

# Gestures, Demonstratives, and the Attributive/Referential Distinction

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# A Plea for Gestures

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Extending formal semantic methods to the investigation of gestures...

- enlightens the at-issue/non-at-issue debate (Potts 2005)
- leads to a new (revived) view on demonstratives (à la Bühler 1934)
- derives the attributive/referential distinction (in the spirit of Kaplan 1989a/b, as we understand...)

# Objective 1

gestures systematically contribute non-at-issue meaning

# Gestures

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- Gesture:
  - communicative movements of hands and arms
  - transporting emotions, intentions, and thoughts
- Types of Gestures:
  - Iconic gestures
  - Pointing gestures
  - Emblems
  - Metaphoric gestures
  - Regulators
  - Beats

# Gestures

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(1) Cornelia: *"Ich habe [eine Flasche Wasser] zum Talk mitgebracht." / "I brought [a bottle of water] to the talk."*



Conveys roughly the same meaning as:

(2) Cornelia: *"Ich habe eine große Flasche Wasser zum Talk mitgebracht." / "I brought a big bottle of water to the talk."*

# Gestures

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- Gesture information adds semantic content to the utterance (cf. McNeill 1992, Kendon 1980)
- Questions:
  - **How** does gesture meaning combine with verbal meaning?
  - **What exactly** is the meaning contribution of the gesture?

# Gesture Meaning is Non-at-issue

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- Gestures contribute **non-at-issue meaning** (in the sense of Potts 2005)
- Speech-accompanying (iconic and pointing) gestures roughly behave like appositives
- Appositives (cf. Potts 2005):
  - (3) *Ludger Beerbaum, an outstanding show jumper, was accused of poling.*
  - (4) *Ludger Beerbaum, who is an outstanding show jumper, was accused of doping.*

# Gesture Meaning is Non-at-issue

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- Among other things, appositives have these properties:
  - they cannot be denied directly in discourse
  - they project, e.g. they cannot be the target of negation



# Gesture Meaning is Non-at-issue

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## The direct denial test

### speech & gesture

(5) *I brought [a bottle of water].*



Direct denial response:

(6) *#That's not true! You actually brought a small bottle.*

Discourse interrupting protest:

(7) *Hey, wait a minute! Actually, the bottle is not as big.*

### speech only

(8) *I brought a big bottle of water.*

Direct denial response:

(9) *That's not true! You actually brought a small bottle.*

# Gesture Meaning is Non-at-issue

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## The negation test

### speech & gesture

(10) *I did not bring [a bottle of water] to the talk.*



Negation elaboration:

(11) *#A small one is enough for me.*

### speech only

(12) *I did not bring a big bottle of water to the talk.*

Negation elaboration:

(13) *A small one is enough for me.*

# Gesture Meaning is Non-at-issue

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(1) *"Ich habe [eine Flasche Wasser] zum Talk mitgebracht." /*  
*"I brought [a bottle of water] to the talk."*



**How** does gesture meaning combine with verbal meaning?

**At-issue:** semantic content of the speech signal

*The speaker brought a bottle of water to the talk*

**Non-at-issue:** 'semantic content' of the gesture (roughly):

*The bottle is big*

# Gesture Meaning Contributions

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What exactly is the meaning contribution of the gesture?

- No difference between iconic and pointing gestures:

(14) *Christian also brought [a bottle of water].*



*But actually a big one.*

- Continuation indicates:  
pointing gesture makes non-at-issue contribution

*The bottle is small*

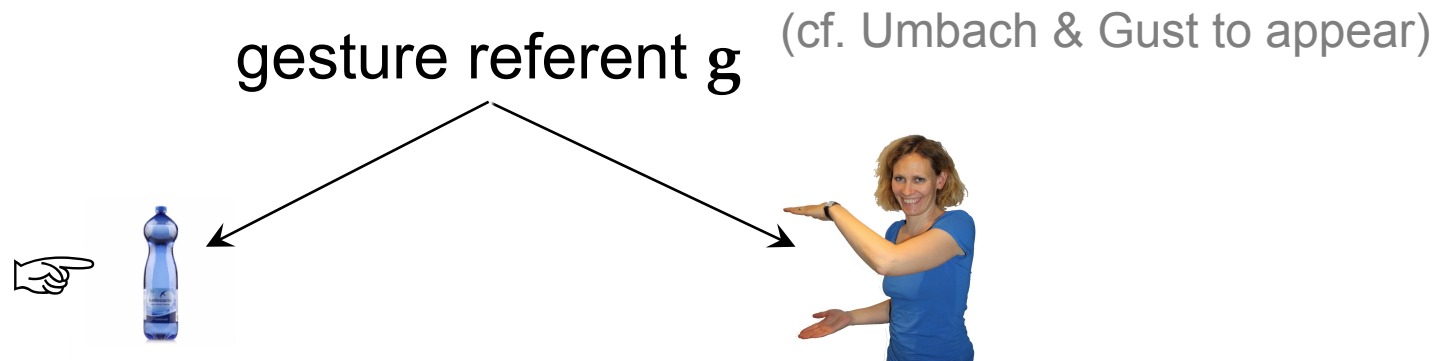
in the same way as a corresponding iconic gesture

# Gesture Meaning Contributions

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'Lexical' meaning

- iconic and pointing gestures function alike  
— both refer to an individual
- For iconic gestures: represented individual is abstract and carries at least the features crucial for comparison



- Deferred reference is possible (Nunberg 1993)

# Gesture Meaning Contributions

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## 'Constructional' meaning

- Gesture and speech are temporally aligned  
(e.g. Pittenger, Hockett, & Danehey 1960; Loehr 2004)
- Our proposal:

indefinite article

+  g



g is **similar** to verbal referent

(cf. Umbach & Gust to appear for such an analysis of similarity demonstratives)

name/definite article

+  g



g is **identical** to verbal referent

noun phrase

+  g



g **exemplifies** verbal concept

(cf. Fricke 2012, Lücking 2013)

# Gesture Meaning Contributions

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Illustrations via gesture mismatch:

