

Come vs. Go and Perspectival Shift

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1 Perspective Sensitivity

Perspectively sensitive items (Mitchell 1986, Partee 1989, Oshima 2006, Percus 2011a, Bylinina, McCready & Sudo 2014, 2015, Barlew 2016, 2017): e.g. depending on the perspective, (1) might or might not be true for the same objects.

(1) The bottle is to the **left** of the cup.

See Bylinina et al. (2014) for a list of perspective sensitive items.

Today, I will focus on two perspective sensitive items: *come* and *go*. *Come* and *go* both describe movement of **Theme** from **Source** to **Goal**. Their assertive meanings are essentially identical.¹

Assertive meanings of *come* and *go*:

(2) $\llbracket \text{Natasha came/went to London} \rrbracket^{g,c}(t)(w)$

$\Leftrightarrow \exists e [\text{MOVE}_w(e) \wedge \text{THEME}_w(e, \text{Natasha}) \wedge \text{GOAL}_w(e, \text{London}) \wedge \tau_w(e) \subseteq t]$

There's an event e of moving in world w whose Theme is Natasha, whose Goal is London, and whose run time is included in the reference time t (=the time reference by the tense) in w

But *come* and *go* are not interchangeable.

(3) Natasha is $\left\{ \begin{array}{l} \text{coming} \\ \text{??going} \end{array} \right\}$ here soon.

2 Indexical Presuppositions

Come and *go* impose different restrictions on Goal (Fillmore 1997, Oshima 2006, 2007, Percus 2011b, Barlew 2015, 2017):²

(4) Restrictions (to be revised):

If Goal is Speaker or Hearer's **Home-Location (HL)**, use *come*. Otherwise use *go*.

(5) A location ℓ is an entity x 's **Home-Location (HL)** at t in w if

a. x 's location at t in w is ℓ ; or

b. x is somehow associated with ℓ at t in w (e.g. x was born and grew up in ℓ in w , x 's close relative lives in ℓ at t in w , etc.; aka: x 's **home-base**).

(5b) is highly context-dependent, e.g. (6). I will focus on (5a).

(6) $\left\{ \begin{array}{l} \text{The police} \\ \text{??My brother} \end{array} \right\}$ came to my sister's place last week, and asked some questions about me.

¹ g is an assignment function, c is a possible context, t is a time interval, and w is a possible world, $\tau(e, w)$ is the run time of event e in w . A possible context has coordinates like s_c (the speaker of c), t_c (the time of c), w_c (the world of c), etc.

²I will put aside for now the 'tag-along' reading of *come* as in *You should come with me*. The restriction here is not about Goal, rather the 'principal actor', which often corresponds to the *with*-phrase, needs to be Speaker or Hearer to get this interpretation.

Situation: Andrew is in NJ, and is talking to Hanako in Tokyo. Natasha is in Moscow.

1. If Goal = Speaker's HL, then *come*:
 - (7) a. Natasha is **coming** to the US next week.
 - b. #Natasha is **going** to the US next week.
2. If Goal = a third place, then *go*:
 - (8) a. #Natasha is **coming** to Paris next week.
 - b. Natasha is **going** to Paris next week.

When Goal = Hearer's HL, *go* seems to be preferred but the judgments are not as sharp.

- (9) (In the same situation as above)
 Natasha is $\left\{ \begin{array}{l} ?coming \\ going \end{array} \right\}$ to Tokyo next week.

Let us deal with this by using the notion of **Speaker's associates** in c (cf. Oshima 2006, 2007; see also Barlew 2015, 2017). In any context c , **Speaker**⁺(c) is a set of individuals containing Speaker of c and whoever is associated with them in c . Hearer might or might not be in it.

These restrictions show the characteristic properties of presuppositions (Oshima 2006, 2007, Percus 2011b).³

- **Presupposition failure:** I'm talking to Klaus on Skype.

- (10) me: You should come to NJ.
 Klaus: Wait a minute! I didn't know that you were in NJ!!

- (11) Klaus: It looks like Andrew is going to Tromsø.
 me: Wait a minute! I thought you were in Tromsø!!

- **Projection tests:** All of the following presuppose that the speaker and/or hearer is in NJ.

- (12) a. I don't think Klaus is coming to NJ. (negation)
 b. Is Klaus coming to NJ? (question)
 c. If Klaus comes to NJ, we'll get wasted. (conditional)

(Attitude contexts give rise to some complications; *Go* does not behave entirely as expected. See below)

Let us state the presuppositions of *come* and *go* as follows.

- The presupposition of an expression α is denoted by $((\alpha))$.⁴
- To simplify, let's omit the presupposition **SOURCE** _{w} (e) \neq **GOAL** _{w} (e).
- t_c is the time coordinate of the context c .

