

Presentation 5: Grounding

Herbert H. Clark
Stanford University

Professor interviews potential student



Allen is there any . uh present-day novelist which you regard as particularly good,
Bart well going outside the strictly English school, I rather like Steinbeck's style,
...

1

2

Actual exchange

Allen uh is there any . uh present-day novelist which you . regard as . particularly good,
Bart . u:m . well going ou- outside the strictly English school, I .
[I like . um]
Allen [what do you mean by the strictly] English school,
Bart oh well American,
. uh I like . I rather like um . Steinbeck's . style,
Allen u:m
Bart and uh
Allen - now is this a recent novel of ...



Actual exchange

Allen uh s there any . uh p resent-day novelist which you . regard as . particularly good,
Bart . u:m . well going ou- outside the strictly English school, I .
[I like . um] ← uh, um
Allen [what do you mean by the strictly] English school,
Bart oh well American,
. uh I like . I rather like um . Steinbeck's . style,
Allen u:m
Bart and uh
Allen - now is this a recent novel of ...



Actual exchange

Allen uh is there any . uh present-day novelist which you . regard as . particularly good,
Bart . u:m . well going ou- outside the strictly English school, I .
[I like . um] ← repeated words
Allen [what do you mean by the strictly] English school,
Bart oh well American,
. uh I like . I rather like um . Steinbeck's . style,
Allen u:m
Bart and uh
Allen - now is this a recent novel of ...



Actual exchange

Allen uh is there any . uh present-day novelist which you . regard as . particularly good,
Bart . u:m . well going ou- outside the strictly English school, I .
[I like . um] ← self-interruptions
Allen [what do you mean by the strictly] English school,
Bart oh well American,
. uh I like . I rather like um . Steinbeck's . style,
Allen u:m
Bart and uh
Allen - now is this a recent novel of ...



Actual exchange

Allen uh is there any . uh present-day novelist which you . regard as . particularly good,
Bart . u:m . well going ou- outside the strictly English school, I .
[I like . um]
Allen [what do you mean by the strictly] English school,
Bart oh well American,
revisions
. uh I like . I rather like um . Steinbeck's . style,
Allen u:m
Bart and uh
Allen - now is this a recent novel of ...



Actual exchange

Allen uh is there any . uh present-day novelist which you . regard as . particularly good,
Bart . u:m . well going ou- outside the strictly English school, I .
[I like . um]
Allen [what do you mean by the strictly] English school,
Bart oh well American,
. uh I like . I rather like um . Steinbeck's . style,
Allen u:m
Bart and uh ← abandoned clause
Allen - now is this a recent novel of ...



Actual exchange

Allen uh is there any . uh present-day novelist which you . regard as . particularly good,
Bart . u:m . well going ou- outside the strictly English school, I .
[I like . um] ← overlapping speech
Allen [what do you mean by the strictly] English school,
Bart oh well American,
. uh I like . I rather like um . Steinbeck's . style,
Allen u:m
Bart and uh
Allen - now is this a recent novel of ...



Actual exchange

Allen uh is there any . uh present-day novelist which you . regard as . particularly good,
Bart . u:m . well going ou- outside the strictly English school, I .
[I like . um] ← request for clarification
Allen [what do you mean by the strictly] English school,
Bart oh well American,
. uh I like . I rather like um . Steinbeck's . style,
Allen u:m
Bart and uh
Allen - now is this a recent novel of ...



Departures from the ideal

Fillers
Repeats
Revisions
Clarifications
Overlapping speech
Self-interruption
Abandoned clauses
uh, um
I . I
I like . I rather like ...
oh well American,
[I like . um]
[what do you mean ...]
I like . um
and uh



Bush-speak



Place
Debate with Albert Gore, October 17, 2000
Circumstance
Governor Mel Carnahan of Missouri was killed in plane crash the night before
Gore's previous turn
First, Gore offered condolences to Carnahan's family Later, "I support a strong national patient's bill of rights... The Dingle-Norwood bill, a bipartisan bill, is one that I support and that the governor [Bush] does not."

Bush-speak



I
I too want to extend my prayers to the
and
and
and blessings
God's blessings on the families
um
whose lives were up-
overturned yester-
to-
today-
last night.
It's a tragic moment.