- name + gesture → identity

(15) *[Carla Umbach] is one of the organizers of this conference.*



- definite article + gesture → identity

(16) *[The big bottle of water] is blue.*



- noun phrase + gesture → exemplification

(17) *Most [bottles] are made of plastic nowadays.*



# A Formal Analysis

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- Make use of ideas of Koev (2013) and AnderBois et. al. (to appear) to account for at-issue/non-at-issue distinction
- uni-dimensional and dynamic system  
→ accounts for anaphora/binding between different levels
- Keep track of at-issue/non-at-issue content via propositional variables  $p, p^*$ :
  - At-issue proposal:  $p$
  - Non-at-issue imposition:  $p^*$
- rough approximation of pragmatic use (cf. Farkas & Bruce, 2010):  
 $p$  is on the table for discussion  
 $p^*$  is not for discussion and silently imposed



# A Formal Analysis

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(3) *Ludger Beerbaum, an outstanding show jumper, was accused of poling*

$\exists x \wedge x = \text{ludger\_beerbaum} \wedge \text{outstanding\_show\_jumper}_{p^*}(x) \wedge \text{accused\_of\_poling}_p(x)$

- derives two propositions:
  - At-issue proposal: Ludger Beerbaum is accused of poling
  - Non-at-issue imposition: Ludger Beerbaum is an outstanding show jumper

# A Formal Analysis

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- in the formal system: variables such as  $x$  stand for an individual concept (i.e. they are of type  $\langle s, e \rangle$  )
- basic gesture meaning of  $\text{☞ } \mathbf{g}$  :  
direct reference to gesture referent  $\mathbf{g}$  by means of a rigid designator, noted as  $\ulcorner \text{☞ } \mathbf{g} \urcorner$  :

for all possible worlds  $w$ :  $\llbracket \ulcorner \text{☞ } \mathbf{g} \urcorner \rrbracket (w) = \mathbf{g}$

- coverbal performance of gesture  $\text{☞ } \mathbf{g}$  :

...  $\exists z \wedge z = \ulcorner \text{☞ } \mathbf{g} \urcorner$  ...

# A Formal Analysis

Combined meaning contributions of speech and gesture:

indefinite article  
+ gesture

*a*

$\exists x$

similarity



$SIM_{p^*}(x, z)$

name/definite article  
+ gesture

*the*

$\exists x$

identity



$x =_{p^*} z$

noun phrase  
+ gesture

*bottle*

$bottle_p(x)$

exemplification



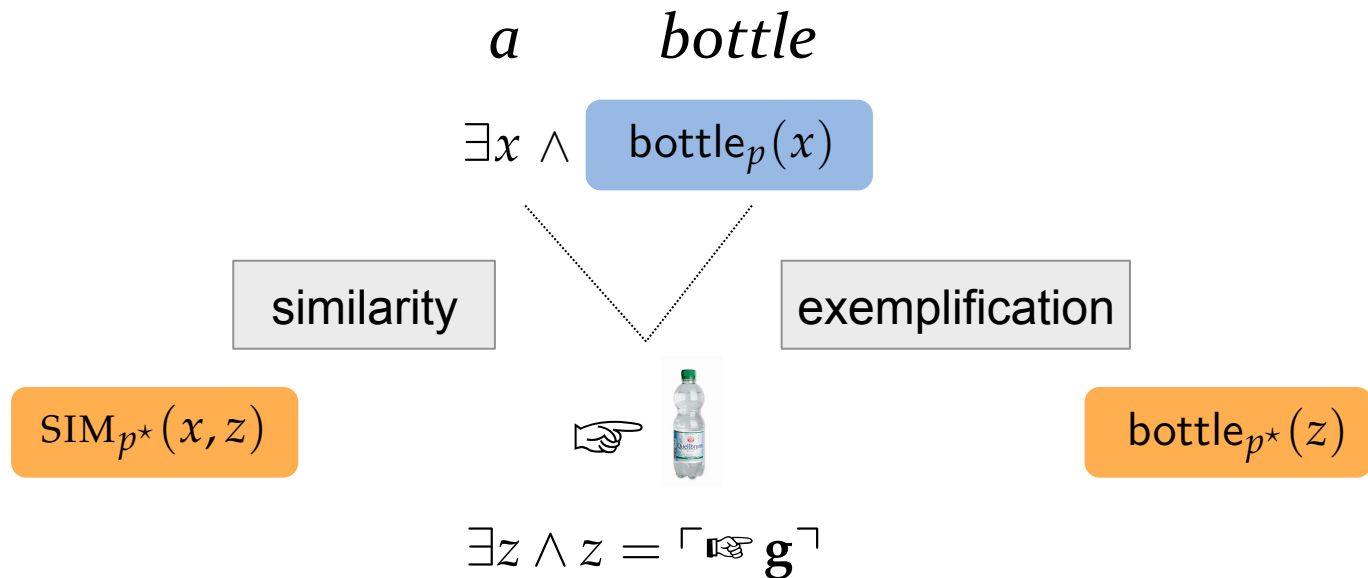
$bottle_{p^*}(z)$

+ presuppositions  
(existence & uniqueness)

# A Formal Example

(indefinite article + NP)

Combined meaning contributions of speech and gesture:



$$\exists z \wedge z = \lceil \text{pointing hand } g \rceil \wedge \exists x \wedge \text{bottle}_p(x) \wedge SIM_{p^*}(x, z) \wedge \text{bottle}_{p^*}(z)$$

# A Formal Example

(indefinite article + NP)

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(18) *Cornelia brought [a bottle].*



$$\exists z \wedge z = \ulcorner \text{hand pointing } \mathbf{g} \urcorner \wedge \exists x \wedge \text{bottle}_p(x) \wedge \text{SIM}_{p^*}(x, z) \wedge \text{bottle}_{p^*}(z) \wedge \text{bring}_p(\text{cornelia}, x)$$

At-issue:

there is a bottle that Cornelia brought

Non-at-issue:

the gesture referent is similar to this bottle

the gesture referent is itself a bottle

# A Formal Example

(definite article + NP)

