



UNIVERSITY OF  
GOTHENBURG

# GOOD CALL!

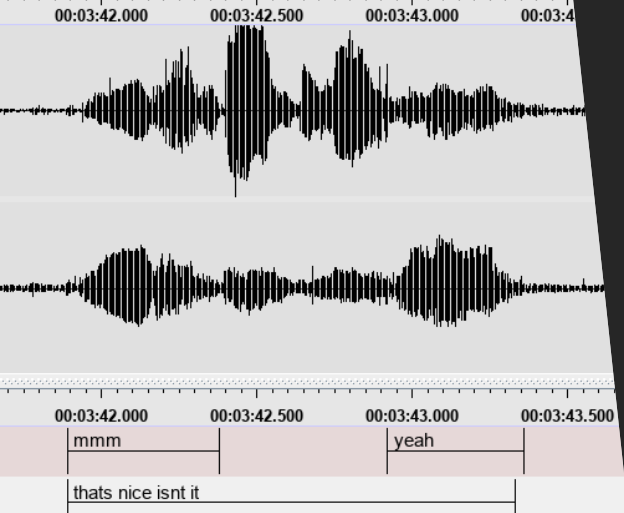
## GROUNDING IN A DIRECTORY ENQUIRIES CORPUS

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# Dialogue

- is incremental
- and co-constructed
- even if one person does most of the talking





# Feedback

- backchannels
  - mmm
  - uh-huh
  - nodding
- clarification requests
  - huh?
  - Mary?
  - looking puzzled





# Telephone conversations

- are dialogues!
- but with
  - no non-verbal feedback
  - more verbal feedback
- many dialogue systems interactions in use today



# Directory Enquiries

- extremely restricted domain
- task based
- non-native speakers





# Method

- 14 volunteers
  - 8 male, 6 female
  - 13 non-native English
- operator / caller
  - 2 conversations as each





Find a Business

Find a Person

Find a Dial Code

Call us direct

Advertise w

Find a business b

Name of Business▼

Enter Name of Business (e.g. 'Joe's Coffee Shop')



# Data

- 28 calls
  - shortest: 2.31
  - longest: 10:46
  - 3 look-ups per call

- audio
- transcriptions
- annotations



available at: [osf.io/2vjkh](https://osf.io/2vjkh)

C: and the first one is rowans tenpin bowl

O: can you repeat that for me?

C: rowans tenpin bowl <pause> so it's rowan <pause> R O W A N S

O: yes

C: tenpin

O: tenpin?

C: yeah

O: the number ten <pause> and pin?

C: yes <pause> yes

O: tenpin <pause> road?

C: bowl

O: th- like the bird?

C: uh like bowling

O: uh bowling

C: bowl

O: yes <pause> the thing you eat from right? <pause> okay here we go



2vjkh

# Annotations

- turn-type
  - acknowledge (Ack)
  - clarification request (CR)
  - clarify (C)

( $\kappa = 0.635$ )
- content-type

# Annotations

- turn-type

- **acknowledge (Ack)** —————→ Ack sub-types:

- clarification request (CR)

- clarify (C)

- ( $\kappa = 0.635$ )

- continuer

- verbatim

- paraphrase

- confirm

- appreciate

- ( $\kappa = 0.625$ )

- content-type

# Annotations

- turn-type
  - acknowledge (Ack)
  - clarification request (CR) → CR sub-types:
    - clarify (C)  
( $\kappa = 0.635$ )
    - general request
    - repeat request
    - confirmation request
    - spelling request  
( $\kappa = 0.689$ )
- content-type