[deep breath]
Um
Actually, Mr. Vice President,
it's not true.
I
I do support a national
patient's bill of rights.

Bush-speak



Repeated words

I
I too want to extend my prayers to the
and
and
and blessings
God's blessings on the families
um
whose lives were up-
overturned yester-
to-
today-
last night.

It's a tragic moment.
[deep breath]
Um
Actually, Mr. Vice President,
it's not true.
I
I do support a national
patient's bill of rights.

Bush-speak



Revised phrasing

I
I too want to extend my prayers to the
and
and
and blessings
God's blessings on the families
um
whose lives were up-
overturned yester-
to-
today-
last night.

It's a tragic moment.
[deep breath]
Um
Actually, Mr. Vice President,
it's not true.
I
I do support a national
patient's bill of rights.

Bush-speak



Interrupted word + correction

I
I too want to extend my prayers to the
and
and
and blessings
God's blessings on the families
um
whose lives were up-
overturned yester-
to-
today-
last night.

It's a tragic moment.
[deep breath]
Um
Actually, Mr. Vice President,
it's not true.
I
I do support a national
patient's bill of rights.

1.7 sec

Bush-speak

"Um" to signal a delay

I
I too want to extend my prayers to
the
and
and blessings
God's blessings on the families
um
whose lives were up-
overturned yester-
to-
toda-
last night.

It's a tragic moment.
(deep breath)
Um
Actually Mr. Vice President
it's not true.
I
I do support a national
patient's bill of rights.



Departures from the ideal (à la Bush)

Fillers
Repeats
Revisions
Interrupted words

"um"
"and and and"
"blessings God's blessings"
"up- overturned"
"yester- to- toda- last night"



The rationality problem

21

Departures from Grice's ideal

Fillers
Repeats
Revisions
Clarifications
Overlapping speech
Self-interruption
Abandoned clauses

Be as informative as necessary
uh
I . I
I like . I rather like ...
oh well American,
[I like . um]
[what do you mean ...]
I like . um
and uh



Departures from Grice's ideal

Fillers
Repeats
Revisions
Clarifications
Overlapping speech
Self-interruption
Abandoned clauses

uh, um
I . I
I like .
Be clear
Be orderly
oh well American,
[I like . um]
[what do you mean ...]
I like . um
and uh



Rationality in making decisions

Classical economics (von Neumann, Morgenstern)
People have **omniscient** rationality
Critique (Simon, Tversky & Kahneman)
People have **limited, bounded** rationality



1978

2002

Rationality in making decisions

"econs" vs. "humans"
(Thaler & Sunstein)

"econs"
1. **Perfect** knowledge
2. **Unlimited** processing capacity
"Omniscient rationality"

"humans"
1. **Limited** knowledge
2. **Limited** processing capacity
"Bounded rationality"



John von Neumann

Herbert Simon

30

Departures can be ...

Voluntary
Fillers (uh, um)
Non-reduced vowels (thiy)
Repeats (I uh I)
Clarifications (this year)
Overlapping speech
Self-interruption (over-)
...

Involuntary
Some pauses
Slips of the tongue

Bush's slips of the tongue:
tariff barriers →
"barriiffs or terriers"
tactical nuclear weapons →
"tacular weapons"
weapons of mass destruction →
"weapons of mass production"

19

Cooperative principle is rational

Grice
"Talking [is] a special case or variety of purposive, indeed *rational*, behavior"
BE INFORMATIVE applied to mending a car:
"If, for example, at a particular stage I need four screws, I expect you to hand me four, rather than two or six."



23

What would Grice say?

It is **rational** to follow the cooperative principle
Speech departures **violate** the cooperative principle
Therefore, speech departures are **not rational**



But is this logic correct?

How should we view these departures?

- Departures **do not exist**
- Departures are **symptoms of problems**
They are "errors (random or characteristic) in applying [one's] knowledge of language in actual performance" (Chomsky, 1962)
- Departures are **noise** to be **filtered out**.
- Many departures are **communicative acts**

Challenge:
Is there a logic to speech departures?