Presuppositions of *come* and *go* (ver. 1)

- (13) $((\text{Natasha came to London}))^{g,c}(t)(w) \Leftrightarrow t < t_c \wedge \exists x \in \text{Speaker}^+(c)[\text{HL}_w(x, \text{London}, t_c)]$
t is before t_c and there is x ∈ Speaker⁺(c) whose HL is London at t_c in w
- (14) $((\text{Natasha went to London}))^{g,c}(t)(w) \Leftrightarrow t < t_c \wedge \neg \exists x \in \text{Speaker}^+(c)[\text{HL}_w(x, \text{London}, t_c)]$
t is before t_c and there is no x ∈ Speaker⁺(c) whose HL is London at t_c in w

³Barlew (2015, 2017) thinks they are Conventional Implicatures in the sense of Potts (2005). I don't think his arguments are persuasive.

⁴This way of representing presuppositions runs into the so-called Binding Problem with (certain) quantifiers (Karttunen & Peters 1979, Beaver 2001, Sudo 2012, 2014a), but nothing crucial hinges on this framework.

3 Reference Time

The analysis so far fails to capture one important difference between *come* and *go*: *come* can refer to the reference time, *go* is always relative to the utterance time (Fillmore 1997, Oshima 2006, 2007).

- If Goal is Speaker⁺'s HL at the reference time but not at t_c , then either *come* or *go*.

(15) **Situation:** We are talking in NJ. Natasha lives in Moscow.

I am going to a conference in Amsterdam next week.

Apparently, Natasha is also $\left\{ \begin{array}{l} \text{coming} \\ \text{going} \end{array} \right\}$ to the same conference.

The presupposition of *come* is satisfied with respect to the future reference time. The presupposition of *go* is satisfied with respect to the utterance time.

- If Goal is Speaker⁺'s HL at t_c but not at the reference time, then *come*.

(16) **Situation:** We are in a pub in London for the first time.

Apparently, Natasha $\left\{ \begin{array}{l} \text{came} \\ \text{??went} \end{array} \right\}$ to this pub with her friends last year.

Fillmore's (1997) example on the same point:

(17) a. When are you going to come home?

b. When are you going to go home?

- (17a) is appropriate if Speaker is at home now, or will be home when Hearer comes back.
- (17b) is appropriate if Speaker is not at home now, but not if Speaker is at home now and will be somewhere else when Hearer comes back.

Analysis so far:

- *Come* presupposes: Goal = HL of some $x \in \text{Speaker}^+(c)$ at the current time (t_c) or reference time (t).
- *Go* presupposes Goal = HL of no $x \in \text{Speaker}^+(c)$ at the current time (t_c).

This is essentially what Oshima (2006, 2007) proposes (see also Fillmore 1997).

Presuppositions of *come* and *go* (ver. 2)

(18) $((\text{Natasha came to London})^{g,c}(t)(w))$

$\Leftrightarrow t < t_c \wedge \exists x \in \text{Speaker}^+(c)[(\text{HL}_w(x, \text{London}, t_c) \vee \text{HL}_w(x, \text{London}, t))]$

t is before t_c and there is $x \in \text{Speaker}^+(c)$ whose HL is London at t_c or at t in w

(19) $((\text{Natasha went to London})^{g,c}(t)(w))$

$\Leftrightarrow t < t_c \wedge \neg \exists x \in \text{Speaker}^+(c)[\text{HL}_w(x, \text{London}, t_c)]$

t is before t_c and there is no $x \in \text{Speaker}^+(c)$ whose HL is London at t_c in w

I claim that this semantics needs further refinements.

§4 Unmarked semantics for *go* and anti-presupposition:

*Go has no indexical presuppositions but triggers an **anti-presupposition***

§5 Perspectival shift in attitude contexts:

*The idea in §2 cannot account for cases where both *come* and *go* are acceptable. I introduce the idea of **perspectival shift**, and claim that *come* and *go* are sometimes both acceptable because they only compete under one perspective.*

§6 Perspectival shift under tense:
Perspectival shift happens under tense.

§7 Further problems
Other perspectival shifting contexts, cross-linguistic variation, etc.

4 Unmarked semantics for *go* and anti-presupposition

Claim: *Go* actually has no indexical presupposition.⁵

Situation: Andrew talking to Becky in NJ about Natasha, who lives in Moscow.

1. Negative sentences:

- (20) a. Natasha didn't go anywhere last summer.
b. ??Natasha didn't come anywhere last summer.

- (20a) entails Natasha didn't go to NJ!! If *go* presupposed Goal couldn't be NJ, this wouldn't be an entailment. (cf. *Natasha didn't drink anything* is only about liquids, doesn't entail that she didn't eat a hamburger, e.g.)
- Note that we observe this projection pattern in (20b): It can only be used to talk about HL now or at the reference time (e.g. John and Natasha were supposed to travel together, but Natasha didn't show up).

2. Questions:

- (21) A: Do you know where Natasha is going this summer?
B: She's actually coming to NJ!

(22) #Do you know where Natasha is coming this summer?

3. Ignorance contexts where it is not presupposed that Goal is **Speaker**⁺(*c*)'s HL:

(23) [A is texting to B]

- A: I don't know where you are now, but I'm $\left\{ \begin{array}{l} \text{going} \\ \text{\#coming} \end{array} \right\}$ to 1369 to have coffee soon.
B: That's great. I'm actually at 1369 now!

