

Presentation 11: Signaling
Herbert H. Clark
Stanford University



Two views of signals

- Traditional view:** linguistic only
Conventional language only
English, Lakota, Japanese
Vocal, auditory, printed
- Practical view:** linguistic and non-linguistic
Conventional language
Gestures, indicative and iconic
Other communicative acts
Both conventional and non-conventional

Categorical thinking



- human > child > boy
- toy > stuffed animal > teddy bear
- floor > walkway > stairway
- moving > locomoting > walking
- dragging
- on

Locational thinking



That is Christopher Robin.
That is Winnie-the-Pooh.
That is the stairway of the house where Christopher Robin lives.
That is the event, one day, of Christopher Robin dragging Pooh downstairs.

Imaginal thinking



Drawing of Christopher Robin and Winnie-the-Pooh
by Ernest H. Shepard
for *Winnie-the-Pooh*
by A. A. Milne

Imaginal thinking



"Here is Edward Bear, coming downstairs now, bump, bump, bump, on the back of his head, behind Christopher Robin." (Carol Channing)

Common assumptions

People talk almost *entirely with words*.
These are **unproblematic**:
Pointing
Deictic expressions (*this, that, I, you, here, there*)
Quotations
Irony, teasing, sarcasm
Fiction
Iconic gestures
These require **no new mental machinery**.

New assumptions

People talk with **more than words**.
These are **not unproblematic**:
Pointing
Deictic expressions (*this, that, I, you, here, there*)
Quotations
Irony, teasing, sarcasm
Fiction
Iconic gestures
These require **new mental machinery**.

Argument

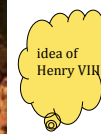
Three methods of signaling
1. Describing-as
2. Indicating
3. Demonstrating, or depicting
These require distinct modes of thinking
1. Categorical thinking
2. Locational thinking
3. Imaginal thinking
Language use is based on of methods
Composite signals
Combined modes of thinking

Three methods of signaling




C. S. Peirce's theory of signs

- Object
- Sign
- Interpretant




Henry VIII himself






Three types of signs

Type of sign	Relation of sign S to its object O
1. Symbol 	1. S is associated with O by rule O = "canine animal"
2. Index 	2. S is physically connected with O O = Rover
3. Icon 	3. S resembles O perceptually O = "canine animal"

Methods of signaling

Sign created	Method of signaling
1. Symbol 	1. describing-as a type of thing
2. Index 	2. indicating a thing
3. Icon 	3. demonstrating/depicting a thing

Signaling and modes of thinking

Method of signaling	Mode of thinking
1. Describing-as type of thing 	1. categorical
2. Indicating a thing 	2. locational
3. Depicting a thing 	3. imaginal

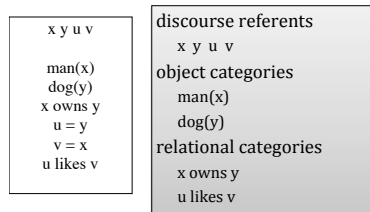
Describing-as

Discourse representation theory

A man owns a dog.
It likes him.

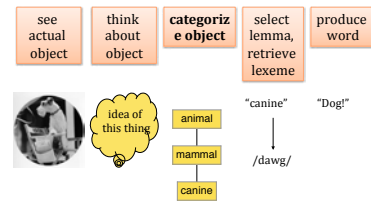
x y u v
man(x)
dog(y)
x owns y
u = y
v = x
u likes v

Symbols and categories

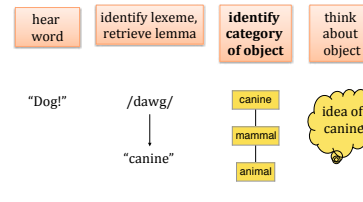


Production of a word

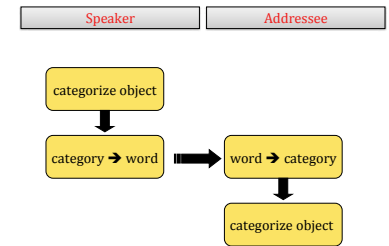
(e.g., Levelt, 1989)



