kaetta ppoi ka kiita.
John-TOP Bill-to Mary-NOM left EVID.DIR.INF Q asked
'John asked Bill if Mary seems to have left.'

2.5 Data Summary

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

Table 1

(◇=shift possible; □=shift obligatory)

3 'Shift-Together'

Let's look at cases with more than one PSI in an environment that allows perspective shifting. We observe that the interpretative possibilities of PSIs are restricted in these cases—PSIs cannot shift independently of each other.⁹

- (34) **Shift-Together for PSIs:** PSIs in the same 'domain' must refer to the same PC.

Not all of the environments we discussed so far are suitable for checking this hypothesis due to *de re / de dicto* ambiguities in modal contexts, which independently affect shifting, at least for PSIs contained in DPs (see Appendix B). Therefore, we will restrict our attention to shifting in VP-internal positions in non-modal sentences.

- Two pronominal PSIs:

- (35) Wei talked to a foreigner (who was sitting) on the left.
- a. Wei talked to someone from a **different country than me** who was sitting on the **left from my perspective**.
- b. Wei talked to someone from a **different country than Wei** who was sitting on the **left from Wei's perspective**.
- c. *Wei talked to someone from a **different country than me** who was sitting on the **left from Wei's perspective**.

⁹This has been known for *zibun* and related items under the rubric of 'empathy'; Kuno 1987; Kuno & Kaburaki 1977; Sells 1987; Abe 1997; Oshima 2006. Also a parallel restriction on the interpretation of indexicals is known as 'shift-together' constraint (Anand & Nevins 2004).

- d. *Wei talked to someone from a **different country than Wei** who was sitting on the **left from my perspective**.

Suppose Wei is from China but not me. Assume also that the speaker and Wei are facing each other.

Then the reading (35-c), if available, should be true if Wei talked to a Chinese person who was sitting next to him, on the side closer to his heart.

Similarly (35-d), if available, should be true if Wei talk to somebody from my country who was sitting next to him, on the side further from his heart.

- (36) Taro-wa [zibun]-no sidookyookan to [zibun]-no sinyuu]-o shootaishimashita.
Taro-TOP [ZIBUN-GEN advisor and ZIBUN-GEN best.friend]-ACC invited
- Taro invited **my** advisor and **my** best friend.
 - Taro-invited **his** advisor and **his** best friend.
 - *Taro-invited **my** advisor and **his** best friend.
 - ?*Taro-invited **his** advisor and **my** best friend.

Sentences with multiple occurrences of *zibun* provide another case that shows that interpretation of *zibun* is more restricted than that of regular pronominal anaphora (cf. §2). Consider the following minimal pair:¹⁰

- (37) John-wa Bill-ni [zibun]-no hon to [zibun]-no CD]-o miseta.
John-TOP Bill-to [ZIBUN-GEN book and ZIBUN-GEN CD]-ACC showed
- John showed Bill **John's** book and **John's** CD.
 - John showed Bill **Bill's** book and **Bill's** CD.
 - *John showed Bill **John's** book and **Bill's** CD.
 - *John showed Bill **Bill's** book and **John's** CD.
- (38) John-wa Bill-ni [kare]-no hon to [kare]-no CD]-o miseta.
John-TOP Bill-to [his book and his CD]-ACC showed
- John showed Bill **John's** book and **John's** CD.
 - John showed Bill **Bill's** book and **Bill's** CD.
 - John showed Bill **John's** book and **Bill's** CD.
 - John showed Bill **Bill's** book and **John's** CD.

(37)-(38) show that the 'mixed' readings are possible in the case of pronominal anaphora (38-c-d) but not with *zibun* which exhibits shift-together (37-c-d).

- Two evidential PSIs:

- (39) John read a book written by a [talented] son of a [boring] writer.
- John read a book written by an author who **I** find talented and who is a son of a writer who **I** find boring.
 - John read a book written by an author who **John** finds talented and who is a son of a writer who **John** finds boring.
 - *John read a book written by an author who **I** find talented and who is a son of a writer who **John** finds boring.
 - *John read a book written by an author who **John** finds talented and who is a son of a writer who **I** find boring.

¹⁰In addition to the readings we list for (37), it has a speaker-oriented reading in a register/dialect that allows speaker-oriented *zibun*. We will ignore this reading for the purposes of this contrast.