This difference between *come* and *go* can be understood in terms of **anti-presuppositions**.

4.1 A quick review of anti-presuppositions

Anti-presuppositions are competition-based inferences (just like scalar implicatures) involving a pair of words such that one has a stronger presupposition than the other (Heim 1991, Percus 2006, 2010, Sauerland 2008, Singh 2011, Schlenker 2012, Spector & Sudo 2017).

⁵Fillmore (1997) and Nakazawa (2007) hint at this possibility but do not pursue it.

Maximize Presupposition! favors a 'presuppositionally stronger' alternative, *if everything else is equal*.⁶

(24) **Maximize Presupposition! (MP):**

An utterance of *S* is infelicitous in context *c* iff there is an alternative *S'* to *S* such that:

- a. The assertive meanings of *S* and *S'* are contextually equivalent in *c*;
- b. The presuppositions of *S* and *S'* are both satisfied in *c*;
- c. The presupposition of *S'* is stronger than the presupposition of *S*.

Example: *Think* has no factive presupposition, but competes with *know* and generates the inference that the complement clause is not presupposed to be true:

(25) John thinks that Mary is pregnant. \rightsquigarrow It is not commonly believed that Mary is pregnant.

By assumption (25) competes with the version of the sentence with *know*:

(26) John knows that Mary is pregnant.

- (26) has a factive presupposition and is presuppositionally stronger than (25).
- (25) and (26) mean (roughly) the same thing. So whenever their presuppositions are satisfied, their assertive meanings will be contextually equivalent.
- Consequently, MP favors the use of (26), whenever possible. To put it differently, (25) can only be used when the presupposition of (26) is not satisfied, i.e. it is not commonly believed that Mary is pregnant. (which includes when it is commonly believed that Mary is not pregnant)

Epistemic Step: In some cases a stronger reading is derived.

(27) Frank thinks that I speak German. \rightsquigarrow I don't speak German

Alternative sentence:

(28) Frank knows that I speak German.

MP says (27) is felicitous only if it is not commonly believed that I speak German. This inference is often strengthened to 'it is commonly believed that I don't speak German' (see Chemla 2008 for a detailed analysis).

Anti-presuppositions interact with operators:

1. Negative sentences:

- (29) [We all know that John won the race]
- a. None of the runners thinks that they won.
 - b. #None of the runners knows that they won.

(29b) has a universal presupposition that every runner won (which cannot be true), so consequently, (29a) is felicitous in contexts where it is not commonly believed that every runner won, which is trivially satisfied.

2. Questions:

- (30) Q: Which runner thought they won the race?
Q': #Which runner knew that they won the race?
—A: Alice actually knew that she won the race.

Presuppositions universally project through wh-phrases, so (30Q') presupposes that everybody won the race. Then, (30Q:) is felicitous in contexts where it is not commonly believed that every runner won.

⁶See Percus (2006, 2010), Sauerland (2008), Singh (2011), Schlenker (2012), Spector & Sudo (2017) for refinements

4.2 Come vs. Go

Idea: *Go* to *come* is *think to know*. A sentence with *go* has no indexical presuppositions, but it competes with *come*, which presupposes Goal to be HL of some $x \in \text{Speaker}^+(c)$. MP says that *go* is infelicitous if the presupposition of *come* is satisfied.

Situation : We are in NJ. Natasha is in Moscow.

- Simple sentences

- (31) a. #Natasha is going to NJ next week.
b. Natasha is coming to NJ next week.

(31b) is felicitous here, so (31a) is made infelicitous, although (31a) has no indexical presuppositions.

- (32) a. Natasha is going to Berlin next week.
b. #Natasha is coming to Berlin next week.

The presupposition of (32b) is not satisfied, so (32a) can be used felicitously.

- Negative sentences

- (20) a. Natasha didn't go anywhere last summer.
b. ??Natasha didn't come anywhere last summer.

The presupposition of (20b) is not satisfied, so (20a) is felicitous. In particular, (20b) has a universal presupposition that all the relevant places are $\text{Speaker}^+(c)$'s HLs. So if the domain of quantification contains one place that is not, (20a) can be felicitously used.

- Questions

- (21) Do you know where Natasha is going this summer?
(22) #Do you know where Natasha is coming this summer?

The explanation here is analogous to the previous case. (22) is infelicitous, because it presupposes that the domain of quantification only contains $\text{Speaker}^+(c)$'s HLs.

- In ignorance contexts like (23) the presupposition of *come* is not satisfied, so *go* is felicitously used.

Presuppositions of *come* and *go* (ver. 3)

$$(33) \quad ((\text{Natasha came to London})^{g,c}(t)(w) \Leftrightarrow t < t_c \wedge \exists x \in \text{Speaker}^+(c)[(\text{HL}_w(x, \text{London}, t_c) \vee \text{HL}_w(x, \text{London}, t))])$$

$$(34) \quad ((\text{Natasha went to London})^{g,c}(t)(w) \Leftrightarrow t < t_c$$

5 Perspectival Shift in Attitude Contexts

Puzzle: In some cases, either *come* or *go* can be used.