Comprehension of a word

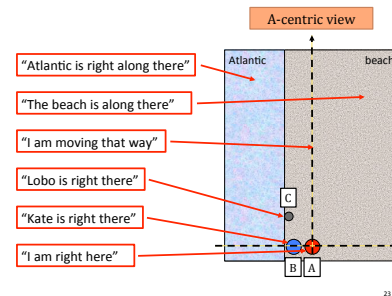
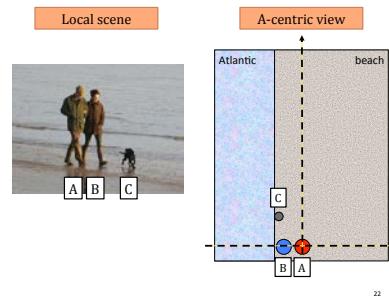


Joint categorization



Local scenes as common ground

Anchoring to elements of local scenes



Frames of reference (for A)

1. Space-frame

1. northwest vs. southeast
2. sea-ward vs. shore-ward
3. up vs. down
4. origin (at A's feet)

2. Time-frame

moment in relation to GMT

3. Element-frame

Index

1. "this object"

2. "here"

3. "now"

4. "that way"

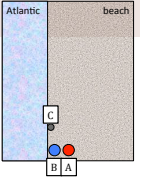
Indicatum

identity (e.g., "Lupo")

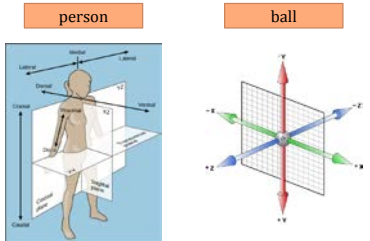
location in space-frame

moment in time-frame

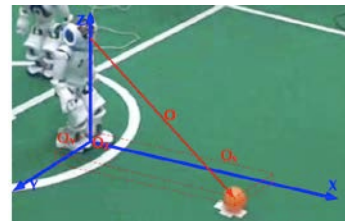
orientation in space-frame (facing B)



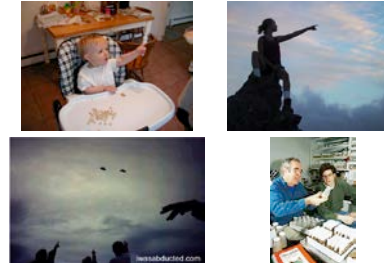
Element frames



Perception of ball in a space-frame



Indicating, or anchoring in space



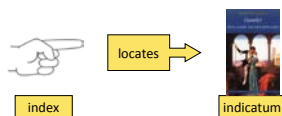
Indicating as a method

1. A & B presuppose **local scene** as common ground
2. A indicates individuals for B within scene
3. Prototype: pointing (or spatial indexing)



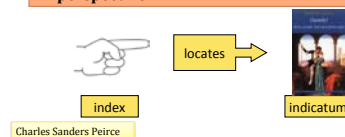
What is pointing?

Pointing is the act of indicating a thing by **locating** it



To point is to create an index

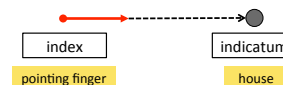
1. Index has a **spatial connection** to indicatum.
2. Indicatum is an **individual**.
3. Indicatum is to be **construed from a perspective**.



1. Axial index

Axis ...

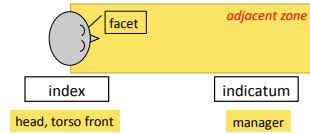
- specifies **direction**
- specifies indicatum **at end of axis**



2. Facet index

Facet of object ...