- Combining an evidential PSI and a pronominal PSI:

- (40) John read a book by a talented foreigner.
- John read a book by an author who **I** think is talented and who is from a different country than **me**.
 - John read a book by an author who **John** thinks is talented and who is from a different country than **John**.
 - *John read a book by an author who **I** think is talented and who is from a different country than **John**.
 - *John read a book by an author who **John** thinks is talented and who is from a different country than **me**.
- (41) Taro ate a delicious foreign dish, i.e. natto.
- Taro ate a dish that **I** find delicious and that is from a different country than **me**.
 - #Taro ate a dish that **Taro** finds delicious and that is from a different country than **Taro**.
 - *Taro ate a dish that **I** find delicious and that is from a different country than **Taro**.
 - *Taro ate a dish that **Taro** finds delicious and that is from a different country than **me**.

Shift-together allows us to discern domains of shifting. For instance, the direct object and the indirect object constitute different domains, because shift-together is not observed, e.g. the following examples have all four readings.

- (42) a. John introduced [_{dir.obj} a foreigner] [_{indir.obj} to a talented linguist].
- b. John-wa **zibun**-no musume-ni **zibun**-no musuko-o shookaishimashita.
John-TOP zibun-GEN daughter-to zibun-GEN SON-ACC introduced
'John introduced self's daughter to self's sone.'

In particular, VP as a whole is not a shifting domain (*pace* Sundaesan 2012), given that the PC for a PSI used as a main predicate does not shift to the subject. Further investigation of shifting domains are relegated to another occasion.

4 *De Se*

In attitude contexts, PSIs are obligatorily interpreted *de se*. In order to see this, we will put the sentence in a context that only supports a non-*de se* (purely *de re*) reading.

- (43) *Evidential PSIs*
- [*Context*: Mary is watching a video of herself as a kid, but she doesn't know that the girl on the video is herself. The girl on the video is eating natto and she doesn't like it. Mary doesn't remember this incident or that she found natto disgusting when she was small. She now likes natto. Mary says: 'This girl doesn't like natto'.]
#Mary said that natto was disgusting.
 - [*Context*: Mary is watching a video of herself as a kid, but she doesn't know that the girl on the video is herself. The girl on the video falls down and breaks her leg and cries.]
#Mary said that it hurt very much.
 - [*Context*: Sam sees himself on T.V. and, not knowing that the man on T.V. is Sam himself, comes to believe that it's compatible with what is known by the man on T.V. that it's raining.]
#Sam thinks it might be raining. (Pranav Anand, p.c. to Tamina Stephenson 2007).

In contexts where the attitude holder have *de se* beliefs, the sentences ameliorate.

For the purposes of this talk, we do not check all pronominal PSIs for obligatory *de se* readings, as non-shifted readings of pronominal PSIs in attitude contexts obscure the picture. With *zibun*, it's easy to exclude the matrix reading because it's register-sensitive, i.e. in a non-formal register, the matrix reading is precluded.

- (44) [*Context*: Amnesic John, after reading his own biography concluded: ‘This guy called John will be the next president’]
- a. ?#John-wa tsugino daitooryoo-wa zibun-da to omotteru yo.
 John-TOP next president-TOP zibun-COP C think PRT
 ‘John believes that the next president is he himself.’
- b. John-wa tsugino daitooryoo-wa kare-da to omotteru yo.
 John-TOP next president-TOP him-COP C think PRT
 ‘John believes that the next president is him.’

5 Preliminary Analysis

We pursue the following ideas:

- PSIs refer to the PC parameter, p , which is by default set to be the speaker at the semantics-pragmatics interface.
- An operator shifts p , which is also responsible for *de se* (cf. Sundaresan 2012; see Anand & Nevins 2004; Anand 2006 for indexicals, Schlenker 2014 for role shift in sign languages).
- Evidential PSIs seem to obligatorily shift in questions and attitude contexts, because, unlike pronominal PSIs, they also refer to the evidential parameter E which gets obligatorily shifted in these circumstances (and mixed readings are pragmatically odd).

5.1 Semantics of PSIs

We assume that the interpretation is relative to a PC p , which is an entity, and a body of evidence E , in addition to assignment g and world w . Both pronominal and evidential PSIs refer to p , but only evidential PSIs refer to E .