- (35) I went to a conference in Paris last month.
Natasha $\left\{ \begin{array}{l} \text{came} \\ \text{went} \end{array} \right\}$ to the same conference.

- (36) I'm going to a conference in Amsterdam.
Natasha is $\left\{ \begin{array}{l} \text{coming} \\ \text{going} \end{array} \right\}$ to Amsterdam too.

- (37) I'll $\left\{ \begin{array}{l} \text{come} \\ \text{go} \end{array} \right\}$ to the station to pick you up.

- (38) She'll $\left\{ \begin{array}{l} \text{come} \\ \text{go} \end{array} \right\}$ there to meet you.

(Fillmore 1997)

MP says whenever the presupposition of *come* is satisfied, *go* cannot be used. This is violated here.

Idea: Anti-presuppositions are computed under one particular 'perspective', and that the current time vs. reference time distinction is a kind of **perspective shift**.

Observation: The indexical (anti-)presupposition optionally **shifts** in certain grammatical contexts. For example, in speech reports, the indexical presuppositions may be evaluated relative to the original utterance context (Oshima 2006, 2007, Percus 2011b)

Situation: We are talking in NJ. Sasha and Natasha live in Moscow.

1. Goal = current speaker's HL

- (39) a. Sasha said that Natasha is coming to NJ next week.
b. Sasha said that Natasha is going to NJ next week.

(39a) is our perspective, while (39b) is Sasha's perspective.

2. Goal = original speaker's HL

- (40) a. Sasha said that Chomsky is coming to Moscow next week.
b. Sasha said that Chomsky is going to Moscow next week.

(40a) is Sasha's perspective, while (40b) is our perspective.

Other perspectival shifting contexts (cf. Bylinina et al. 2014, 2015):

- *If*-clauses can be relative to the perspective of the subject of the consequent.

- (41) a. If Chomsky comes to Moscow, Sasha will take him to Chistye Prudy.
b. If Chomsky goes to Moscow, Sasha will take him to Chistye Prudy.

- VP-internal material can be relative to the perspective of the subject.

- (42) a. Sasha takes anyone who comes to Moscow to Chistye Prudy.
b. Sasha takes anyone who goes to Moscow to Chistye Prudy.

- In §6: Tense also optionally shifts the perspective to the reference time.

Previous analyses of the shifting behaviour of *come* and *go* in attitude contexts:

- Oshima (2006, 2007) analyses perspective-shifting as a result of presupposition projection. He assumes that attitude predicates are sometimes presupposition holes. This is an interesting hypothesis, but it makes problematic predictions about other presuppositions in attitude contexts (cf. Percus 2011b). Also it's unclear how to extend his account to other shifting environments.⁷ This is not very useful for our purposes.
- Percus (2011b) likens perspectival shift to **indexical shift**. I'll pursue this route and extend his analysis.

5.1 A Quick Review of Indexical Shift

Indexical shift: In some languages, indexical expressions like *me*, *you*, *here now* are not always evaluated against the current conversational context (Schlenker 1999, 2003, Anand & Nevins 2004, Anand 2006, Sudo 2012, Podobryaev 2014, Shklovsky & Sudo 2014, Deal 2017).

⁷Oshima seems to think that attitude contexts and other perspectival shifting contexts should be given separate accounts (Oshima 2006:123, Oshima 2007:fn.4), and does not say much about the latter.

E.g. In the following Uyghur sentence, [1sg] is interpreted as Ahmet (indexical shift is obligatory in Uyghur).

- (43) Ahmet [*pro*_{Ahmet} kim-ni jaxshi kör-imen] didi?
 Ahmet [*pro* who-ACC well see-IMPERF.1sg] said
 'Who did Ahmet say that he likes?'

In languages like English, [1st] always denotes Speaker (except when quoted), so (44) doesn't mean the same thing as (43).

- (44) Who did Ahmet say that I like?

Anand & Nevins (2004) and Anand (2006) on indexical shift:

- A possible context c (of type k) is a tuple (s_c, h_c, t_c, w_c) (Speaker, Hearer, Time, World).
- The semantics-pragmatics interface demands that c represents the current context of utterance (in normal conversational contexts):⁸

- (45) When s utters ϕ to h at t in w (with assignment g),
 the assertive meaning of ϕ is $\llbracket \phi \rrbracket^{g,(s,h,t,w)}(s, h, t, w)$
 and the presupposition of ϕ is $((\phi))^{g,(s,h,t,w)}(s, h, t, w)$.

- Indexical pronouns refer to a coordinate of c :

- (46) a. $\llbracket \text{me} \rrbracket^{g,c} = s_c$ b. $\llbracket \text{you} \rrbracket^{g,c} = h_c$

- By assumption English has no operator that shifts the context index, so indexical pronouns are always evaluated relative to the current context of utterance, no matter where they appear.
- Languages like Uyghur have an operator (☞) that shifts the context index. Such an operator is called a (Kaplanian) **monster**.

