

1 Agenda

Puzzle

- I'm interested in a particular use of spatial indexical modifiers (*here, there, over there*, etc.) when they modify certain noun phrases.
 - 1) [*Speaker gestures at Maria, who is right next to them.*] Maria here is such a great speaker.
- Surprising because proper names usually resist modification (2)
 - 2) #Marie with white hair is such a great speaker.
- Observe that modifiers can only modify these kinds of nouns when they refer to locations in the perceptual field of conversational participants
 - 3) *Two conference attendees go outside of the conference room during a particularly stimulating talk by their mutual acquaintance Maria.*
 - a. #Maria here is such a great speaker.¹
 - b. The chairs here are so uncomfortable.

Generalization

- Modifiers must refer to locations that are in the perceptual field of conversational participants when the modified noun phrase “uniquely refers” in the context.

Analysis

- Unified analysis of the modifiers' semantics as restrictive modifiers
- Derive the generalization from standard conditions on redundant restrictive modification relativized to different “modes of identification” or contextually supplied perspectives on the domain of individuals, represented and formalized by Aloni (2001)'s *conceptual covers*. Specifically, restrictive modification with *here* is **redundant** when the referent is not in the perceptual field but can be **informative** when the referent is in the perceptual field.

Upshot

- Conditions on informativity/redundancy depend on perspectival information.

2 Perceptual Grounding

- Spatial indexical adverbs and adverbial phrases (*here, there*) can refer to locations inside or outside of the interlocutors' perceptual field. They can get their reference through ostension (4), anaphora (5), or even from the common ground (6)

¹ This sentence is only infelicitous with stress on the noun. I don't get into this particular observation in this handout, but I have ideas about why stress is relevant.

- 4) a. [*Pointing at a chair*] Sit here please.
 b. [*Pointing at a woman*] Maria is here.
- 5) a. I just arrived in Santa Cruz₁. Jamie is here₁ too.
 b. The kids here₁ in Santa Cruz₁ are so smart.
- 6) [*Walk out of a conference building after a series of talks.*] People here are so nice.

• **Some terminology:**

- Perceptual Grounding (Heller & Wolter 2014)
 - The referent of some linguistic expression is in the perceptual field of conversational participants.
 - Alternatively, both speaker and addressee(s) can identify the referent of some linguistic expression by means of perceptual information.
- Ostensive Use: the use of the demonstrative adverbs that involves ostension.

<i>Ostensive Use</i> Referent is perceptually grounded Examples in (1), (4)	<i>Non-Ostensive Use(s)</i> Referent is not perceptually grounded Examples in (3), (5), (6)
---	---

- The contrast in (1)/(3) shows that natural language semantics is sensitive to when referents are perceptually grounded.
- **Generalization:** Demonstrative adverbs must refer to perceptually grounded locations when the modified noun phrase “uniquely refers” in the context.

3 Motivating the Generalization

- In this section I extend the initial observation to many different kinds of noun phrases.
 - Ostensive use is forced with uniquely referring noun phrases
 - Non-Ostensive uses are only possible with non-uniquely referring noun phrases
- Since the generalization must be stated in terms of the uniqueness of the noun phrase, the restriction to perceptually grounded referents probably stems from this fact as well

3.1 Ostensive Use is Forced with “Uniquely Referring” Noun phrases

- Showed in (1)/(3) that the ostensive use of *here* is forced with regular uses of proper names
- Observation extends to more than just Proper Names: when modifying conventionally-unique definite descriptions, the modifiers lend themselves to the perceptually grounded interpretation

7) *Same context as (3) but the presenter is the speaker’s husband (a) or the Pope (b).*

- a. #My husband here is such a great speaker.
- b. #The Pope here is such a great speaker.

- *Here* in (7a-b) is infelicitous. This is because of world knowledge: people generally have one husband, and there is only one Pope. One can override this infelicity with the right context:

8) [*The speaker is polygamous.*] My husband here (at this conference) is such a great speaker, but my husband in Santa Cruz cannot stand in front of a crowd to save his life.

- Maximally-specified definite descriptions – definite descriptions that denote uniquely within a given context by virtue of already being modified – also force an ostensive reading of *here*

9)

- a. [*In the hallway of a building, no chairs are in sight*] #Aren't the chairs at this conference here so comfy?
- b. [*After cleaning up the conference room and stacking all the chairs. Speaker motions to the chairs while saying 'here'.*] Aren't the chairs at this conference here so comfy?²

3.2 Non-Ostensive Uses are only possible when the noun phrase is not unique

- Non conventionally unique definite descriptions easily allow for non-ostensive readings

10)

- a. The chairs here (at this conference³) are so uncomfortable.
- b. The mayor here in Santa Cruz is an interesting person.