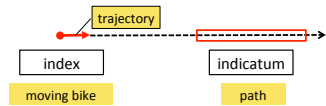
- is a front, back, side, etc.
- defines *adjacent zone*
- adjacent zone contains indicatum



4. Trajectory index

Trajectory

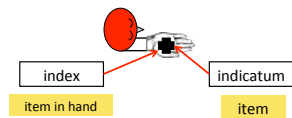
- defined by direction of motion
- usually indicates a path



6. Exhibited index

Exhibited item

- is located in hand, on head, etc.
- indexes the item exhibited



What Clark can refer to

indicatum = indexed physical manifestation
referent ≠ indicatum



- | Demonstrative reference | referent |
|--|-----------------------------|
| 1. I found this book on your desk | (instance of a book) |
| 2. This book has an awful font | (edition of a book) |
| 3. These cost \$10 at Borders | (copies of edition of book) |

What Clark can refer to

indicatum = indexed physical manifestation
referent ≠ indicatum

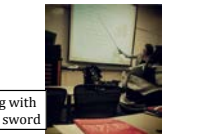
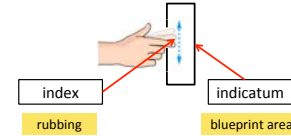


- | Demonstrative reference | referent |
|---|-------------------------|
| 1. I've seen this performed on stage | ("Hamlet" the play) |
| 2. This guy is suicidal | (Hamlet the character) |
| 3. This man is our greatest playwright | (William Shakespeare) |
| 4. This takes place in Denmark | (the story of "Hamlet") |

3. Tactile index

Touching an area

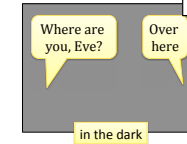
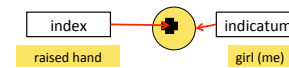
- locates an *area*
- specifies area *as indicatum*



5. Centric index

Deictic center ...

- is located in/on/at person
- indexes *him- or herself*



Pointing at a book



Interpretation of pointing

Index to Hamlet, the character

"This character is suicidal"



Indexes for "this character"

Chain of **five** indexes:

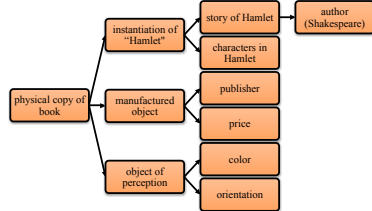
1. axial index →
2. indicatum →
3. copy of physical book →
4. printed representation of "Hamlet" →
5. story of "Hamlet" →
6. Hamlet as character

Interpretation of object (from sentence)
"character"

Challenge:

How to compute **chain of indexes** and **interpretation**

Indexical links with book



Experimenter asked students on campus (1982):

1. "You know who this man is, don't you?"
2. "Do you have any idea at all who this man is?"



Clark, Schreuder, Buttrick (1983)

50

Participants assumed *current common ground*

"You know who this man is, don't you?" "Do you have any idea at all who this man is?"

Responses	%	Responses	%
93% Yes, it's Reagan	80	47% Yes, it's Stockman	20
Him? (Reagan)	13	Him? (Stockman)	27
0% Him? (Stockman)	0	13% Him? (Reagan)	13
Which one?	7	Which one?	33



51

Two types of pointing (Wilkins, 2002)

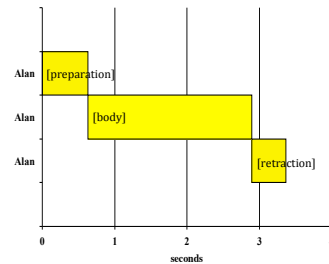
Distant pointing
(beyond arm's length)

Close pointing
Without touching
With touching



Three phases of close pointing

1. Preparation
From rest to beginning of touch
2. Body
From beginning of touch to retraction
3. Retraction
From end of touch to rest