- (47) $\llbracket \text{☞} \alpha \rrbracket^{g,c} = \lambda k. \llbracket \alpha \rrbracket^{g,k}(k)$

By assumption ☞ only appears in (a subset of) attitude contexts. To simplify, I ignore tense in this section.

- Embedded clauses denote functions of type (k, t) , with or without ☞ . With ☞ , the referents of indexicals shift.

- (48) a. $\llbracket \text{that I like you} \rrbracket^{g,c} = \lambda k. \text{LIKE}_{w_k}(s_c, h_c, t_k)$
 b. $\llbracket \text{☞ that I like you} \rrbracket^{g,c} = \lambda k. \text{LIKE}_{w_k}(s_k, h_k, t_k)$

- Attitude predicates take functions of type (k, t) .

- (49) a. $\llbracket \text{Ahmet said that I like you} \rrbracket^{g,c} = \lambda c'. \text{SAY}_{t_{c'}, w_{c'}}(j)(\lambda k. \text{LIKE}_{w_k}(s_c, h_c, t_k))$
 b. $\llbracket \text{Ahmet said ☞ that I like you} \rrbracket^{g,c} = \lambda c'. \text{SAY}_{t_{c'}, w_{c'}}(j)(\lambda k. \text{LIKE}_{w_k}(s_k, h_k, t_k))$

The definition of **SAY** is a little convoluted.⁹

- (50) $\text{SAY}_{t_{c'}, w_{c'}}(x)(p)$ iff in $w'_{c'}$ by virtue of what x said at $t_{c'}$ in $w_{c'}$, x characterises their own context of utterance as a context k such that $p(k) = 1$.

Punchline: Indexicals refer to the context index c . ☞ shifts it to a different one which the attitude verb requires to represent the reported context.

⁸We are ignoring *de se* interpretations here. To account for this, the rule needs to be more complex.

⁹This is necessary to account for attitude *de se*. We have no time to discuss this. See Oshima (2006), Percus (2011a), Barlew (2015, 2017) for *de se* readings of perspectival items.

5.2 Percus (2011) on Perspective-Shifting under Attitude

Idea: Perspective-sensitive items like *come* refer to another context index.

- Interpretation is relativized to an assignment g , and two possible contexts c_1, c_2 .
- Indexical pronouns refer to the first context.

$$(51) \quad \text{a. } \llbracket \text{me} \rrbracket^{g, c_1, c_2} = s_{c_1} \quad \text{b. } \llbracket \text{you} \rrbracket^{g, c_1, c_2} = h_{c_1}$$

- The presupposition of *come* refers to the second context c_2 (recall we are ignoring tense):

Presuppositions of *come* and *go* (ver. 4, final)

$$(52) \quad ((\text{Natasha came to London}))^{g, c_1, c_2} = \lambda k. \exists x \in \mathbf{Speaker}^+(c_2) [\mathbf{HL}_{w_{c_2}}(x, \text{London}, t_{c_2})]$$

$$(53) \quad ((\text{Natasha went to London}))^{g, c_1, c_2} = \lambda k. \top$$

- It's crucial (52) only refers to the coordinates of c_2 . In particular, t_{c_2} and w_{c_2} come from c_2 . As we will see, this derives the projection facts right.
- The reference time is not mentioned in the presupposition. We'll account for this by perspectival shift under tense later.
- The semantics-pragmatics interface ensures that at the utterance level, both context indices are the utterance context:

$$(54) \quad \text{When } s \text{ utters } \phi \text{ to } h \text{ at } t \text{ in } w \text{ (with assignment } g), \\ \text{the assertive meaning of } \phi \text{ is } \llbracket \phi \rrbracket^{g, (s, h, t, w), (s, h, t, w)}(s, h, t, w) \\ \text{and the presupposition of } \phi \text{ is } ((\phi))^{g, (s, h, t, w), (s, h, t, w)}(s, h, t, w).$$

- The reason why we need two context indices is because indexical pronouns don't shift in English, but the indexical presupposition of *come* does shift.
- Perspective-shifting is enabled by shifting the second index. Let's postulate two monsters, \mathfrak{M}_1 and \mathfrak{M}_2 .

$$(55) \quad \text{a. } \llbracket \mathfrak{M}_1 \alpha \rrbracket^{g, c_1, c_2} = \lambda k. \llbracket \alpha \rrbracket^{g, k, c_2}(k) \quad \text{b. } \llbracket \mathfrak{M}_2 \alpha \rrbracket^{g, c_1, c_2} = \lambda k. \llbracket \alpha \rrbracket^{g, c_1, k}(k)$$

- \mathfrak{M}_1 is used for indexical shift. Only available in a subset of languages.
- \mathfrak{M}_2 is used for perspectival shift, available in (probably) all languages.

We account for the behaviour of indexical presuppositions in speech reports with \mathfrak{M}_2 .