- Even expressions that are usually uniquely referring, like proper names, can license non-ostensive uses when they are not unique, such as when they are preceded by an overt determiner

11) I don't like many Jamies, but I like the Jamie here in Santa Cruz.

- Unlike proper names without determiners, *Jamie* above denotes a predicate holding of people named *Jamie* (Gray 2017). *Jamie* is not unique.
- Indefinite and quantificational noun phrases always allow non-ostensive uses of *here*. These do not denote uniquely.

12) *Two conference attendees go out to dinner at a restaurant downtown.*

- a. Everyone here (at this conference) is so nice.
- b. I mean, a professor here (at this conference) actually talked to me.

3.3 Generalization applies to all spatial indexical adverbial phrases

- Generalization is productive across all spatial indexical adverbial phrases headed by *here* or *there*; not just a peculiar condition on the interpretation of *here*

13) [*A parent points to their child.*] Maria right here is in first grade.

14) [*Pointing across the room.*] Maria over there is a linguist.

15) I miss Hawaii.

- a. #Ma'ria there is so cool.
- b. People there are so cool.

² It is important in (11) to not read *here* as modifying *conference*. My argument only follows for the reading where it is modifying *chairs*.

³ Non-ostensive uses of *here* can be followed by a PP specifying which location *here* picks out (e.g. *here in Santa Cruz* in (7) above). I use *here_i + PP_i* as a diagnostic for non-ostensive uses of the adverb.

4 Analysis

- **Generalization:** Demonstrative adverbs must refer to perceptually grounded locations when the modified noun phrase “uniquely refers” in the context.

	Perceptually Grounded	Non-Perceptually Grounded
Unique	✓Marie here is such a great speaker.	#Marie here (at this conference) is such a great speaker.
Non-Unique	✓[<i>Pointing</i>] The stage here was once used for a musical production.	✓The stage here (at this conference) was once used for a musical production.

- **Basic Idea:** Derive the (in)felicity of the above cases from constraints on redundant restrictive modification
- Restrictive modification (at least for definites) helps the expression achieve referentiality, or meet uniqueness presuppositions (Bach 1974, Duff, Sichel, & Toosarvandani 2022, Ingason 2015, Schlenker 2005, Pinón 2005)
- Once uniqueness is met, all further modification is redundant.

16) The president of the US (#with white hair) spoke today. (~ Schlenker 2005)

- Standard condition ruling out vacuous restrictive modification

17) M non-vacuously restrictively modifies NP iff [to be revised]

- $\llbracket NP \wedge M \rrbracket \subset \llbracket NP \rrbracket$
- $\llbracket NP \wedge M \rrbracket \neq \emptyset$ (~Pinon 2005)

- **Three Ingredients:**
 - The interpretation of noun phrases is dependent on contextually given “modes of identification”, such as *ostension*, *naming*, and *description*, represented and formalized by Aloni (2001)’s “conceptual covers”. These are essentially indirect ways of looking at the domain of individuals.
 - Spatial indexical modifiers, when perceptually grounded, can denote *rigid properties* – they can pick out the same set of individuals across possibilities.
 - A condition similar to (17) is relativized to the contextually supplied conceptual cover.

4.1 Conceptual Covers

- Maria Aloni's (2001) dissertation argued that natural language is sensitive not only to what individuals are present in the domain of discourse, but the way those individuals are identified.
- "A conceptual cover is a set of individual concepts (functions from worlds to individuals) which exclusively and exhaustively covers the domain of individuals: in a conceptual cover each individual is identified by at least one concept in each world (existence condition), but in no world is an individual counted more than once (uniqueness condition)." (Aloni 2013)
- [Conceptual Cover Condition]: $\forall w \in W: \forall d \in D: \exists! c \in CC: c(w) = d$

Example

- Consider the following sentence from Aloni (2001):

18) You know which card is the winning card.

- Whether this sentence is true or false depends not just on you knowing the identity of the winning card, but the way in which the winning card is specifically identified in your knowledge

19) A magician just described a game to you where you have to pick a card: if you uncover the Ace of Spades, you win. To make sure you understand the rules, he asks: do you know which card is the winning card?



Yes! (18) is true.

20) During the game, two cards lie face down. The magician tells you one of them is the Ace of Spades and the other is the Ace of Hearts, but not which is which. It's your turn to pick. Do you know which card is the winning card?