- (45) *Pronominal PSIs*
- a. $\llbracket \text{John is to the left of Mary} \rrbracket_{w,g}^{p,E} \Leftrightarrow \text{John is on the left side of Mary relative to } p \text{ in } w$
- b. $\llbracket \text{John is a foreigner} \rrbracket_{w,g}^{p,E} \Leftrightarrow \text{John is from a different country than } p \text{ in } w$.
- c. $\llbracket \text{zibun} \rrbracket_{w,g}^{p,E} = p$

For evidential PSIs, the idea is that they have an ‘epistemic semantics’, which we spell out in terms of (epistemic) modality.

- This is clear for epistemic modals.

(46) $\llbracket \text{might } \phi \rrbracket_{w,g}^{p,E} \Leftrightarrow \text{for some } w' \text{ compatible with } p \text{'s epistemic state given } E \text{ in } w, \llbracket \phi \rrbracket_{w'}^{p,E} = 1$

- Evidentials take sub-evidence of E .

$$(47) \quad \llbracket \text{HEAR-SAY } \phi \rrbracket_{w,g}^{p,E} \Leftrightarrow \text{for all } w' \text{ compatible with } p\text{'s epistemic state given the hear-say evidence among } E \text{ in } w, \llbracket \phi \rrbracket_{w'}^{p,E} = 1$$

- PPTs have already been proposed to be evidence-sensitive via the ‘direct experience’ requirement (Anand 2009; Pearson 2013; Bylinina 2014).

$$(48) \quad \llbracket \text{the cake is tasty} \rrbracket_{w,g}^{p,E} \Leftrightarrow \text{for each } w' \text{ compatible with the evidence in } E \text{ that is directly perceptible to } p \text{ in } w, \text{ the cake is tasty in } w'$$

- Vague predicates have been argued to have an epistemic content in at least one influential line of research on vagueness, e.g. Williamson (1994) and Barker (2002, 2009).

$$(49) \quad \llbracket \text{John is pos tall} \rrbracket_{w,g}^{p,E} \Leftrightarrow \text{for each } w' \text{ compatible with } p\text{'s epistemic state given } E \text{ in } w, \text{ John's height counts as tall in } w'$$

5.2 Perspective shifting via an operator

By default, p is set to be the speaker and E is the evidence available to the speaker. This is ensured by the following rule.

$$(50) \quad \text{A declarative sentence } \lambda 0 \phi \text{ asserted by an agent } a \text{ in } w \text{ is true with respect to assignment } g \text{ iff } \llbracket \lambda 0 \phi \rrbracket_{w,g}^{a,E}(a) = 1 \text{ where } E \text{ is the body of evidence available to } a \text{ in } w.$$

We assume that each clause denotes a property, and $\lambda 0$ is a designated abstractor. This is going to be crucial for *de se* attitude.

We propose that perspective shifting takes place with an operator Π (cf. Sundaresan 2012; Anand & Nevins 2004; Schlenker 2014).

$$(51) \quad \llbracket \Pi_i \text{ XP} \rrbracket_{w,g}^{p,E} = \llbracket \text{XP} \rrbracket_{w,g}^{g(i),E} \quad \text{for any index } i.$$

We stipulate that the index i needs to be bound by some binder in the same sentence (cannot be discourse bound).

When the operator is present, all PSIs in its scope are interpreted relative to $g(i)$.

- (52) a. $\llbracket \text{John } \lambda 1 \text{ invited [a foreigner]} \rrbracket_{w,g}^{p,E} \Leftrightarrow \text{John invited someone from a different country than the speaker.}$
- b. $\llbracket \text{John } \lambda 1 \text{ invited } [\Pi_1 \text{ a foreigner}] \rrbracket_{w,g}^{p,E} \Leftrightarrow \text{John invited someone from a different country than John.}$

This accounts for Shift-Together with an auxiliary assumption: at most one instance of Π appears per domain. Consequently, all PSIs in a given domain will be relative to the same PC.

Admittedly, this is stipulative. But generally, we need to constrain the distribution of Π , relative to a proper understanding of shifting domains, which we cannot offer at this moment. If Π freely applies, it not only does not explain Shift-Together, it would also allow main predicates to shift.

5.3 Attitude contexts

Recall that shifted PSIs in attitude contexts are interpreted *de se*. We adopt the centered-world account of *de se* (Lewis 1979; Chierchia 1989; Stephenson 2007; Pearson 2013). Furthermore, to explain the obligatory

shifting behavior of evidential PSIs, we also assume that they quantify over the *de se*-evidence E' .¹¹

- (53) $\llbracket \text{John thinks } \lambda 0 \phi \rrbracket_{w,g}^{p,E} \Leftrightarrow$ For each $\langle x', w', E' \rangle$ such that w' is a doxastic alternative of John in w and x' is John's counterpart in w' , and E' is the evidence that x' has access to in w' , $\llbracket \phi \rrbracket_{w',g}^{p,E'} = 1$

To illustrate, take the sentence *John thinks it might rain*. This allows for a parse with or without Π . The designated index 0 denotes the *de se* individual.