Departures from Grice's ideal

Fillers
Repeats
Revisions
Clarifications
Overlapping speech
Self-interruption
Abandoned clauses

uh, um
I . I
Be brief
Be clear
I like . I rather like ...
oh well American,
[I like . um]
[what do you mean ...]
I like . um
and uh



Economic lessons

28

How to buy a used car

"econs"
1. know **all alternatives**
2. compare **on all features**
3. **simultaneously**,
4. for **optimal** decisions

"humans"
1. know **limited alternatives**
2. compare **on limited features**
3. **sequentially**,
4. for **satisfactory** decisions



31

Summary

"econs"
Ideal assumptions
1. unbounded knowledge
2. instant processing
3. optimality

"humans"
Practical assumptions
1. bounded knowledge
2. sequential processing
3. satisficing

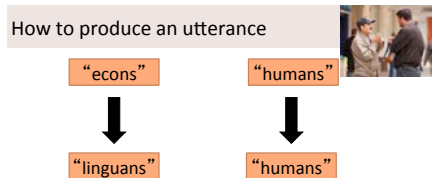
optimizing



satisficing



32



- ### How to produce an utterance
- | "linguans" | "humans" |
|---|--|
| <ol style="list-style-type: none"> 1. know language <i>perfectly</i> 2. consider <i>all options</i> 3. <i>simultaneously</i> 4. create <i>optimal</i> utterance | <ol style="list-style-type: none"> 1. know language <i>imperfectly</i> 2. consider <i>limited options</i> 3. <i>sequentially</i> 4. create <i>satisfactory</i> utterance |

- ### Ideal vs. practical speakers
- | "linguans" | "humans" |
|---|---|
| Ideal assumptions <ol style="list-style-type: none"> 1. unlimited knowledge 2. instant processing 3. optimal utterances | Practical assumptions <ol style="list-style-type: none"> 1. limited knowledge 2. sequential processing 3. utterances good enough for current purposes |
| <div>optimizing</div> | <div>satisficing</div> |

How to combine the two approaches

Proposal: People engage in two lines of communication at once

Proposal: People engage in two lines of communication at once

Proposal: People engage in two lines of communication at once

1. Primary line **official business**

Bart going outside the strictly English school, I rather like Steinbeck's style,

2. Collateral line **managing primary line**

Bart . u:m . well going ou- outside the strictly English school, I .
[I like . um]
Allen [what do you mean by the strictly] English school,
Bart oh well American, . u:h I like . I rather like um . Steinbeck's . style,

1. Primary line **official business**

Topic: current joint activity

2. Collateral line **managing primary line**

Topic: current dialogue

How do we manage talk? (*collateral line*)

Bounded rationality

People have ...

1. Limited **knowledge**
Of *common ground*
Of *success* of communication
2. Limited **processing capacity**
In *formulating* utterances
In *understanding* utterances

Bounded rationality

People rely on...

1. Limited **knowledge**
Of *common ground*
Of *success*
 2. Limited **processes**
In *formulating*
In *understanding*
1. Grounding
2. Collaborating on formulations

1. Grounding in conversation

The problem: Limited knowledge

To *communicate* is to *update common ground*

1. A & B assume *common-ground₁*
2. A says, "Have you talked to Nick this week?"
3. A & B update to *common-ground₂*

But A & B *cannot be certain* about either ...
common-ground₁ or
common-ground₂

The solution: Grounding

When A & B carry out a joint action, they try to reach the *mutual belief* that they have *succeeded well enough for current purposes*

Grounding =
set of *procedures for establishing mutual belief*

Example

Utterance
Albert well wo- u:h what shall we do about uh this boy then, - -

In the ideal "linguans"
A presupposes B knows referent of "this boy"
It is assumed *A is correct*

In practice "humans"
A presupposes B knows referent of "this boy"
It is assumed *A may not be correct*

Grounding by side sequence

Albert well wo- u:h what shall we do about uh *this* boy then, - -

Ben Duveen, . side sequence
Albert m,

Ben well I propose to write, uh saying I'm very sorry I cannot, - [continues]

A and B **jointly establish** "this boy" as common ground before proceeding

49

Problem identifying phrase

Alan now, - um do you and your husband have a j- car,

[**Beth**: "I'm not certain about the last phrase."]