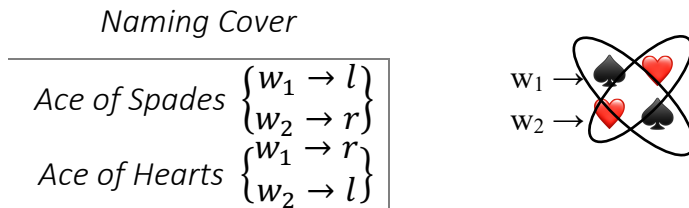
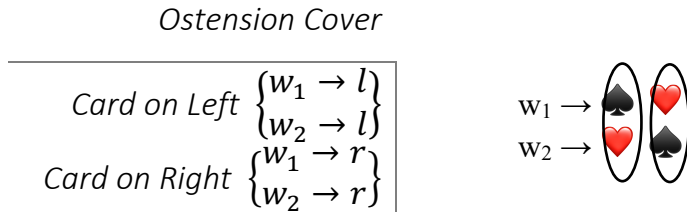


No! (18) is false.

- There are two possibilities in (20), either the Ace of Spades is on the right or left.

$w_1 \rightarrow \spadesuit \heartsuit$
 $w_2 \rightarrow \heartsuit \spadesuit$

- We can model the *modes of identification* required for truth using the two conceptual covers below.



- Ostension* is usually called a **rigid cover** by Aloni because when one points to an object in the perceptual field, there can be no epistemic uncertainty about what object is being referred to.
- Naming* is counterintuitively **non-rigid** since the identity of the referent of some name may not be presupposed in the context.
- Description* is classically **non-rigid**, for the same reason as naming.

How is the conceptual cover chosen?

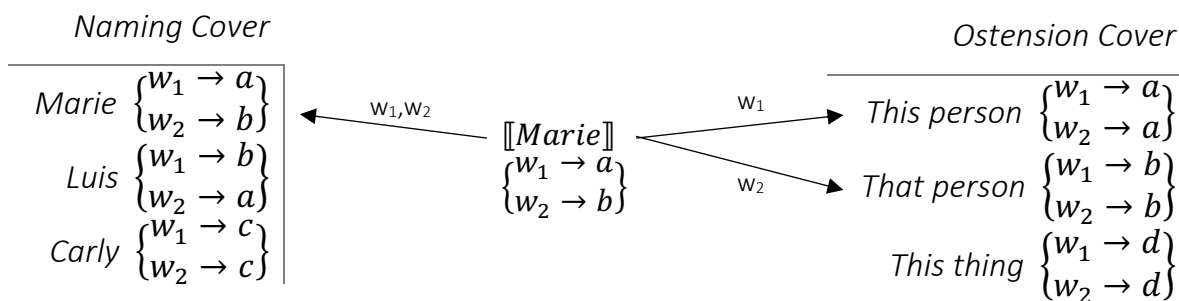
- Aloni lays out a pragmatic theory that predicts the following hierarchy for choosing the conceptual cover

21) ostension > naming > description

- This hierarchy derives the empirical generalization that when ostension can be used it is used

What's important

- A linguistic expression that denotes a unique concept in one cover can be non-unique w.r.t another cover
- In contexts that require the rigid *ostension* cover, “uniquely referring” noun phrases do not denote unique concepts if the connection between the noun phrase and an actual referent is not presupposed



4.2 Semantics of Spatial Indexical Modifiers

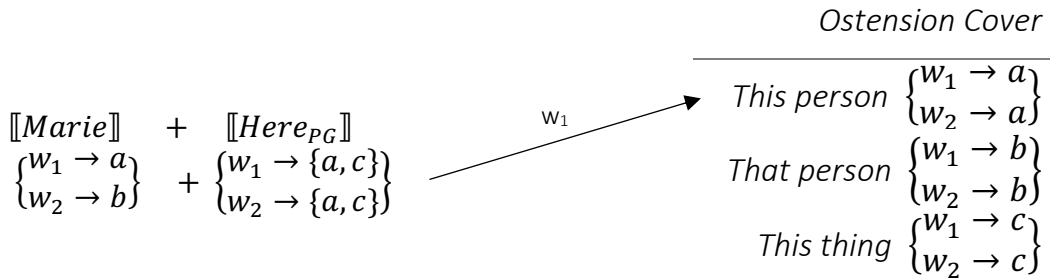
- When perceptually grounded, *here* can pick out objects that are rigid across worlds

$$\llbracket Here_{PG} \rrbracket: \begin{cases} w_1 \rightarrow \{a, c\} \\ w_2 \rightarrow \{a, c\} \end{cases}$$