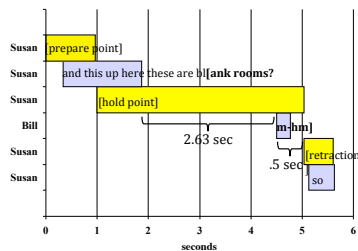
Notation

Phrasal affiliate:
italics

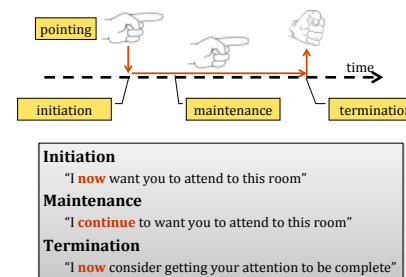
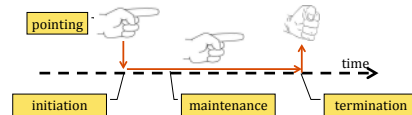
Alan: although *these* look like (1.13 sec)

Beth: **no**, those are

Body:
[**boldface within brackets**]



Three phases of pointing



Locational thinking

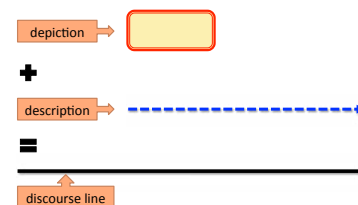
Indicating as a process
Index **locates object**
Speaker, addressee establish **interpretation of object**
Locational thinking
Knowledge of: **material objects and their locations**
Use of geometry: **axes, facets, centers, trajectories**
Knowledge of: **causal connections with material objects**
Knowledge of: **places** (e.g., counters)

Depictions in ordinary discourse

Prototypical types of everyday depiction



Notation



In a discourse, depictions can be ...

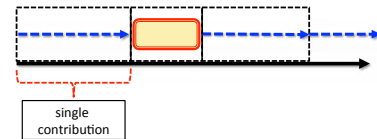
1. **embedded in discourse**
 - a) free-standing contributions
 - b) NPs, VPs
 - c) nouns, verbs, adjectives
2. **linked to discourse**
 - a) indexed depictions
 - b) adjunct depictions
3. **discursive on their own**
 - a) as narratives
 - b) as dialogue

In a discourse, depictions can be ...

1. **embedded in discourse**
 - a) free-standing contributions
 - b) NPs, VPs
 - c) nouns, verbs, adjectives
2. **linked to discourse**
 - a) indexed depictions
 - b) adjunct depictions
3. **discursive on their own**
 - a) as narratives
 - b) as dialogue

65

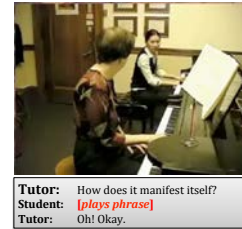
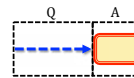
1. Free-standing contributions



66

1. Free-standing contributions

Answer to question



67

1. Free-standing contributions

Next contribution

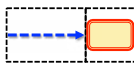


68

1. Free-standing contributions

From Laguna Beach (MTV)

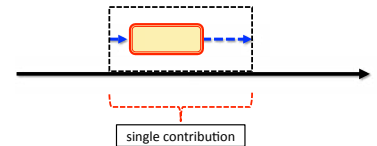
Next contribution



My friend Gary really talked me into it.
"Come on. We gotta audition together. We gotta be on it together."
And I was kind of like, "Whatever," you know. And um ...

69

1. Embedded constituents



70

1. Embedded constituents

Embedded as reports

He wrote X
He played X
He said X
She was like X
He went X

Embedded as words

Nouns the X
Verbs he X'd
Modifiers the X man

71

1. Embedded constituents

Report of Joe Schmo's writing

Note: Pianist depicts phrase on piano



You know, Joe Schmo would have written [playing phrase]. Right? [playing phrase] But [playing phrase]

72

1. Embedded constituents

Report of Bartok's playing

Note: Bilson depicts contrasting phrasing on piano



He doesn't play [sing-playing phrase], but rather he plays—he does it better than I do—[sing-playing phrase].