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- Definite descriptions come with presuppositions of existence and uniqueness:

*the bottle*      presuppositions:

- there is a bottle
- there is not more than one salient bottle

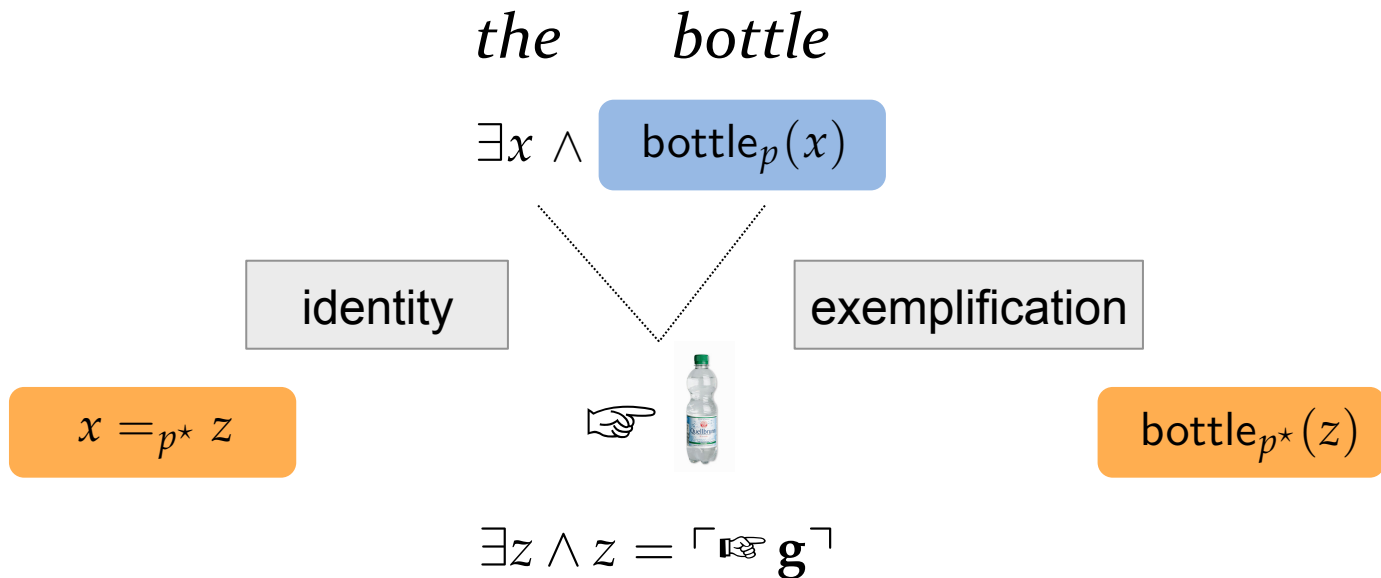
- presuppositions (not formally spelled out here) must be satisfied by the context set

# A Formal Example

(definite article + NP)

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Combined meaning contributions of speech and gesture:



$$\exists z \wedge z = \text{「}\text{☞}\text{ } \mathbf{g}\text{」} \wedge \exists x \wedge \text{bottle}_p(x) \wedge x =_{p^*} z \wedge \text{bottle}_{p^*}(z)$$

# A Formal Example

(definite article + NP)

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(19) *(Consider all the things on the table.)*  
*Cornelia brought [the bottle].*



$$\exists z \wedge z = \ulcorner \text{g} \urcorner \wedge \exists x \wedge \text{bottle}_p(x) \wedge x =_{p^*} z \wedge \text{bottle}_{p^*}(z) \wedge \text{bring}_p(\text{cornelia}, x)$$

Presupposition:

there is a unique (contextually salient) bottle

At-issue:

Cornelia brought that bottle

Non-at-issue:

the gesture referent is that bottle  
the gesture referent is itself a bottle



# Objective 2

demonstratives are 'dimension shifters'

# German *so* as Dimension Shifter

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## The negation test

### speech & gesture

(20) *Ich bringe niemals  
[eine Flasche Wasser] mit zu  
Vorträgen.*



*I never bring [a bottle of water]  
to talks .*

Negation elaboration:

(21) *#Eine kleine reicht mir nämlich.  
(A small one is enough for me.)*

### speech + *so* & gesture

(22) *Ich bringe niemals  
[SO eine Flasche Wasser] mit zu  
Vorträgen.*



*I never bring [a bottle of water  
like that] to talks.*

Negation elaboration:

(23) *Eine kleine reicht mir nämlich.  
(A small one is enough for me.)*

# German *so* as Dimension Shifter

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- What happened here?

(24) *Ich bringe niemals [SO eine Flasche Wasser] mit zu Vorträgen.*  
(I never bring [a bottle of water like that] to talks.)



is synonymous to

(25) *Ich bringe niemals eine große Flasche Wasser mit zu Vorträgen.*  
(I never bring a big bottle of water to talks.)

- *so* shifted gesture meaning contribution (i.e. similarity) from the non-at-issue level to the at-issue level