- When not perceptually grounded, however, it can pick out different objects in different worlds (certain individuals might be *here at this conference* or might not)

$$\llbracket Here_{Non-PG} \rrbracket: \begin{cases} w_1 \rightarrow \{a, b, c\} \\ w_2 \rightarrow \{a, d, e\} \end{cases}$$

- Perceptually grounded *here* can help choose between objects in the *ostension* cover when modifying non-rigid concepts



4.3 Restrictive Modification

- In order to derive our generalization, the condition in (17) must be relativized to the contextually-supplied conceptual cover

22) **[Conditions on Restrictive Modification] [informal]** The set of concepts in the contextually supplied conceptual cover compatible with the content of the noun phrase + modifier must be a non-empty subset of the set of concepts compatible with the content of the noun phrase

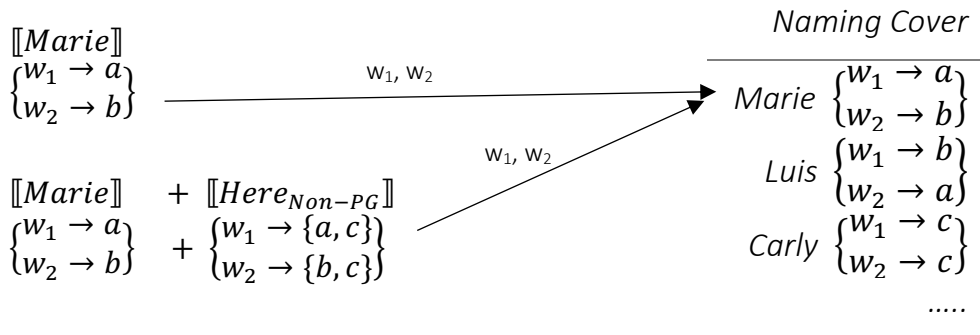
- Formally we can represent this as a local constraint on dynamic update using a version of DPL with conceptual covers discussed in Aloni (2001) Chapter 3.

23) **[Conditions on Restrictive Modification] [formal]** Let Σ_M denote the set of possible information states σ in a model, where each state consists of a set of world-assignment pairs. Let ϕ signify the content of the modified noun phrase and φ signify the content of the modifier. Let $I^\phi = \{\sigma' \in \Sigma_M \mid \sigma[x_n/c][\phi]\sigma'\}$ denote the set of information states σ' derived by transitioning from some input state σ to a state where x_n is set to the value of some c in the conceptual cover given by the context and ϕ holds. Let $I^{\phi \wedge \varphi} = \{\sigma' \in \Sigma_M \mid \sigma[x_n/c][\phi \wedge \varphi]\sigma'\}$ denote the set of information states σ' derived by transitioning from some input state σ to a state where x_n is set to the value of some c in the conceptual cover given by the context and both ϕ and φ hold. Our conditions on Restrictive Modification are defined below:

- a. $I^{\phi \wedge \varphi} \subset I^\phi$
- b. $I^{\phi \wedge \varphi} \neq \emptyset$

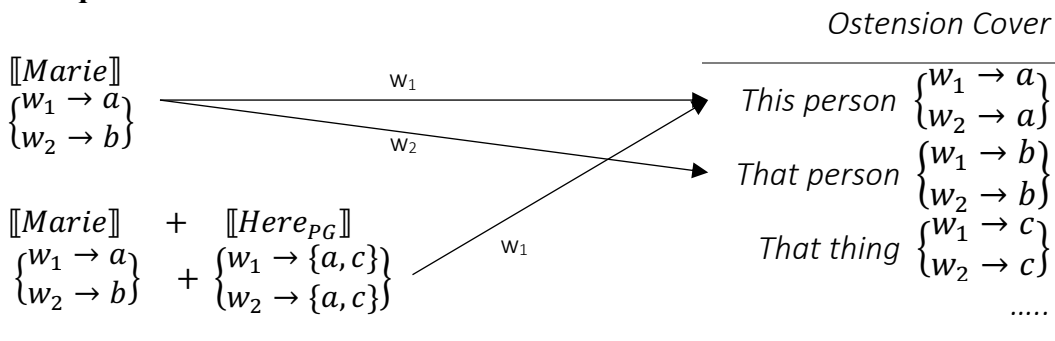
4.4 Deriving the Generalization (informal)⁴

Unique/ Non-PG



- In contexts where one cannot use ostension to identify a referent, if the speaker says a name, then naming must be used (by the hierarchy in (23))
- In terms of the naming cover, any further modification would be redundant.