50

Problem identifying phrase

Alan now, - um do you and your husband have a j- car, -

Beth "have a car"? side sequence
Alan yeah,

Beth no, -

51

Problem understanding

Adam can I speak to Jim Johnstone please?

[**Barb**: "But there are *two* Jim Johnstones."]

52

Problem understanding

Adam can I speak to Jim Johnstone please?

Barb senior? side sequence
Adam yes .

Barb yes - - -

53

Grounding initiated by speakers

54

Pacing invites acknowledgments

Burton how how was the wedding, -

Ann oh it was it was really good, it was uh it was a lovely day,

Burton yes, "yes, I understand well enough so far"

Ann and . it was a super place, to have it . of course,

Burton yes, - "yes, I understand well enough so far"

Ann and we went and sat in an orchard (continues)

(cf. Schegloff, 1982)

55

Withheld acknowledgement

Alice Okay, the next one is the rabbit.

Bert uh-hh- "I don't quite understand you yet"

Alice that's asleep, you know, it looks like it's got ears and a head pointing down?

Bert Okay.

56

Other common backchannels

Acknowledgments **Assessments**

Uh-huh Gosh

M-hm Really?

Yeah Oh

Mm [British] Good God!

57

Grounding with next contributions

Alan and what are you then,

Ben *I'm on the academic council,*

Alan ah, very nice position,

B gives evidence of understanding:

B initiates an **appropriate answer**

B **passes up opportunity** to ask for clarification

(Sacks et al., 1974)

58

A corrects B's misunderstanding

A. k **who evaluates the property** ---

B. uh whoever you asked, . the surveyor for the building society

A. no, I meant **who decides what price it'll go on the market** -

B. (- snorts) . whatever people will pay --

A. but why was Chetwynd Road so cheap ---

59

Grounding mid-utterance

Susan they still talk about rubbish tins, which is the American

Jean the Australian self-correction + confirmation
m yeah,

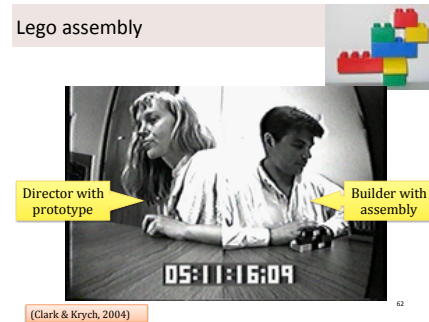
Susan expression, . for that thing you put all the . stuff in at the back gate, you know?

60

Opportunistic strategies

61

Lego assembly



(Clark & Krych, 2004)

62

Opportunistic grounding

Jane to Ken

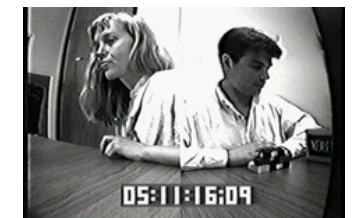
and put it on the right hand half of **the-**

yes

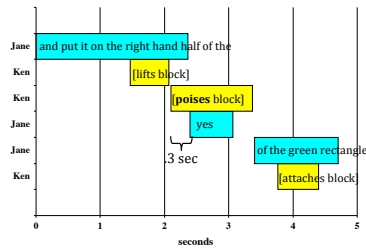
of the green rectangle

63

Opportunistic grounding



64



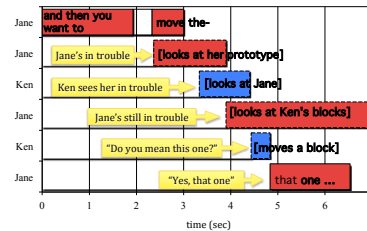
Opportunistic grounding

Jane right-hand half of the- [suspends speech]
[Ken: "I believe the block goes here."]

Jane seizes momentary opportunity

Jane right-hand half of the- [suspends speech]
Ken [poises a block] side
Jane yes [nodding] sequence
Jane of the green rectangle.