# Demonstratives as Dimension Shifters

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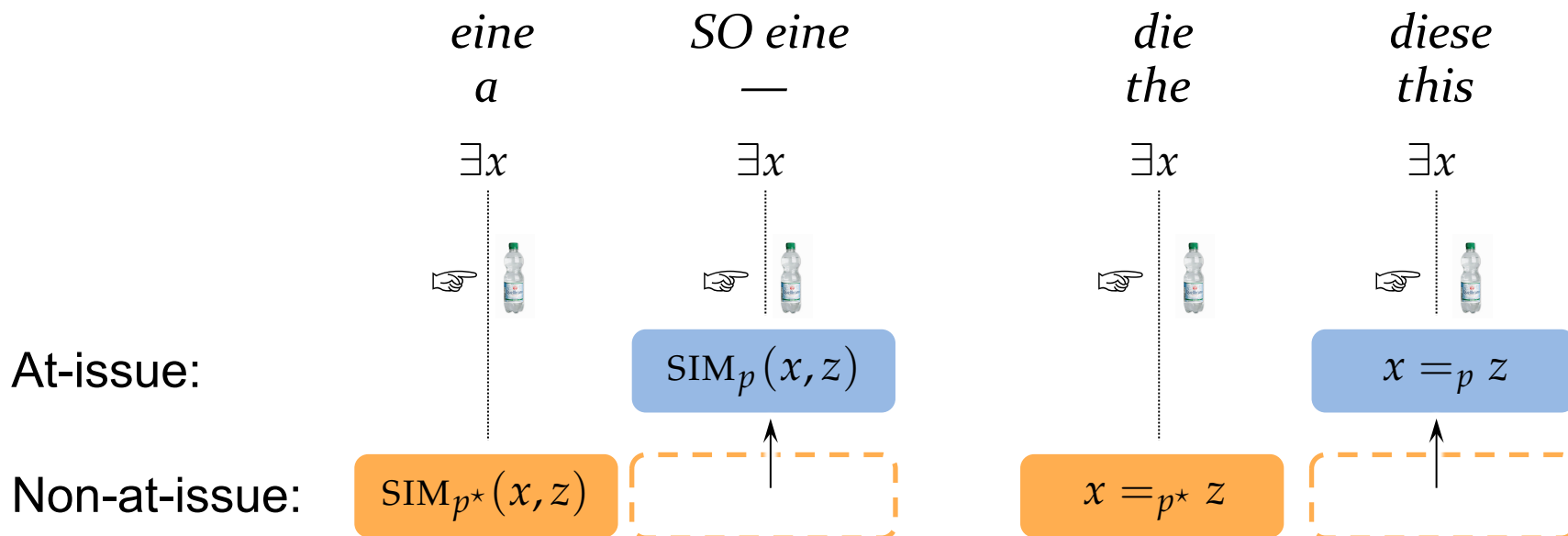
- Demonstratives make speech-accompanying gesture meaning **at-issue**
- Comes close to Tomasello's (1999) claim (in the spirit of Bühler 1934) that demonstratives serve to create 'joint attention' (cf. Diessel 2006)
- Cf. Fricke 2012, Umbach & Ebert 2009, Streeck 2002 for placeholder-function of *so* (see also König 2012)
- Demonstratives function as **dimension shifters** from non-at-issue to at-issue (pace Potts 2005, 2007 and Gutzmann 2012)

# Demonstratives as Dimension Shifters

- diese/this* is the demonstrative version of the shifted definite article *die/the*, i.e.

*diese* = *so* + *die*

*this* = *so* + *the*

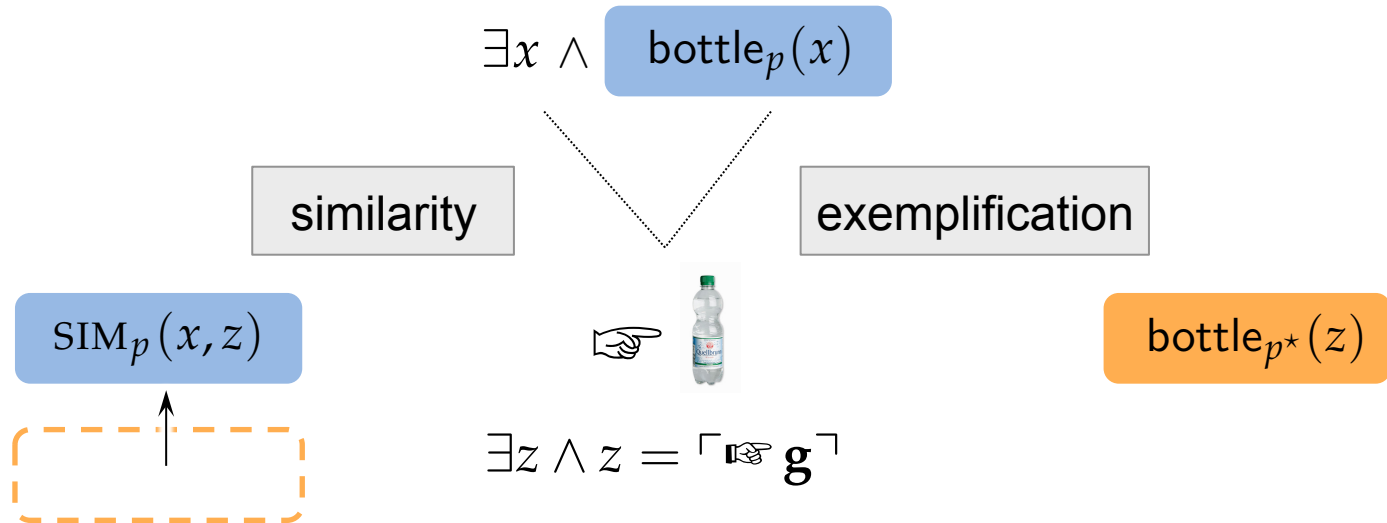


# A Formal Example

(so + indefinite article)

Combined meaning contributions of speech and gesture:

*SO eine Flasche*



$$\exists z \wedge z = \text{[hand icon]} g \wedge \exists x \wedge \text{bottle}_p(x) \wedge \text{SIM}_p(x, z) \wedge \text{bottle}_{p^*}(z)$$

# A Formal Example

(so + indefinite article)

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(26) *Cornelia hat [SO eine Flasche] mitgebracht.*  
*Cornelia brought [a bottle like that].*



$$\exists z \wedge z = \ulcorner \text{☞ } \mathbf{g} \urcorner \wedge \exists x \wedge \text{bottle}_p(x) \wedge \text{SIM}_p(x, z) \wedge \text{bottle}_{p^*}(z) \wedge \text{bring}_p(\text{cornelia}, x)$$

At-issue:

there is a bottle **which is similar to the gesture referent** that Cornelia brought  
(cf. Umbach & Gust to appear)