✓ Unique / PG

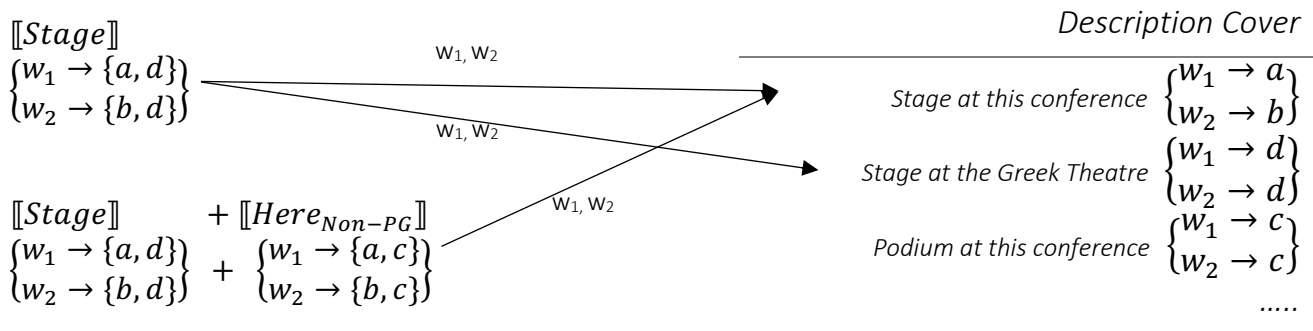


- In contexts where one can use ostension to identify a referent, it must be used (by the hierarchy in (23))
- In terms of the ostension cover, further restrictive modification is necessary to meet uniqueness if the context does not presuppose that the name is associated with a particular object in the visual field.
- Perceptually-grounded *here* can do this kind of modification since it, being a rigid property, can distinguish between objects in the perceptual field

✓ Non-Unique

- Non-unique definite descriptions always denote multiple concepts under their regular descriptive covers
- Thus, there are no limits to the interpretation of *here*

⁴ See Appendix 1/2 for Formal derivations.



5 Conclusion

Problem

- Straightforwardly accounts for cases where ostensive *here* is informative

24) *Ada is teaching a class on pediatrics.* Ada: Pictured are two babies, Ben and Charlie. (*Points at the two babies with a laser pointer*).

- a. Ben here is 6 months old; Charlie here, a year.

- May not account for cases where ostensive *here* is not informative in the context

25) “Speaking on Behalf of”

There are only three people in a room: Marie, Elif and Fred. They all know each other’s names. Elif, however, doesn’t know that Marie is a computer scientist. Elif says: “Ugh my computer is always broken. Do you know anyone who can fix it?”

- a. Fred: Well, Marie here is a computer scientist.

26) “Attention Direction”

Ada is carrying her two babies, Ben and Charlie. She walks up to her friend and says “Hi! This is Ben [*points at Ben*], and this is Charlie [*points at Charlie*]...”

- a. ?Ben here is 6 months old just like your kid, right?

Open Questions

- I have analyzed *here* as always being a restrictive modifier. Could it, on the other hand, be an appositive?
- Are conceptual covers relevant in this case because a *wh*-question is present as the QUD?

References

Aloni, M., 2001. *Quantification under conceptual covers*. Amsterdam: Inst. for Logic, Language and Computation.

----, 2013. *Questions, identity and knowledge*. Ms.

Bach, E.W., 1974. *Syntactic theory*. Holt, Rinehart and Winston.

Duff, J., Sichel, I. and Toosarvandani, M., Forthcoming. Redundancy and restriction in the derivation of relative clauses. In Lalitha Balachandran & John Duff (eds.), *Syntax & Semantics at Santa Cruz Vol. 5*.

Gray, A., 2017. Names in strange places. *Linguistics and Philosophy*, 40.5, pp. 429-472

Heim, I. (1998). Anaphora and semantic interpretation: A reinterpretation of Reinhart's approach. *The interpretive tract*, 25, 205-246.

Heller, D. and Wolter, L., 2014. Beyond demonstratives: Direct reference in perceptually grounded descriptions. *Journal of Semantics*, 31(4), pp.555-595.

Ingason, Anton Karl. "Context updates are hierarchical." (2016).

Kaplan, D., 1989. *Themes from Kaplan*. Oxford University Press on Demand.

Pinón, C., 2005. Comments on morzycki and katz. *Ms, available at pinon.sdf-eu.org*.

Roberts, C., 2002. Demonstratives as Definites. *Information Sharing*. Eds. Kees van Deemter and Roger Kibble. Stanford, CA: CSLI Press.

Schlenker, P., 2005. Minimize restrictors!(Notes on definite descriptions, Condition C and epithets).

In *Proceedings of sinn und bedeutung* (Vol. 9, pp. 385-416).