C: and the first one is rowans tenpin bowl

O: can you repeat that for me? **CR – REPEAT REQUEST**

C: rowans tenpin bowl **C**

so it's rowan

R O W A N S

O: yes **ACK – CONTINUER**

C: tenpin

O: tenpin? **CR – CONFIRMATION REQUEST**

C: yeah **C**

O: the number ten? **CR – CONFIRMATION REQUEST**

and pin? **CR – CONFIRMATION REQUEST**

C: yes **C**

yes **C**

O: tenpin **ACK – VERBATIM**

road? **CR – CONFIRMATION REQUEST**

C: bowl **C**

O: th- like the bird? **CR – CONFIRMATION REQUEST**

# Results by speaker role

	Caller		Operator		Total	
Ack	559	26%	726	36%	1285	31%
C	189	9%	64	3%	253	6%
CR	94	4%	183	9%	277	7%
(blank)	1306	61%	1044	52%	2350	56%
<b>Total</b>	<b>2148</b>		<b>2017</b>		<b>4165</b>	

- operators produce more acknowledgements and clarification requests

# Results by speaker role – numbers

	Caller		Operator		Total	
Ack	249	66%	26	0%	251	30%
C	0	0%	38	8%	38	5%
CR	41	11%	0	0%	41	5%
(blank)	88	23%	414	91%	502	60%
<b>Total</b>	<b>378</b>		<b>454</b>		<b>832</b>	

- but this is because of the asymmetry of the information transfer in the task

# Results by speaker role – names

	Caller		Operator		Total	
Ack	9	1%	255	62%	264	24%
C	122	17%	0	0%	122	11%
CR	4	1%	83	20%	87	8%
(blank)	571	81%	76	918	647	58%
<b>Total</b>	<b>706</b>		<b>414</b>		<b>1120</b>	

- and names are more complicated than numbers (i.e. greater possibility for error)

# Subtypes of acknowledgements and CRs

	Acks	%
Appreciate	18	1%
Confirm	31	2%
Continuer	772	60%
Verbatim	492	38%
Paraphrase	30	2%
<b>Total</b>	<b>1285</b>	

	CRs	%
Confirmation request	134	48%
General request	28	10%
Repeat request	64	23%
Spelling request	51	18%
<b>Total</b>	<b>277</b>	

# Strategies

	Ack		CR		Total	
Spelling installment	137	28%	31	30%	394	35%
Spelling installment part	41	8%	11	11%	107	10%
Word	21	4%	5	5%	47	4%
Word part	40	8%	16	16%	127	11%
Other	253	52%	42	41%	452	40%
<b>Total</b>	<b>491</b>		<b>103</b>		<b>1120</b>	

# Strategies for acknowledgements

	Previous turn content								
	Spelling installment		Spelling instmt part		Word		Word part		Total
Spelling installment	127	40%	9	20%	0	0%	1	1%	137
Spelling instmt part	23	7%	18	39%	0	0%	4	6%	41
Word	3	1%	2	4%	10	20%	6	9%	21
Word part	3	1%	0	0%	15	30%	22	32%	40
(continuers etc)	171	54%	18	39%	25	50%	42	62%	253
<b>Total</b>	<b>319</b>		<b>46</b>		<b>50</b>		<b>68</b>		<b>491</b>

- Tayyabs



- Phoenicia



# Strategies for clarification requests

	Previous turn content									
	Spelling installment		Spelling instmt part		Word		Word part		Total	
Spelling installment	24	52%	3	43%	1	4%	4	19%	31	
Spelling instmt part	8	17%	3	43%	0	0%	0	0%	11	
Word	0	0%	0	0%	4	16%	0	0%	5	
Word part	2	4%	1	14%	5	20%	10	48%	16	
(generic repair)	17	37%	0	0%	16	64%	12	57%	42	
<b>Total</b>	<b>46</b>		<b>7</b>		<b>25</b>		<b>21</b>		<b>103</b>	