- (54) $\llbracket \text{John thinks } \lambda 0 \Pi_0 \text{ it might rain} \rrbracket_{w,g}^{p,E} \Leftrightarrow$ For each $\langle x', w', E' \rangle$ such that w' is a doxastic alternative of John in w and x' is John's counterpart in w' and E' is the evidence that x' has access to in w' , there is w'' compatible with x' 's epistemic state given E' in w' such that it rains in w'' .
- (55) $\llbracket \text{John thinks } \lambda 0 \text{ it might rain} \rrbracket_{w,g}^{p,E} \Leftrightarrow$ For each $\langle x', w', E' \rangle$ such that w' is a doxastic alternative of John in w and x' is John's counterpart in w' and E' is the evidence that x' has access to in w' , there is w'' compatible with p 's epistemic state given E' in w' such that it rains in w'' .

- If the PC that *might* refers to is the *de se* individual (i.e. $p = x'$), as in (54) the desired, shifted interpretation will obtain.
- Why do not we have a non-shifted interpretation where p is some other person, e.g. the speaker? We claim that the semantics of evidential PSIs gives rise to a pragmatically anomalous inference in such a case. More precisely, we assume that evidential PSIs presuppose that the PC that they refer to has access to the evidence E . In attitude contexts, the relevant evidence is all the evidence that the attitude holder is aware of (in each doxastic alternative), which includes evidence only accessible to the attitude holder (e.g. the taste of the cake, etc.). Thus, if p is not the *de se* individual, there is an inference that that person has access to the attitude holder's direct perception, which is typically infelicitous.¹²

Similarly for other evidential PSIs, e.g. PPTs.

- (56) $\llbracket \text{John thinks } \lambda 0 \Pi_0 \text{ it is tasty} \rrbracket_{w,g}^{p,E} \Leftrightarrow$ For each $\langle x', w', E' \rangle$ such that w' is a doxastic alternative of John in w and x' is John's counterpart in w' and E' is the evidence that x' has access to in w' , for all w'' compatible with the evidence in E' that is directly perceptible to p in w' , the cake is tasty in w'' .

Furthermore, that our semantics does not exclude the first possibility is an empirical advantage, since there are some cases where this inference is tolerated (see also Stephenson 2007; Anand 2009; Pearson 2013; Bylinina 2014 for related discussion). Consider the following context adapted from McCready (2007), where p is the speaker, while the evidence is shifted to the attitude holder's.

- (57) [Context: I am the prisoner of a mad scientist. The scientist has rewired my cortex so that I have no access to my own sensations: instead they are displayed in a readout on a computer terminal. I am eating walnuts. The scientist tells me that my brain is delighted by the taste of the walnuts.]
The scientist told me that the walnuts are tasty.

5.4 Questions

We will give a similar analysis to questions where the question operator shifts the evidence parameter to the body of evidence available to the *de se* alternative of the hearer in each world w' (cf. related facts about

¹¹The idea that evidential aspects of natural language are attributed *de se* is previously put forward by McCready (2014).

¹²We should also worry about the reading with the matrix subject as the binder. This would be a *de re* reading of the PC. We expect that with a non-*de se* accessibility relation, the sentence would be infelicitous, although this is not easy to check.

evidential shifts in questions in Quechua and Cherokee; Faller 2002 and Murray 2012 respectively). Here's a sketch for polar questions.

- (58) A polar question ‘ $? \lambda 0 \phi$ ’ posed by an agent a to a hearer h in w denotes the set of propositions
- $$\llbracket ? \lambda 0 \phi \rrbracket_{w,g}^{p,E} = \left\{ \left[\lambda x'. \lambda w'. \llbracket \phi \rrbracket_{w',g}^{p,E'} = 1 \right](h), \left[\lambda x'. \lambda w'. \llbracket \phi \rrbracket_{w',g}^{p,E'} = 0 \right](h) \right\}$$
- E' the evidence the counterpart of h in w' has access to in w' .

As in the case of attitude verbs, with Π_0 , the PC gets shifted to x' , the counterpart of the hearer, and would derive the observed reading. Without the PC shifting, p stays the speaker, and yields a mismatch between the PC and the evidence, which generally results in anomaly.