Opportunistic revision



Grounding: negotiated with projective pairs

Back channel
A [Do you understand] "it was a lovely day"
B yes

Mid-utterance gesture
A [Do you mean here [poising]?]
B yes

Side sequence
A [Did you say,] "have a car?"
B yeah

Opportunistic revision
A [Do you mean this one [poising]?]
B that one

Side sequence mid-utterance
A [It is] Australian
B m yeah

Opportunistic revision

Jane to Ken
and then you want to - move **the**
[1.93 sec] that one
kitty corner to where you have it

["kitty corner to" = diagonal from]

2. Collaborating on formulations

Smith & Clark (1993), Clark (1994, 1996, 2002), Fox Tree & Clark (1997), Clark & Wasow (1998), Clark & Fox Tree (2002)

Bush Gore debate 2000



Al Gore



I think that **thiy** [deep breath] **uh** the situation that *you* describe has gotten completely out of hand. Doctors **are** are giving prescriptions. They're recommending treatment, and then **their** **uh** recommendations are being overruled by H M Os and insurance companies.

George W. Bush



I too want to extend my prayers to the and and blessings God's blessings on the families um whose lives were up- overturned yester- to- toda- last night. It's a tragic moment. [deep breath] Um actually Mr. Vice President it's not true. I I do support a national patient's bill of rights.

Where do these come from:

Non-reduced vowels:
"thiy [deep breath] uh the"
Fillers:
uh, um
Repeats:
"their, their" "I, I"
Repairs:
"**up-** overturned **yester- to- toda-** last night"

The problem: Limited processing capacity

- delays**
Speaker: "I can't think of the next word"
Partner: "I'm deciding how to reply"
- errors**
Speaker: "I said the wrong word"
Partner: "I misheard you"
- changing circumstances**
Speaker: "I've changed my mind"
Partner: "I already understand"

The solution: Change course for ...

- Obstacles**
Speakers are **unable to proceed**
Partners **display problems**
- Opportunities**
Speakers discover **expedient alternative**
Partners display **profitable evidence**

Techniques: Collaborate on formulations

- Revise plans to deal with**
obstacles
opportunities
- Annotate plans**
when informative



Retrospective strategies

- Collaborate with partners on **revisions**:
- Replace **whole phrases**
 - Annotate** replacements

Revise by replacing *whole phrases*

Utterance so far

one of the things that

Problem detected

["I need to add *many*"]

Replace entire constituent

one of the things that - uh one of the many things

Rationale

It is easier to process *complete constituents*

Clark (1996)

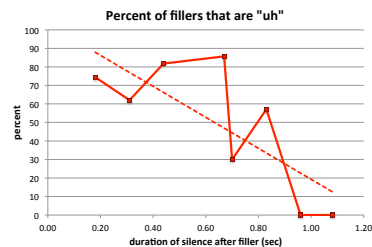
Prospective strategies

Collaborate on *displaying utterances*:

1. **Alert partners** to coming problems
2. **Identify the problems** for partners

85

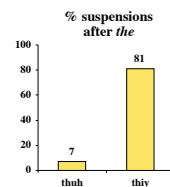
Hillary Clinton's use of "uh" in one debate



89

Thiy signals suspension of speaking

Thiy "I am suspending speaking after *the*"
Thuh "I expect to *continue* speaking after *the*"



Fox Tree & Clark (1997)

93

Repetition

surely, **your** **your** committee is not going to come to that conclusion

Substitution

what is **has** happened since then

Deletion

I don't think they've **they** ever in fact embodied

Addition

one of the things that - uh **one of the many things**

82

Prepare listener for delays

Bush: It's a tragic moment. [deep breath]
Um Actually Mr. Vice President
 it's not true. I I do support a
 national patient's bill of rights.

filler

What Bush means

I am initiating a delay in speaking at "um"

Clark & Fox Tree (2002)

86

Are *uh* and *um* planned? Yes!

word	filler	trochee
and	um	an-dum
but	uh	bu-tuh
if	uh	i-fuh

a-num . I appreciate that
bu-tuh . I'm concentrating
bu-tuh let me tell you a little bit about
 her

Clark & Fox Tree (2002)

91

Are *thiy*, *ei*, and *tuw* planned? Yes!