Wolter, L., 2009. Demonstratives in philosophy and linguistics. *Philosophy Compass*, 4(3), pp.451-468.

Appendix 1: Semantics (from Aloni 2001; ch 3)

The language \mathcal{L}_{CC} is a standard predicate logical language where variables are subscripted with an index mapping to the contextually supplied contextual cover. Given \mathcal{L}_{CC} , a model M for \mathcal{L}_{CC} is a tuple $\langle W, D, C \rangle$ where W , the set of possible worlds, is a non-empty set of interpretation functions for the non-logical constants in \mathcal{L}_{CC} , D , the domain of discourse, is a non-empty set of individuals, and C is the set of conceptual covers based on W and D (defined below). Assignment functions are relativized to contextual perspectives \wp which are functions from indices on variables to some member of C .

Definition. [Conceptual Covers] C is the set of sets of concepts based on W and D , where each set of concepts CC obeys the following condition:

$$\forall w \in W : \forall d \in D : !\exists c \in CC : c(w) = d$$

Definition. [Information States] Information states are sets of possibilities, or world assignment pairs. Let $M = \langle D, W, C \rangle$ be a model for \mathcal{L}_{CC} . Let V be the set of individual variables in \mathcal{L}_{CC} . The set Σ_M of information states based on M is defined as:

$$\Sigma_M = \bigcup_{x \in V} \mathcal{P}(W \times D^x)$$

Definition. [Basic Terms] Let α be a term in \mathcal{L}_{CC} and $i = \langle w_i, g_i \rangle$ a possibility in some state $\sigma \in \Sigma_M$. The denotation of α in i is defined:

If α is a non-logical constant, then $i(\alpha) = w_i(\alpha)$

If α is a variable, then $i(\alpha) = g_i(\alpha)$

Definition. [Core Semantics]

$\sigma[Rt_1, \dots, t_n]\sigma'$ iff $\sigma' = \{i \in \sigma \mid \langle i(t_1), \dots, i(t_n) \rangle \in i(R)\}$;

$\sigma[\phi \wedge \varphi]\sigma'$ iff $\exists \sigma'' : \sigma[\phi]\sigma''[\varphi]\sigma'$

$\sigma[\exists x_n \phi]\sigma'$ iff $\sigma[x_n/c][\phi]\sigma'$ for some $c \in \wp(n)$

$\sigma[\exists! x_n \phi]\sigma'$ iff $\sigma[x_n/c][\phi]\sigma'$ for exactly one $c \in \wp(n)$

Definition. [c-extension]

$\sigma[x_n/c] = \{i[x_n/c(w_i)] \mid i \in \sigma\}$

Appendix 2: Deriving the Generalization (Formal)

	Unique/Non-PG	Unique/PG	Non-Unique/Non-PG
Example	#Maria here is a great speaker.	✓Maria here is a great speaker.	✓The stage here was once used for a musical production.

- Below, I show how the conditions in (26) predict the judgments above
- Conditions apply when the uniqueness presupposition of each DP is being checked in the derivation
- Each sentence above's (in-)felicity comes from whether or not they pass the conditions in (26)

#Unique & Non-Perceptually Grounded

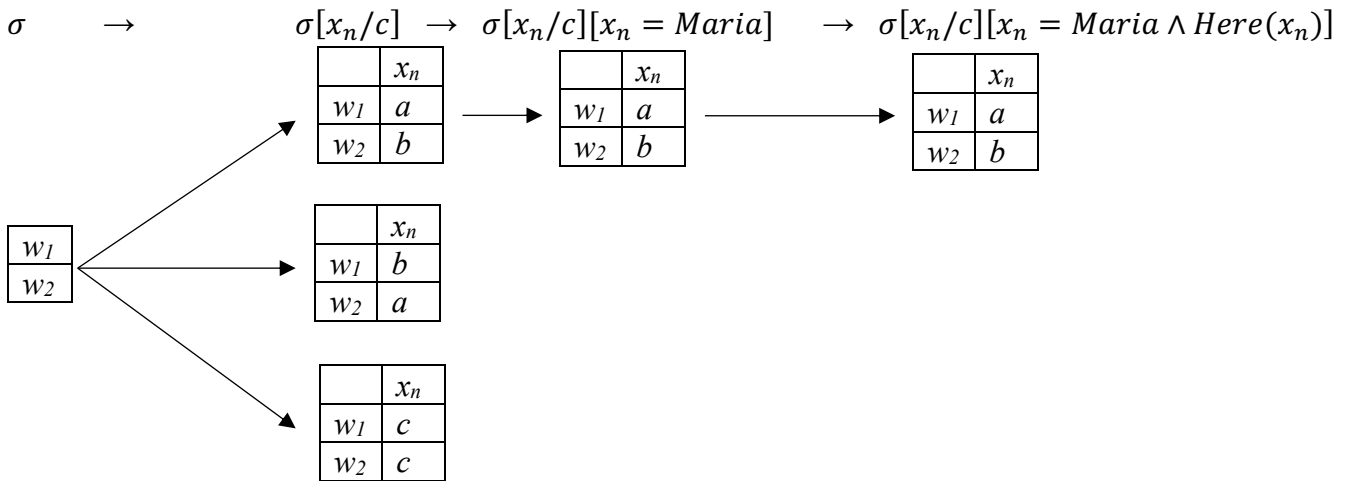
Example: [*Two attendees go outside of the conference room during a talk by their friend Maria.*] #Maria here is such a great speaker.