Again, however we can find a context where the mismatch is tolerated, e.g. the following context from McCready (2007).

- (59) [Context: I am the prisoner of a mad scientist. The scientist has rewired my cortex so that I have no access to my own sensations: instead they are displayed in a readout on a computer terminal. I am eating walnuts and stop. The scientist tells me I should keep on eating So I ask:]
Are walnuts tasty?

In this context, p is the speaker, so what is at issue is the speaker's perception, but E is shifted to the scientist's evidence.

A Non-PSI But Context-Sensitive Expressions

- **Indexicals** like *I*, *you*, *today*, etc. have completely different shifting behavior from PSIs (Kaplan 1977; Schlenker 1999, 2003; Anand 2006; Sudo 2012)
 - In matrix contexts, their denotations are fixed by the current context of utterance, rather than being relative to somebody's perspective.
 - They do not shift in questions.
 - They do not shift in non-attitude modal contexts.
 - They only shift in a subset of attitude contexts in a subset of languages ('indexical shifting').
- **Kinship terms** do not show perspective-sensitivity in the same way as PSIs like *foreigner*.
 - No speaker-orientation in matrix contexts.

(60)	a.	Mary is a mother.	\neq Mary is my mother.
	b.	Mary is a foreigner.	$=$ Mary is from a different country from me.
 - No hearer-orientation in matrix questions

(61)	a.	Is Mary a mother?	\neq Is Mary your mother?
	b.	Is Mary a foreigner?	$=$ Is Mary from a different country from you?
 - Similarly for other contexts.

Unlike PSIs, the missing argument can be expressed by a possessor.

- (62) a. Mary is my mother.
b. Mary is my foreigner. \neq Mary is a foreigner for me.

Certain kinship terms like *cousin* are even strange without a possessor.

- (63) a. Mary is a cousin. ??# Mary is my cousin.
 b. Is Mary a cousin? ??# Is Mary your cousin?

- Certain **socio-cultural** like *neighbor* and *friend* are *semi-PSIs* in the following sense: they behave like PSIs in terms of perspective-sensitivity.

- (64) a. Mary is a neighbor. ??# Mary is my neighbor.
 b. Is Mary a neighbor? ??# Is Mary your neighbor?

But their centers can be expressed by a possessor, and with a possessor, they cease to be perspective-sensitive.

- (65) a. Mary is my neighbor.
 b. Mary is your neighbor.

- **Relative temporal expressions** like *recent*, *imminent*, *upcoming* are affected by tense and it is not clear whether they are perspective-sensitive, although Mitchell (1986) groups them with relative locational prepositions and PPTs. In any case, they are not relative to an individual, but a time interval.
- **Expressives** are by default speaker-oriented and resist shifting in embedded contexts Potts (2005); Harris & Potts (2009)

B *De Re/De Dicto* Ambiguity

DPs typically give rise to *de re/de dicto* ambiguity in intensional contexts, including attitude contexts (Quine 1956; Kaplan 1968/69; Fodor 1970; Montague 1973; Partee 1974; Cresswell & von Stechow 1982; Percus 2000; Maier 2009; Keshet 2010, 2011; Schwarz 2012).

- (66) John said that **the author of this abstract** is British.
 a. *de dicto*: John said: “The author of this abstract is British”
 b. *de re*: John said “Matthew is British”, and we know that Matthew is the author of this abstract.

Various DPs give rise to *de re* readings. *De re* readings become prominent when the *de dicto* reading is contradictory and pragmatically implausible, as in (67).

- (67) a. John thought that all the semanticists were phonologists.
 b. John was under the impression that most of the people in this room were outside.
 c. If every man was a woman, there would be no war.

Percus (2000); Keshet (2010, 2011) observe some constraints on *de re* readings, in particular, ‘predicates’ don’t easily allow *de re* readings (but see Schwager 2011; Sudo 2014 for exceptional contexts).

- (68) #John confided to me that some girl or other that he met in the bar **impregnated Mary**.

Now, it wouldn’t be surprising that *de re* readings of PSIs were unshifted. Then it is natural to wonder if unshifting is simply due to *de re*. But it’s unlikely that all instances of unshifted readings are *de re*, since predicative PSIs easily allow unshifted readings

- (69) a. John said that Mary turned **left** there.
 b. John told me that Taro is **local**.
 c. According to John, Kate **is a foreigner**.

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