- Following Heim (1992), we assume that attitude predicates are presupposition filters.¹⁰

$$(56) \quad \text{'X believes/said/hopes } \phi' \text{ presupposes that } X \text{ believes the presuppositions of } \phi \text{ to be true.}$$

$$(57) \quad \text{Hans is saying that Natasha quit smoking.} \quad \rightsquigarrow \text{Hans believes that Natasha used to smoke.}$$

- Non-shifted interpretation of *come* (without \mathfrak{M}_2):

$$(58) \quad \text{a. } ((\text{Hans is saying that Natasha came to London}))^{g, c_1, c_2}(c') \\ \Leftrightarrow \mathbf{DOX}_{t_{c'}, w_{c'}}(h)(\lambda k. \exists x \in \mathbf{Speaker}^+(c_2) [\mathbf{HL}_{w_{c_2}}(x, \text{London}, t_{c_2})])$$

$$\text{b. } \llbracket \text{Hans is saying that Natasha came to London} \rrbracket^{g, c_1, c_2}(c') \\ \Leftrightarrow \mathbf{SAY}_{t_{c'}, w_{c'}}(h)(\lambda k. \exists e [\mathbf{MOVE}_{w_k}(e) \wedge \mathbf{THEME}_{w_k}(e, \text{Natasha}) \wedge \mathbf{GOAL}_{w_k}(e, \text{London})])$$

$$(59) \quad \mathbf{DOX}_{t_{c'}, w_{c'}}(x)(p) \text{ iff in } w'_{c'} \text{ by virtue of what } x \text{ believes at } t_{c'} \text{ in } w_{c'}, x \text{ characterises their own context of utterance as a context } k \text{ such that } p(k) = 1.$$

¹⁰See also Sudo (2014b). We won't go into the details here.

Since the presupposition of *come* is indexical, (58a) is true if $\exists x \in \text{Speaker}^+(c_2)[\text{HL}_{w_{c_2}}(x, \text{London}, t_{c_2})]$. So effectively the presupposition projects out (cf. Schlenker 2007). This is a good result, because the sentence doesn't presuppose that Hans believes that London is HL for some $x \in \text{Speaker}^+(c_2)$.

- Shifted interpretation (with c_2):

- (60) a. $((\text{c}_2 \text{ that Natasha came to London}))^{g,c}$
 $= \lambda k. \exists x \in \text{Speaker}^+(k)[\text{HL}_{w_k}(x, \text{London}, t_k)]$
- b. $[[\text{c}_2 \text{ that Natasha came to London}]]^{g,c}$
 $= \lambda k. \exists e [\text{MOVE}(e, w_k) \wedge \text{THEME}(e, \text{Natasha}, w_k) \wedge \text{GOAL}(e, \text{London}, w_k)]$

The presupposition is now relative to c' . DOX is no longer vacuous.

- (61) a. $((\text{Hans is saying } \text{c}_2 \text{ that Natasha came to London}))^{g,c_1,c_2}(c')$
 $\Leftrightarrow \text{DOX}_{t_{c'}, w_{c'}}(h)(\lambda k. \exists x \in \text{Speaker}^+(k)[\text{HL}_{w_k}(x, \text{London}, t_k)])$
- b. $[[\text{Hans is saying } \text{c}_2 \text{ that Natasha came to London}]]^{g,c_1,c_2}(c')$
 $\Leftrightarrow \text{SAY}_{t_{c'}, w_{c'}}(h)(\lambda k. \exists e [\text{MOVE}_{w_k}(e) \wedge \text{THEME}_{w_k}(e, \text{Natasha}) \wedge \text{GOAL}_{w_k}(e, \text{London})])$

In words, this presupposes that Hans believes that London is HL for he himself and/or his associates at the time and world of his utterance.

Punchline: We have two context indices, one for indexical items and one for perspectival items, both of which can be shifted by monsters.

5.3 A Solution to the Puzzle: Competition under a Perspective

Recall the puzzle: in some contexts either *come* and *go* can be used.

- (62) **Context:** We are in NJ. Sasha and Natasha are in Moscow.

Sasha said that Natasha is $\left\{ \begin{array}{l} \text{coming} \\ \text{going} \end{array} \right\}$ to NJ next week.

Idea: The competition between *come* vs. *go* is computed under one perspective at a time (i.e. either with c_2 or without c_2).

E.g. we either compare either (63a) vs. (63b) or (64a) vs. (64b).

- (63) a. Sasha said that Natasha is coming to NJ next week.
 b. #Sasha said that Natasha is going to NJ next week.
- (64) a. #Sasha said c_2 that Natasha is coming to NJ next week.
 b. Sasha said c_2 that Natasha is going to NJ next week.

- In the above context, (63a) wins over (63b), because the presupposition of (63a) is satisfied.
- On the other hand, (63a) presupposes that Sasha believes that he is in NJ, which is not satisfied in the given context. So (64b) is felicitous.

6 Perspectival Shift under Tense

Recall that either *come* and *go* can be used in contexts like (65).

- (65) I went to a conference in Paris last month. Natasha $\left\{ \begin{array}{l} \text{came} \\ \text{went} \end{array} \right\}$ to the same conference.