73

1. Embedded constituents

From Laguna Beach (MTV)

Report of conversation

Note: Laura dramatizes friend's voice and face



And she's all, "You'll never guess who's in the office." And I was like, "Who." And she's like, "MTV."

74

1. Embedded constituents

From Laguna Beach (MTV)

Report of friend's request

Note: Laura dramatizes friend's voice, face, gesture



And I see her through the window and she's trying to get my attention. And she was like, "[gesturing] Come out. Come out."

75

1. Embedded constituents

Chloe Sevigny

Report of cinematographer's request

Note: Sevigny depicts gesture and request



Before every take, the cinematographer would be like, "Lift your chin." So when I watched the movie, [patting under chin ...] I'm ...

76

1. Embedded constituents

vocal part strictly embedded

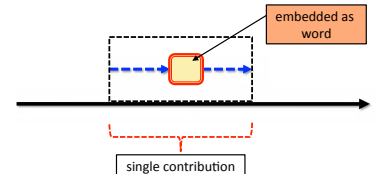
gestural part overlaps



Before every take, the cinematographer would be like, "Lift your chin." So when I watched the movie, [patting under chin ...] I'm ...

77

1. Embedded words



78

1. Embedded words

David Owen Norris

Depiction as noun: his N

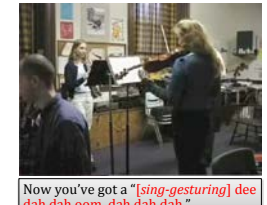


He found he could do his "[singing] Fremd bin ich ein—" in a much more conversational way ...

Schubert's Winterreise Lied 1

1. Embedded words

Depiction as noun: a N



Now you've got a "[sing-gesturing] dee dah dah oom, dah dah dah."

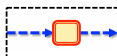
80

1. Embedded words

Depiction as adjective:
a little A



Don't let your strokes get a little
[sing-gesturing] de de de de de.



81

1. Embedded words

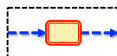
Depiction as nouns:
an X
the X

Just before you begin you say "er-h'r'm!" very loudly, which means, "Now then, here we are"; and everybody stops talking and looks at you.

There are some very clever writers who say that it is quite easy not to have an er-h'r-m, but I don't agree with them.

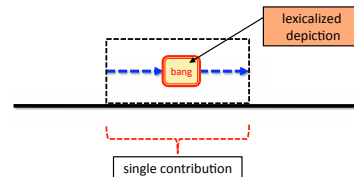
Well, this bit which I am writing, called "Introduction", is really the er-h'r-m of the book.

Now we are six, Introduction. A.A. Milne



82

1. Lexicalized depictions



83

1. Lexicalized depictions

Depiction as noun:
this X

Note: "bang" five times in rhythm, dramatized with gestures



And all of a sudden, I hear this
[gesturing] bang bang [pause] bang bang bang, you know.



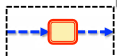
84

1. Lexicalized depictions

Depiction:
four binks
in rhythm
with gestures
and sneer



It's not really very natural to go "[gesturing, sneering] bink bink bink bink".



85

1. Lexicalized depictions

bang bang bang
bink
bow bow
meow
moo
cock-a-doodle-do
tick-tock tick-tock
pitapat

86

1. Lexicalized depictions

Ideophones are rare in English
The car ran *wop* right into the wall.
She slapped me *thwap* on the face.
Ideophones are common in ...
Africa, Australia, Asia
Japanese

87

1. Lexicalized depictions

Japanese mimetics

gutyagutyu = "messy"

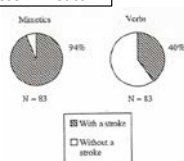
kono heya wa *gutyagutyu* ni tirakat-te -i -ru
this room Top Mimetic Cop become.chattered Comp exist Pres
"This room is messy."