Conceptual Cover: $CC_{n(aming)}: \{\{w_1 \rightarrow a\}, \{w_1 \rightarrow b\}, \{w_1 \rightarrow c\}, \dots\}$
 $\{\{w_2 \rightarrow b\}, \{w_2 \rightarrow a\}, \{w_2 \rightarrow c\}, \dots\}$

Presupposition: $\exists! x_n [x_n = Maria \wedge Here(x_n)]$

$\llbracket Maria \rrbracket: \{w_1 \rightarrow a\}$
 $\{w_2 \rightarrow b\}$

$\llbracket Here_{NonPG} \rrbracket: \{w_1 \rightarrow \{a, c\}\}$
 $\{w_2 \rightarrow \{b, c\}\}$



- Fails to meet Condition (25a) because $I^{x_n=Maria \wedge Here(x_n)} = I^{x_n=Maria}$
- In contexts where one cannot use ostension to identify a referent, if the speaker says a name, then naming must be used (by the hierarchy in (23))
- In terms of the naming cover, any further modification would be redundant.
- Uniqueness is already met with $\sigma[x_n/c][x_n = Maria]$

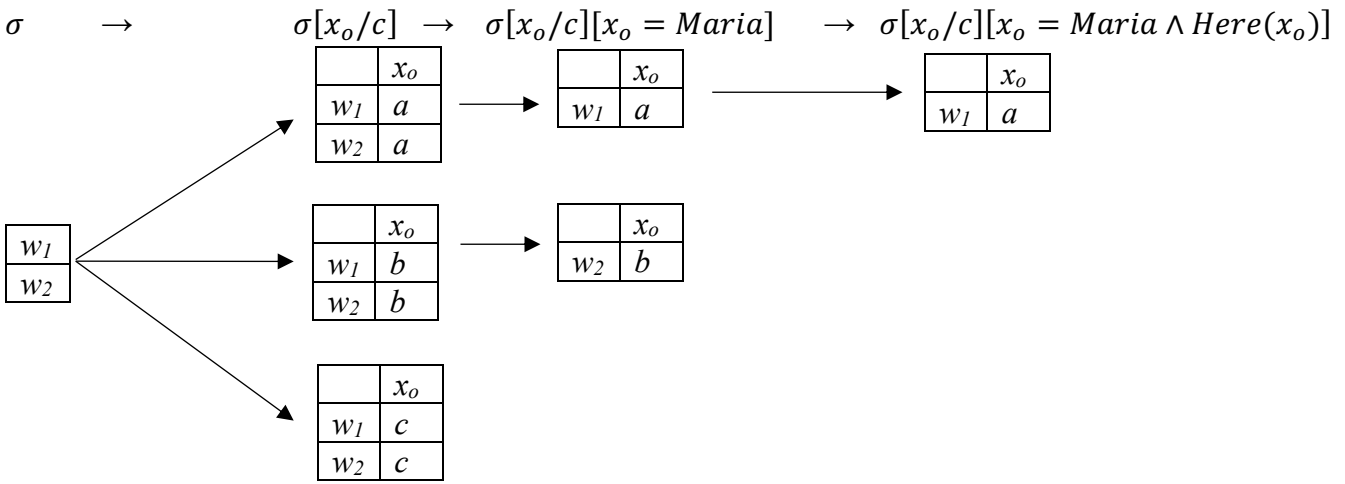
✓ Unique & Perceptually Grounded

Example: [*Speaker motions to Maria, who is right next to them.*] Maria here is such a great speaker.