We'll analyze this as involving perspectival shift as well. In particular, I assume that tense optionally shifts the temporal parameter of c_2 to the reference time.

6.1 Pronominal Theory of Tense

I assume the pronominal theory of tense (Partee 1973, Heim 1994, Abusch 1997, Sharvit 2014).¹¹

- (66) a. $((\text{PRES}_i))^{g, c_1, c_2} = g(i) \circ t_{c_1}$ ($g(i)$ overlaps with t_{c_1})
 b. $[[\text{PRES}_i]]^{g, c_1, c_2} = g(i)$
- (67) a. $((\text{PAST}_i))^{g, c_1, c_2} = g(i) < t_{c_1}$ ($g(i)$ precedes t_{c_1})
 b. $[[\text{PAST}_i]]^{g, c_1, c_2} = g(i)$

The unshifted interpretation looks like (68). The content of the indexical presupposition is essentially the same as before.

- (68) a. $((\text{Natasha PAST}_i \text{ come to London}))^{g, c_1, c_2}(k)$
 $\Leftrightarrow g(i) < t_{c_1} \wedge \exists x \in \text{Speaker}^+(c_2)[\text{HL}_{w_{c_2}}(x, \text{London}, t_{c_2})]$
- b. $[[\text{Natasha PAST}_i \text{ come to London}]]^{g, c_1, c_2}(k)$
 $\Leftrightarrow \exists e [\text{MOVE}_{w_k}(e) \wedge \text{THEME}_{w_k}(e, \text{Natasha}) \wedge \text{GOAL}_{w_k}(e, \text{London}) \wedge \tau_{w_k}(e) \subseteq g(i)]$

6.2 Tense Monster

The tense monster \mathbb{W} shifts the tense-coordinate of the second context index.¹²

- (69) $[[\mathbb{W} \alpha]]^{g, c_1, c_2} = \lambda t'. [[\alpha]]^{g, c_1, (s_{c_2}, h_{c_2}, t', w_{c_2})}(t')$

This operator combines with AspP and shifts the indexical presupposition to the reference time $g(i)$:

- (70) a. $((\text{Natasha PAST}_i \mathbb{W} \text{ come to London}))^{g, c_1, c_2}(k)$
 $\Leftrightarrow g(i) < t_{c_1} \wedge \exists x \in \text{Speaker}^+(c_2)[\text{HL}_{w_{c_2}}(x, \text{London}, g(i))]$
- b. $[[\text{Natasha PAST}_i \mathbb{W} \text{ come to London}]]^{g, c_1, c_2}(k)$
 $\Leftrightarrow \exists e [\text{MOVE}(e, w_k) \wedge \text{THEME}(e, \text{Natasha}, w_k) \wedge \text{GOAL}(e, \text{London}, w_k) \wedge \tau_{w_k}(e) \subseteq g(i)]$

Examples: We are talking in NJ. I went to Paris last week.

- (71) Natasha PAST_i \mathbb{W} $\left\{ \begin{array}{l} \text{come} \\ \# \text{go} \end{array} \right\}$ to Paris.

With \mathbb{W} , the perspective is shifted to the past time $g(i)$. If it is presupposed that Speaker was at Goal at $g(i)$, *come* must be used.

- (72) Natasha PAST_i $\left\{ \begin{array}{l} \text{come} \\ \# \text{go} \end{array} \right\}$ to Paris.

Without \mathbb{W} , the perspective is based on the current utterance context. Since neither Speaker nor their associates are in Paris now, the presupposition of *come* is not satisfied, and *go* is licensed.

6.3 Ban on Vacuous Monsters

Recall that *go* cannot be relative to the reference time.

- (16) **Situation:** We are in a pub in London for the first time.
 Apparently, Natasha $\left\{ \begin{array}{l} \text{came} \\ ??\text{went} \end{array} \right\}$ to this pub with her friends last year.

¹¹I don't deny other theoretical possibilities, but it needs to be worked out how to implement the current idea in other theories of tense. I'll also ignore Sequence-of-Tense and future.

¹²Here we depart from Kaplan's ontology of possible contexts, according to which each possible context represents a possible conversational context.

This is explained if Utterances with *go* never involve \mathbb{M} .

Idea: Since *go* has no indexical presupposition, \mathbb{M} would have no direct semantic effects on *go* itself. Such vacuous occurrences are banned.

(73) #Natasha PAST; *go* to this pub.

It is commonly known that Speaker and Hearer are at Goal at the current time, so MP requires *come* to be used.

(74) *Natasha PAST; \mathbb{M} *go* to this pub.

If Speaker and Hear were not at the pub at $g(i)$, MP would be satisfied in (74), but this parse is not possible, due to the vacuous use of \mathbb{M} .

In previous studies the above difference between *come* and *go* was captured by a lexical stipulation. Our unmarked semantics for *go* together with the ban on vacuous monsters achieves a deeper explanation. In particular it makes a prediction that in all languages *go* (the unmarked one) cannot refer to the reference time.