Kita, 1997

1. Lexicalized depictions

Japanese mimetics



Mimetics *invite* depictive gestures



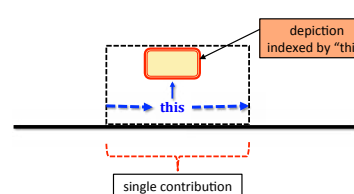
Kita, 1997

In a discourse, depictions can be ...

1. **embedded in discourse**
 - a) free-standing contributions
 - b) NPs, VPs
 - c) nouns, verbs, adjectives
2. **linked to discourse**
 - a) indexed depictions
 - b) adjunct depictions
3. **discursive on their own**
 - a) as narratives
 - b) as dialogue

90

2. Indexed depictions



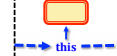
91

2. Indexed depictions

Depiction:
Mozart sonata,
indexed by
this



This is the second movement of *this* sonata:
[play-singing Mozart sonata]



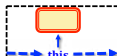
92

2. Indexed depictions

Depiction:
Mozart sonata,
indexed by
this



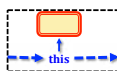
[play-singing Mozart sonata]-----
[This is what I want to write. [pause]] How can I do it?



93

2. Indexed depictions

Depiction:
raising chin

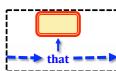


When I watch the movie,
[I'm here like, acting like *this*, with my] chin in the air.
[holding chin up]-----

94

2. Indexed depictions

Depiction:
raising chin



Why are they telling [pause] a beautiful actress to like,
[Our light's over *here*]
[pointing]-----
so [you have to be like *that* the whole movie, walking around]"
[sticking chin up]-----

Conan O'Brien

2. Indexed depictions

Depiction:
loudness of
voice

Note: Depicted voice is "fused" with description

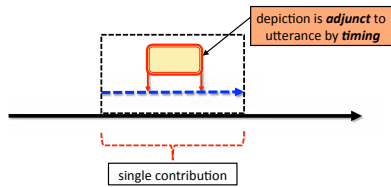


If this were our large Bailey Concert [raising voice] Hall, I would probably be speaking like *this*, and if ...



96

2. Adjunct depictions



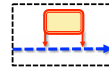
97

2. Adjunct depictions

Depiction:
diminuendo



It means simply
[what we would call the tapering]
[hand gesture -----]



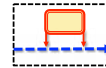
98

2. Adjunct depictions

Depictions:
violin
fingering,
vibrating,
"all"



[We can slide] on the [voice] or the [violin].
[LH gesture -----] [RH point]
[We can vibrate]. [That's all we've got.]
[LH gesture -----] [2H "all" gesture -----]



103

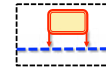
2. Adjunct depictions

Conan O'Brien

Depiction:
man
smearing
chili on face



You know what I- Was he
[smearing his face with chili and going "a-a-a-a" or]
[smearing gestures -----]
was he was ...



100

2. Adjunct depictions

Depiction:
speed of
driving,
running

Note: Depicted
speed is "fused"
with description

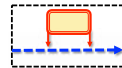


I come out here to the steps [pause]
[faster voice] take off [+iconic gesture]
down that way ...
and then I see some people [faster voice]
running [+ iconic gesture] that way



2. Adjunct depictions

Suspension of gesture is
timed in relation to
suspension of speech



Mandana Seyfedinnipur (2006)

102

In a discourse, depictions can be ...

1. embedded in discourse

- free-standing contributions
- NPs, VPs
- nouns, verbs, adjectives

2. linked to discourse

- indexed depictions
- adjunct depictions

3. discursive on their own

- as narratives
- as dialogue

Methods of communicating

three methods of speaking

Describing-as

- nouns, verbs, adjectives
- syntax, semantics

Indicating

- pointing, exhibiting
- "I" "you" "here" "now"

Depicting

- quotations
- iconic gestures

three modes of thinking

conceptual categories

location, physical presence

perceptual appearances

104