word	filler	trochee
thiy	uh	thi-yuh
ei	uh	e-yuh
tuw	uh	tu-wuh

tu-wuh: "not be **tu-wuh** regulate"
tuh: "tools **tuh-pro-ect** their
 young children"

Fox Tree & Clark (1997)

95

Annotate revisions for partner

"I mean"

I'd **I mean** haven't had any . results

"sorry, no"

Frank **Morgan** was the man who . started all this,
sorry, no, horsefield started it all,

"excuse me"

they only know about thi-y . practical, **excuse me**
 experimental aspects, of reading

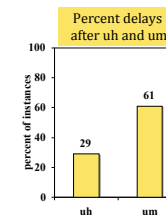
Rationale

Revisions are easier to understand when identified

83

Data on *uh/um*

uh → "I am initiating a
 minor delay"
 um → "I am initiating a
 major delay"



Clark & Fox Tree (2002)

87

Actual problems after *uh* and *um*

Name access

so I went round to Jackie, . **uh** . to **uh** Pam, at the
 hospital

Revision of syntax

but apparently, you, . **uh** they spent - **uh** when it was
 finished, they went out there to spend a winter there

Recall of information

Beth and what sort of rates do you pay for this sort
 of thing,

Albert : **u:m** - well, . **u:h** - - - I'm sorry, . I ought to
 know this, I think it's about one fifty an hour,

Clark & Fox Tree (2002)

91

Actual problems found after *thiy*

Word access

look out towards **thiy** **u:m** what's the name

Choice of wording

they only know about **thiy** . practical, . **excuse me**
 experimental aspects, of reading

Choice of message

I would find **thiy** **u:m** - the colour, not the theme so
 much, but the colour

Fox Tree & Clark (1997)

95

Annotate revisions for partner

For **self-repairs**

no, sorry, excuse me

For **qualifications**

I mean, you know

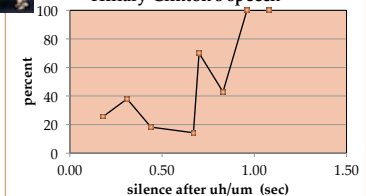
For **sudden recognition**

oh, ah

84



Percent "um" (vs. "uh") in Hillary Clinton's speech



Clark & Fox Tree (2002)

Prepare listener for suspension

Susan: and when you come when you come to
 look at **thiy** . **thuh** literature, - I mean
 you know the actual statements,

non-reduced vowel

What Susan means

I am suspending speaking after *the*

Clark & Fox Tree (2002)

92

Make a *preliminary* commitment to clause

"yes, I uh I wouldn't be surprised at that"

1. I

2. uh

3. I wouldn't be
 surprised at that

"I **hereby commit to**
producing a clause
 beginning *I*."

"I am initiating a delay."
 "Now **here is that**
clause."

Clark & Wasow (1998)

96

Preliminary commitments are distinct



Preliminary	Final
thiy	thuh
ei	uh

I think tuh- **thiy** . **thuh** government
[We need] **ei** . **a** law



Clark & Wasow (1998)

97

Alert listener to delayed reference

Reynard:
If he puts it into the diplomatic bag, as u:m - **what's his name**, . Mickey Cohn did, then it's not so bad, .
Temporary references
what's-his-name
what's-his-face
what's-its-name
what-do-you-call-it
whatchamacallit

temporary reference

Clark & Wilke-Gibbs (1986); Enfield (2003)

99

Collateral communication

Goal: to *engage in dialogue*
Problem: A & B have *limited* ...
1. *knowledge* of each other
2. *processing capacity*
Solution: A & B coordinate speaking, listening
ground what is said
collaborate on formulating what is said
Result: *collateral line* of communication

Conclusions

100

Rational forms of language use

Ideal language use	Omniscient rationality Perfect knowledge Unlimited processing capacity Goal: optimal utterance
Practical language use	Bounded rationality Imperfect knowledge Limited processing capacity Goal: satisfactory utterance "good enough for current purposes"

101

Two lines of communication

Primary line	Purpose To coordinate basic joint activities Method Negotiate joint actions, joint positions Use projective pairs: proposal + uptake
Collateral line	Purpose To coordinate dialogue Method Grounding Collaborating on formulations

102