Remaining puzzle: *Go* does shift in attitude contexts.

(75) Sasha said that Natasha is $\left\{ \begin{array}{l} \text{coming} \\ \text{going} \end{array} \right\}$ to London.

So we need to say that the attitude monster \mathbb{C}_2 is not subject to the ban on vacuous uses.

7 Summary and Further Issues

- *Come* has an indexical presupposition, but *go* doesn't.

(76) $((\text{Natasha PAST; come to London}))^{g, c_1, c_2}$
 $= \lambda k. g(i) < t_{c_1} \wedge \exists x \in \text{Speaker}^+(c_2) [\text{HL}_{w_{c_2}}(x, \text{London}, t_{c_2})]$

(77) $((\text{Natasha PAST; go to London}))^{g, c_1, c_2} = \lambda k. g(i) < t_{c_1}$

- *Go* competes with *come*. *Go* can be felicitously used only if the presupposition of *come* is not satisfied.
- The indexical presupposition of *come* shifts with monster operators (**perspectival shift**), and the competition between *come* and *go* is evaluated only under one perspective.

7.1 Other Shifting Contexts

There are other perspectival shifting environments (Bylinina et al. 2014, 2015), e.g. shift to the subject:

- (42) a. Sasha takes anyone who **comes** to Moscow to Chistye Prudy.
 b. Sasha takes anyone who **goes** to Moscow to Chistye Prudy.

Let's postulate another monster \mathbb{P} to account for this:

(78) $[[\mathbb{P} \alpha]]^{g, c_1, c_2} = \lambda x. [[\alpha]]^{g, c_1, (x, h_{c_2}, t_{c_2}, w_{c_2})}(x)$

(79) Sasha \mathbb{P} takes anybody who comes to Moscow to Chistye Prudy.

- This operator makes a bad prediction: if this appears right below the subject, the verb will be in its scope, so (80) is predicted to be felicitous.

(80) **Situation:** We are at Rutgers University, Natasha is in Moscow.
 ??Natasha \mathbb{P} is going to Rutgers University next week.

- Perspectival shift to the subject can only take place within a subconstituent of the VP-internal material, e.g. a modifier on the object.

- Maybe α_f is a pronominal referring back to the subject, and its distribution is somehow restricted.

$$(81) \quad \llbracket \alpha_{f,s,i} \rrbracket^{g,c_1,c_2} = \llbracket \alpha \rrbracket^{g,c_1,(g(i),h_{c_2},t_{c_2},w_{c_2})}$$

I leave this issue open here (see Bylinina et al. 2014, 2015 for some discussion).

- Unlike the tense monster α_w and like the attitude monster α_{c_2} , the subject monster α_f is not subject to the ban on vacuous uses. That is, *go* competes with *come* under α_f .

- (82) a. Natasha threw a farewell party for a friend of hers who's coming to Rutgers in September.
 b. Natasha threw a farewell party for a friend of hers who's going to Rutgers in September.

The conditional data (41) is in principle amenable to a similar analysis, although it might require some additional syntactic assumptions (cf. Chierchia 1995), or perhaps dynamic semantics (Barlew 2015, 2017).

7.2 Cross-linguistic Variation

1. In some languages motion towards the Speaker's HL and motion towards the the Hearer's HL are expressed by distinct verbs, e.g. in Palauan (Austronesian) (Nakazawa 2007):

- (83) a. *me* if Goal = Speaker's HL
 b. *eko* if Goal = Hearer's HL
 c. *mo* if neither ($\approx go$)

Remaining question: Does *mo* competes with *me* and *eko* at the same time?

Some languages don't seem to distinguish *come* vs. *go*, e.g. Russian.

2. Shift to the addressee (Nakazawa 1990, 2007, Oshima 2006, 2007).

- In English, German, Italian, Catalan, etc., when Speaker is moving towards Hearer, *come* is preferred.

$$(84) \quad \text{I'll } \left\{ \begin{array}{l} \text{come} \\ \#go \end{array} \right\} \text{ to your office later.}$$

There seems to be no optionality here, but *go* improves with negation.

- Japanese, Korean, Spanish, and Uyghur use *go* in such contexts:

- (85) atode ofisu-ni {#ki , iki} masu.
 later office-to {#come , go} POLITE
 'I'll come to your office later.'

(Japanese)

But certain dialects of Japanese are known to be like English.

- In English, German, Japanese, and Korean, when a third person is moving towards the hearer, **come** is at least possible.

- (86) Natasha is coming to your office now.

In Mandarin Chinese, Thai and Shibe (Altaic), it must be *go* in such cases (Nakazawa 2007).

3. Nakazawa (2007) also observes that in Shibe, *come* can only refer to the Speaker's location at the utterance time, while in Mandarin Chinese, *come* can refer to the Speaker's HB at the utterance or reference time. So in Shibe, *come* is completely indexical. I don't know if it shifts at all.

7.3 Other Shifting Phenomena

Bring vs. *take*, benefactives in Japanese (Oshima 2006), etc. also shift like *come* vs. *go* (Fillmore 1997).

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