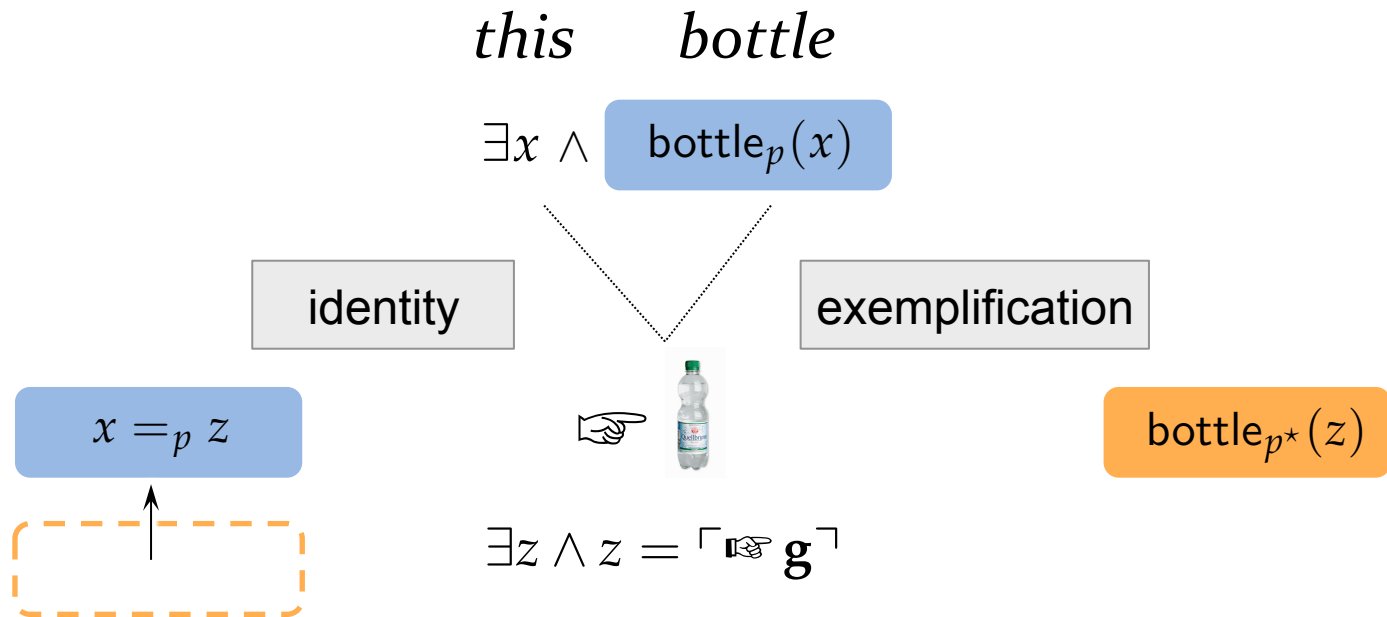
Non-at-issue:

the gesture referent is itself a bottle

# A Formal Example

(this)

Combined meaning contributions of speech and gesture:



$$\exists z \wedge z = \lceil \text{pointing hand } g \rceil \wedge \exists x \wedge \text{bottle}_p(x) \wedge x =_p z \wedge \text{bottle}_{p^*}(z)$$



# A Formal Example

(this)

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- Since the identity  $x =_p z$  is at issue it becomes part of the description relevant for the presuppositions of the definite.

*this bottle* presuppositions:

- there is a bottle **which is identical to the gesture referent**
  - there is not more than one salient bottle **which is identical to the gesture referent**
- presuppositions are satisfied if there is a unique bottle pointed at

# A Formal Example

(indefinite article + NP)

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(27) *Cornelia brought [this bottle].*



$$\exists z \wedge z = \ulcorner \text{pointing hand } \mathbf{g} \urcorner \wedge \exists x \wedge \text{bottle}_p(x) \wedge x =_p z \wedge \text{bottle}_{p^*}(z) \wedge \text{bring}_p(\text{cornelia}, x)$$

Presupposition:

there is a unique (contextually salient) bottle **which is identical to the gesture referent**

At-issue:

Cornelia brought that bottle and **that bottle is identical to the gesture referent**

Non-at-issue:

the object pointed at is itself a bottle

# Discussion

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- The gesture is directly referential to *g* and determined by the utterance situation.

(28) <sup>F</sup> *If the two bottles changed places, [this bottle] would be blue.*



- This mirrors Kaplan's (1989a) crucial observation for 'true demonstratives' as directly referential concepts.
- Compare this to:

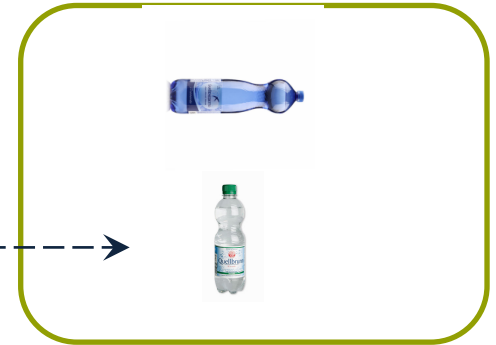
(29) <sup>T</sup> *If the two bottles changed places, [the bottle on the right] would be blue.*



# Discussion

Crucial mismatch scenario I: definite

(30) A: *[The bottle of Christian] is tipped over.*



(31) B: True. But this is not it/Christian's bottle.

(31') B: True. But this is not a bottle of Christian.

Presupposition: there is a unique (contextually salient) bottle of Christian

$\exists z \wedge z = \text{「} \text{☞} \text{g} \text{」} \wedge \exists x \wedge \text{bottle\_of\_ch}_p(x) \wedge x =_{p^*} z$

$\wedge \text{bottle\_of\_ch}_{p^*}(z) \wedge \text{tip\_over}_p(x)$

# Discussion

## Crucial mismatch scenario II: demonstrative

(32) A: *[This bottle] is tipped over.*



(33) B: *False, the object you are pointing at is not tipped over.*

Presupposition:

there is a unique (contextually salient) bottle which is identical to the gesture referent

$$\exists z \wedge z = \ulcorner \text{hand} \text{ g} \urcorner \wedge \exists x \wedge \text{bottle}_p(x) \wedge \cancel{x =_p z} \\ \wedge \text{bottle}_{p^*}(z) \wedge \cancel{\text{tip\_over}_p(x)}$$

# Objective 3

referential readings are gesture at-issue readings

# Attributive vs. Referential

Another mismatch scenario:

(34) A: *[The bottle of Christian] is transparent.*



(35) B: Yes, THIS (bottle) is transparent.  
But this is not Christian's bottle.