- Marylebone





# When the strategies don't work...

- Tanfield



# When the strategies don't work...

- Tanfield

- |    |   |   |
|----|---|---|
| 1  | C | it's called the star tavern                       |
| 2  | O | can you repeat please?                            |
| 3  | C | the star <pause> tavern                           |
| 4  | O | the audio quality is not good again               |
| 5  | C | it's in <pause> six belgrave mews west            |
| 6  | O | i didn't hear you properly i'm sorry              |
| 7  | C | the address you say?                              |
| 8  | O | yeah <pause> or the name of the place             |
| 9  | C | yeah the well the place is called the star tavern |
| 10 | O | the star  |
| 11 | C | tavern <pause> yeah                               |

# When the strategies don't work...

- Tanfield

4 C the called the other town  
12 O let's see <pause> can you repeat the er name of  
no the location of the place?  
13 C yeah the location is number six  
14 O yes  
15 C belgrave <pause> mels <mews> <pause> west  
16 O mmhm  
17 C hm  
18 O i'm not sure if i heard the name of the place  
correctly <pause> can you repeat?  
19 C yeah the the name of the place the  
20 O yes

# When the strategies don't work...

- Tanfield

21 C the tavern it's the star <pause> star like a star in  
the sky you know <laugh>

22 O yes

23 C the night

24 O mmhm

25 C er tavern

26 O can you spell it er please ta-?

27 C the address you say?

28 O er the star ta- what?

29 C the star tavern

30 O i can't seem to find it maybe i am spelling it  
incorrectly <pause> can you spell it for me please?

# When the strategies don't work...

- Tanfield

31 C yeah the the name of the place you say?  
32 O the audio quality is not good again  
33 C or  
34 O i'm sorry  
35 C mm er <pause> okay <pause> you want to know  
the address or the name of the place  
36 O the name of the place please  
37 C i mean wha-  
38 O star T  
39 C okay <pause> the star  
40 O yeah  
41 C and it's tavern it's T A

# When the strategies don't work...

- Tanfield

42 O and then  
43 C V E er <R> un <N> <pause> N <pause> sorry  
44 O okay <pause> i'm still having trouble finding this  
place <pause> i'm sorry  
45 C hm maybe it's the address i mean it's a bit weird  
maybe  
46 O yeah  
47 C it's er <pause> er can i tell you the address again  
48 O er let me see <pause> er the name of the place is  
star <pause> T A B E R N <pause> is that correct?  
49 C yeah <pause> yeah that's <pause> the star tavern  
yeah the name of the place <pause> huh

# When the strategies don't work...

- Tanfield

- 50 O i <pause> it always <pause> comes back to me as we could not find any results for star tabern in <pause> london
- 51 C hm maybe <pause> i mean maybe the address is <pause> it's i mean it's a bit weird the address maybe you didn't catch it well? <pause> don't know sorry <unclear>
- 52 O maybe let's try again
- 53 C the address maybe
- 54 O yes
- 55 C you need it?
- 56 O now i don't hear anything

# When the strategies don't work...

- Tanfield

57 C hm <pause> yeah i'm in the middle of the street  
sorry it's quite noisy <pause> er <pause> okay you  
have the name of the place correct? right?

58 O star tabern right?

59 C yeah <pause> and then the address is number six

60 O yeah

61 C B E L <pause> G R

62 O again the audio was not good

63 C B E L G R

64 O yeah

65 C A V E <pause> and then another word erm  
<pause> M E W S



# When the strategies don't work...

- Tanfield

66 O okay

67 C then west <pause> that's the other w- the oth- the final word <laugh>

68 O the <pause> website still says we're sorry we co- couldn't find any results <pause> I'm not sure

69 C hm

70 O if i'm doing something incorrectly

71 C couldn't find the place? <pause> you say

72 O sorry?

73 C hm? <pause> yeah well <pause> okay i was quite sure it was there but well maybe i'm wrong

...

# Summary

- What counts as an increment is flexible
  - not just words, but also sub-parts of words
- How/why do strategies change?
- This data is available! Please use it... [osf.io/2vjkh](https://osf.io/2vjkh)



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# Thanks!

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