Conceptual Cover: $CC_{o(stension)}: \{\lambda w. a, \lambda w. b, \lambda w. c, \dots\}$

Presupposition: $\exists! x_o [x_o = Maria \wedge Here(x_o)]$

$\llbracket Maria \rrbracket: \begin{cases} w_1 \rightarrow a \\ w_2 \rightarrow b \end{cases}$
 $\llbracket Here_{PG} \rrbracket: \begin{cases} w_1 \rightarrow \{a, c\} \\ w_2 \rightarrow \{a, c\} \end{cases}$



- Meets both Conditions in (25):

$$I^{x_o=Maria \wedge Here(x_o)} \subset I^{x_o=Maria}$$

$$I^{x_o=Maria \wedge Here(x_o)} \neq \emptyset$$

- In contexts where one can use ostension to identify a referent, it must be used (by the hierarchy in (23))
- In terms of the ostension cover, further restrictive modification is necessary to meet uniqueness if the context does not presuppose that the name is associated with a particular object in the visual field.
- Perceptually-grounded *here* can do this kind of modification since it, being a rigid property, can distinguish between objects in the perceptual field

✓ **Non-Unique & Non-Perceptually Grounded**

Example: [Two attendees are talking at a restaurant after the conference.] The stage here was once used for a musical production.

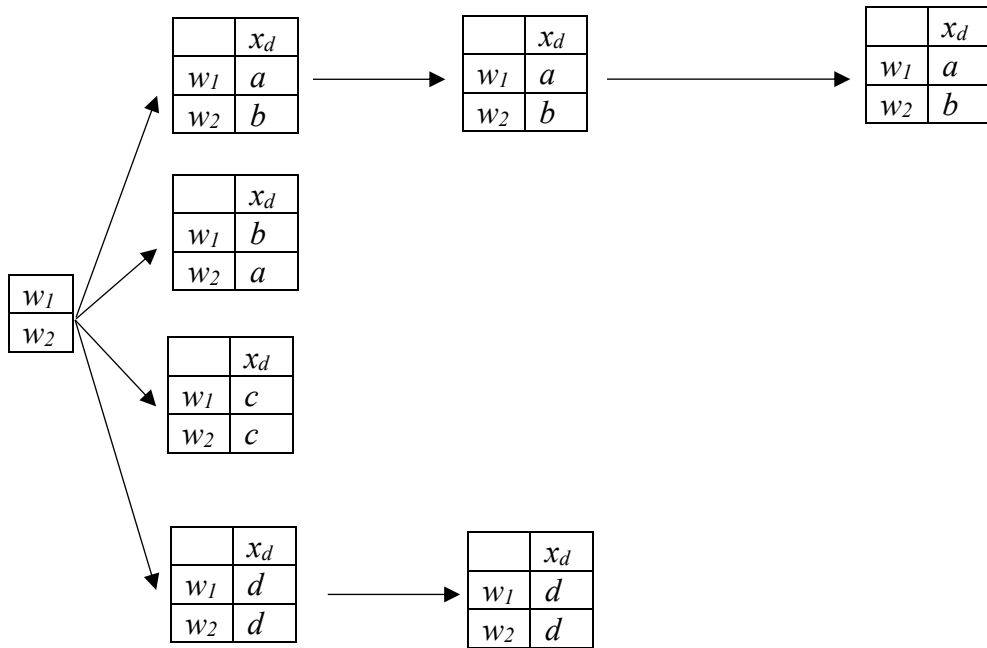
Conceptual Cover: $CC_{d(\text{escription})}: \{ \{w_1 \rightarrow a\}, \{w_1 \rightarrow b\}, \{w_1 \rightarrow c\}, \{w_1 \rightarrow d\}, \{w_2 \rightarrow b\}, \{w_2 \rightarrow a\}, \{w_2 \rightarrow c\}, \{w_2 \rightarrow d\}, \dots \}$

Presupposition: $\exists! x_d [Stage(x_d) \wedge Here(x_d)]$

$\llbracket Stage \rrbracket: \{ w_1 \rightarrow \{a, d\} \}$
 $\{ w_2 \rightarrow \{b, d\} \}$

$\llbracket Here_{Non-PG} \rrbracket: \{ w_1 \rightarrow \{a, c, \dots\} \}$
 $\{ w_2 \rightarrow \{b, c, \dots\} \}$

$\sigma \rightarrow \sigma[x_d/c] \rightarrow \sigma[x_d/c][Stage(x_d)] \rightarrow \sigma[x_d/c][Stage(x_d) \wedge Here(x_d)]$



- Meets both Conditions in (25):

$$I_{Stage(x_d) \wedge Here(x_d)} \subset I_{Stage(x_d)}$$

$$I_{Stage(x_d) \wedge Here(x_d)} \neq \emptyset$$

- Non-unique definite descriptions always denote multiple concepts under their regular descriptive covers