This is the **referential reading** of the definite (Donellan, 1966)

$$\exists z \wedge z = \text{「} \text{☞} \text{g} \text{」} \wedge \exists x \wedge \text{bottle\_of\_ch}_{p^*}(x) \wedge x =_p z$$

$$\wedge \text{bottle\_of\_ch}_{p^*}(z) \wedge \text{transparent}_p(x)$$

# Attributive vs. Referential

General idea:

*The bottle of Christian* -----  $x$



-----  $z$



- Two distinct referential concepts: verbal  $x$  and (possibly covert) gestural  $z$
- only one can be at-issue, the other must be non-at-issue

at-issue verbal concept  $x$

bottle\_of\_ch <sub>$p$</sub> ( $x$ )

$x =_{p^*} z$

**attributive reading**

at-issue gesture concept  $z$

bottle\_of\_ch <sub>$p^*$</sub> ( $x$ )

$x =_p z$

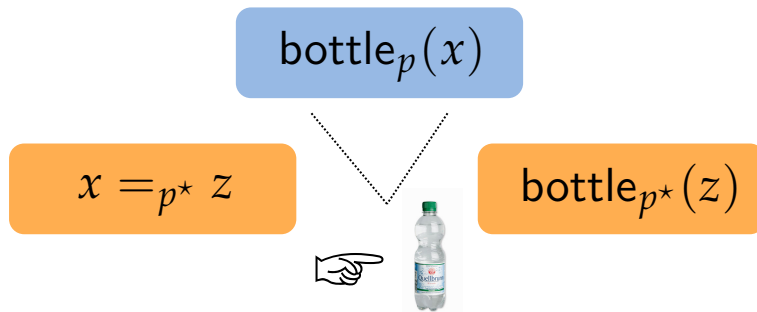
**referential reading**



# Attributive vs. Referential

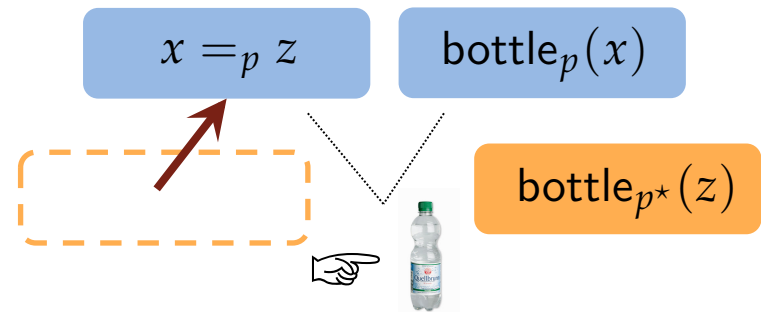
## attributive reading

*the bottle*



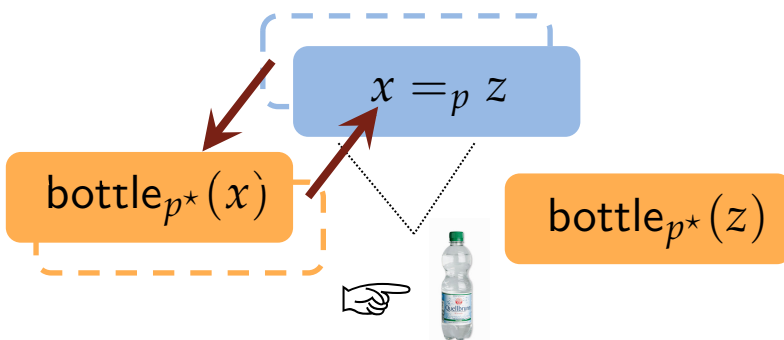
## demonstrative reading

*this bottle*



## referential reading

*the bottle*



Due to at-issue identification

$$x =_p z$$

definite treated as a rigid designator or name-like (see Kaplan 1989a,b; Marti 2008)

# Attributive vs. Referential

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Kaplan (1989a, p. 561):

the act of utterance (as in “Hi-ya, Beautiful”). What is important here is that the speaker intends to be creating a meaning for the expression in question rather than following conventions. Dubbings, whether aimed

Marti (2008):

irrespective of whether the individual satisfies the description. The model that seems correct is that of a nonce-use, in which the speaker lacks the intention to use the description’s conventional meaning, intending instead to use the description as a convenient label to (directly) pick out the intended referent.<sup>13</sup>

# Attributive vs. Referential

(mistaken identity)

Mistaken identity cases (speaker's/semantic reference)  
(Kripke 1977 based on Linsky 1963)

Verbal concept at-issue/attributive interpretation/semantic referent:

(36) A: *Her husband is kind to her.*

(37) B: *No, he [= her husband] isn't.*

*The man you are referring to isn't her husband.* (Kripke 1977, p. 90)

husband\_of<sub>p</sub>(*x*, *y*)

~~$x =_p z$~~

~~kind<sub>p</sub>(*x*, *y*)~~

*Her husband (who is, by the way, identical to the object I'm pointing to) is kind to her.*



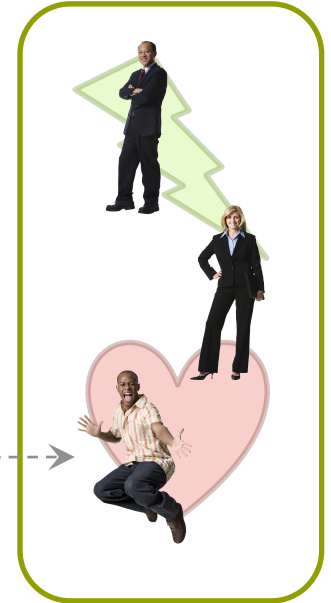
# Attributive vs. Referential

(mistaken identity)

Gestural concept at-issue/referential interpretation/  
speaker's referent:

(38) A: *Her husband is kind to her.*

(39') B: *HE* [= the man referred to by the speaker  
via gesture] *is kind to her. But he isn't her husband.*  
(Kripke 1977, p. 90, our emphasis)



~~husband\_of~~  $p^*(x, y)$

$x =_p z$

$kind_p(x, y)$

*This object (which is, by the way, her husband) is kind to her.*

# Attributive vs. Referential

---

Kaplan (1989b, p. 583):

... to which the original speaker would have to reply, "The man with the martini." So he shortens the dialogue and uses the description "the man with the martini" as a substitute for the demonstration. Here the speaker might equally well have said, "Who is that man with the martini?" or, "Who is that?" followed by an appositive, parenthetical, whispered "(the man with the martini)."

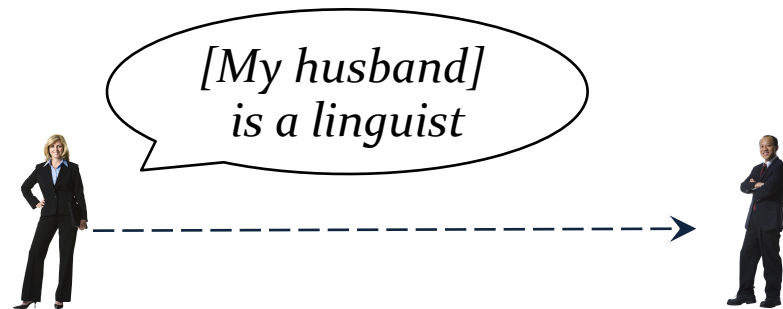
# Attributive vs. Referential

At-issueness of concept can be determined by questions:

(40) A: *What does your husband do?*

→ at-issue **verbal concept**

→ **attributive reading**



*my husband is a linguist*

*my husband is the guy over there*

$\text{husband\_of}_p(x, \text{speaker})$

$\text{linguist}_p(x)$

$x =_{p^*} z$

$\text{husband\_of}_{p^*}(z, \text{speaker})$

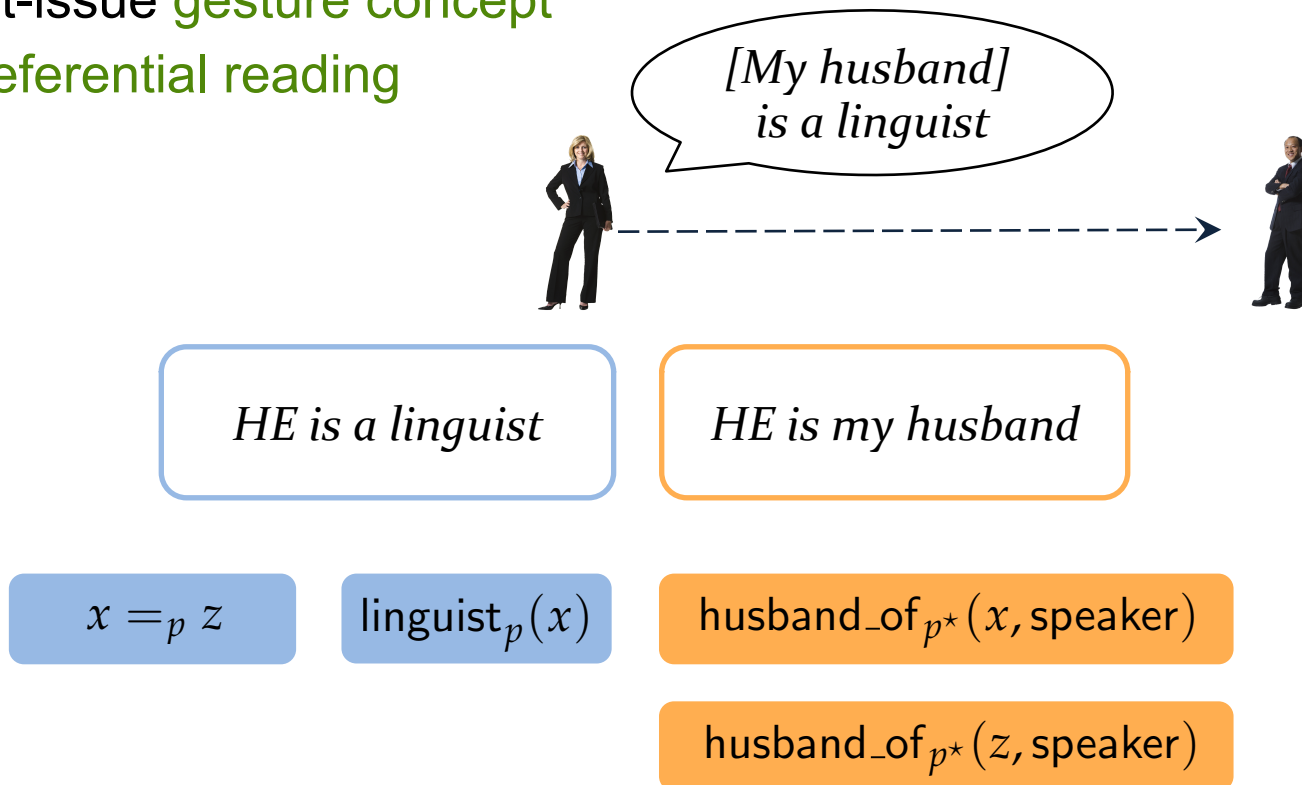
# Attributive vs. Referential

At-issueness of concept can be determined by questions:

(41) A: *What does HE [= the guy over there] do?*

→ at-issue **gesture concept**

→ **referential reading**



# Attributive vs. Referential

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Donnellan (1966, p. 288):

this: when a definite description is used referentially, not only is there in some sense a presupposition or implication that someone or something fits the description, as there is also in the attributive use, but there is a quite different presupposition; the speaker presupposes of some *particular* someone or something that he or it fits the description. In asking, for example, “Who is the man drinking a

Donnellan (1966, p. 289):

is presupposing that that person is Smith’s murderer. Now the more particular presuppositions that we find present in referential uses are clearly not ones we can assign to a definite description in some particular sentence in isolation from a context of use. In



# Attributive vs. Referential

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Donnellan (1966, p. 298):

Using a definite description referentially, a speaker may say something true even though the description correctly applies to nothing. The sense in which he may say something true is the

# Attributive vs. Referential

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Donnellan (1968, p. 206):

- (1) *S* will have referred to *e* whether or not *e* is in fact  $\varphi$ .
- (2) *S* will have said something true or false about *e* whether or not *e* is in fact  $\varphi$  (provided that everything is in order concerning the remainder of the speech act).
- (3) *S*, in using “the  $\varphi$ ” to refer to *e*, will have presupposed or implied that *e* is  $\varphi$ .
- (4) In reporting *S*’s speech act, it will be correct to say that he stated something about *e* and in reporting this to use expressions to refer to *e* other than “the  $\varphi$ ” or synonyms of it.<sup>6</sup>

# Speaker's Reference

Doubly mistaken identity cases:

at 8 a.m.:



"Pookie",  
the fish hunter

Peter's cat:



at 2 p.m.:



*speaker's referent*



*Peter's cat already  
angered the fish  
this morning*

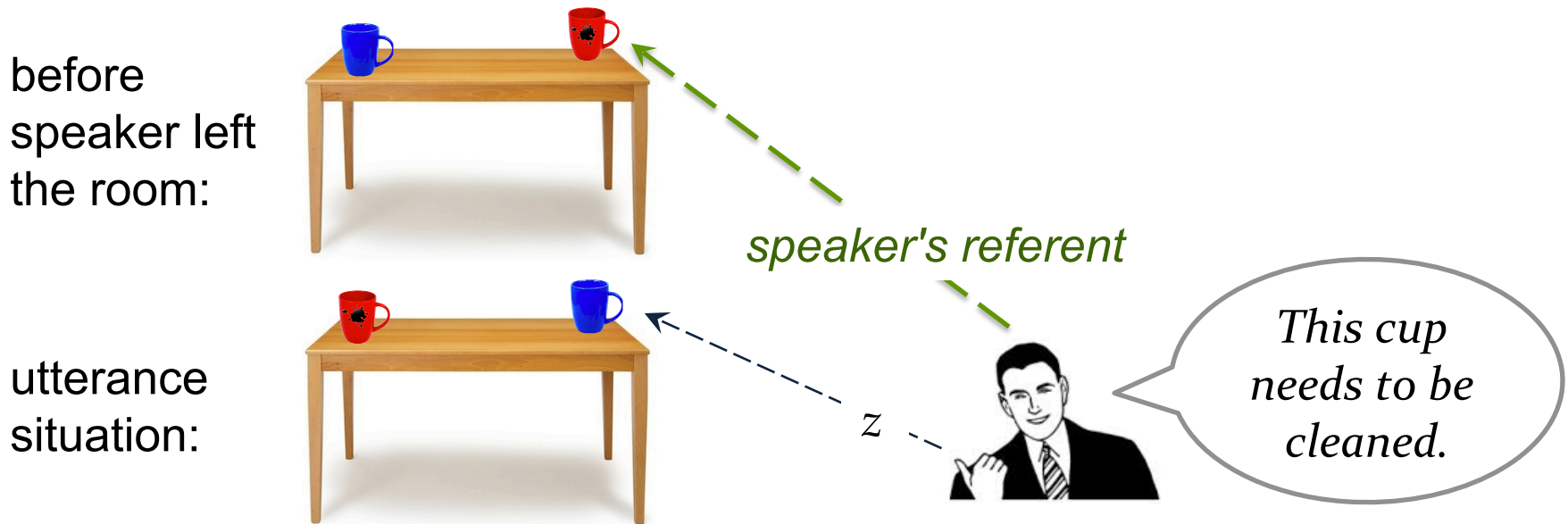
No possibility to arrive at interpretation with speaker's reference. Anaphoric reference only to verbal or gesture referent, not speaker's referent (against Kripke 1977):

(42) B: # *Yes, HE [speaker's referent] did.*

*But he [speaker's referent] is not Peter's cat.*

# Speaker's Reference

Semantic meaning is determined by – speech and gesture – conventions (cf. Kaplan 1973, 1989; Reimer 1991):



Referent determined by gesture conventions, not by speaker's intentions → sentence is false

# Outlook

('what the speaker has in mind')

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(Possibly covert) pointing to a salient object, given

- either situationally (**Demonstratio ad oculos**, Bühler 1934)
  - Kripke's (1977) example  
*Her husband is kind to her.*
- within the speaker's mind (**Deixis am Phantasma**, Bühler 1934):
  - Referentially used definites (Geach 1962, p.31):  
*The fat old humbug we saw yesterday has just been made full professor.*
  - Specific indefinites (e.g. Fodor & Sag 1982):  
*Peter met an old friend from school yesterday.*
  - Indefinite use of demonstratives (see Deichsel 2013):  
*Peter met this old friend from school yesterday.*

# Outlook

(different identification strategies within speech)

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- So far: two different identification strategies
  - Speech concept
  - Pointing

- Other possibility: both strategies within speech

*Sissi's husband, Graf Andrassy, is kind to her.*

- Strategies can be combined

→ possibility for three times mistaken identity

*[Sissi's husband, Graf Andrassy,] is kind to her.*



# Thank you

also to: Klaus von Heusinger, Stefan Hinterwimmer, Hans Kamp, Manfred Krifka, Philippe Schlenker, Peter Staudacher, and Carla Umbach, and the linguistics group in Stuttgart for various discussions on semantic issues around gestures.

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