# Clarifying reference and plans in dialogue

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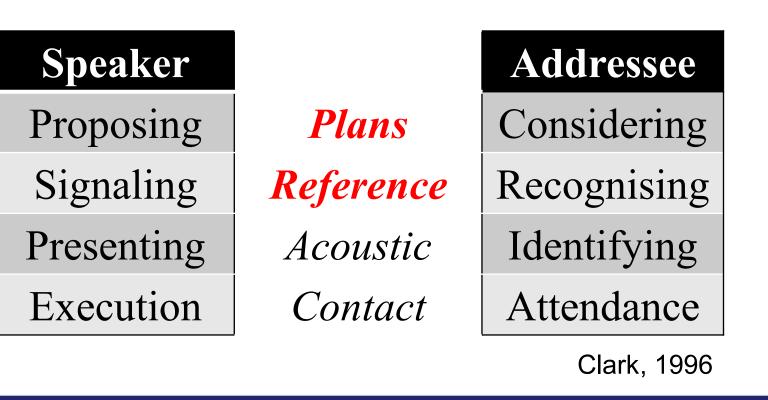
# Two views of coordination

#### Intentions as prerequisite

- Speaker formulates a priori, conscious intentions, recognized by hearer (Searle 1976, Grice 1976)
- Hearer recovers "same" intended meaning
- Prioritization of explicit, rational negotiation

### Intentions as joint construal

- Intentions in dialogue are epistemologically, ontologically and temporally ambiguous (Haugh 2008, Suchman 2003; Heritage 1991)
- Explicit negotiation of intentions is less effective than tacit negotiation (Pickering and Garrod, 2004)
- Coordinating on intentions depends on prior interaction (Clark, 1996; Brown-Schmidt et al. 2007; Brennan et al 2010; Healey & Mills, 2006)



## Question: How emergent are reference and plans?

#### **Method:**

Task: Computer-mediated variant of the maze task (Garrod et al 1987;1994). Played by pairs of participants who communicate via a text-based chat tool. Manipulation: The server introduces artificial "spoof" clarification requests into the dialogue that target either plans or reference. Clarification requests are inserted into:

- Low coordinated dialogue at the start of the interaction
- High coordinated dialogue (giving participants opportunity to jointly construe intentions)

#### The maze task

Solving mazes requires:

- Guiding each other through mazes
- Establishing spatial referring schema

#### How coordination develops

The really northernmost box of the maze

**10 mins:** From the top right, five along and 2 up

15 mins: Leftmost column right at the top

20 mins: Left column and the first square

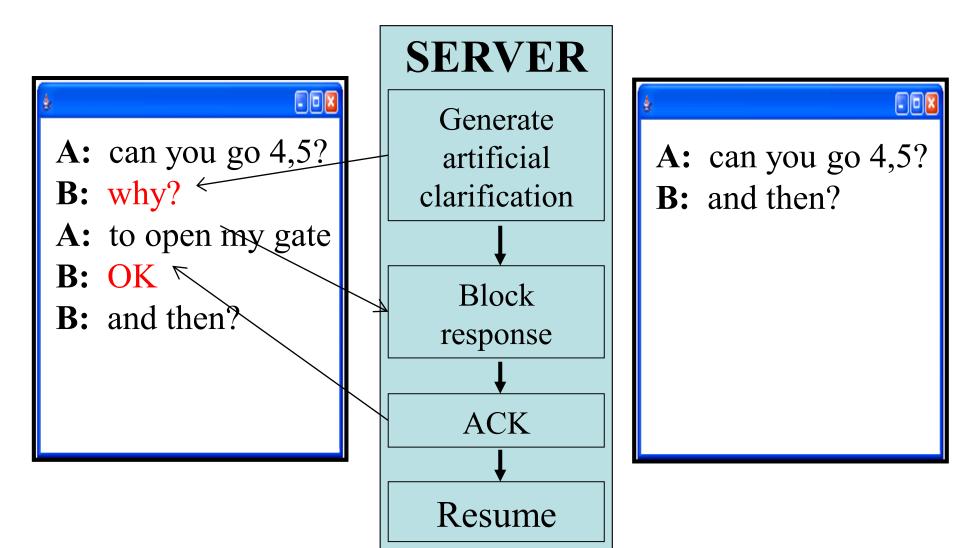
**30 mins:** 7th row first column

**35 mins:** 7 row 1st col

**45 mins:** 7, 1

Sticking out piece on top of the maze at very top left

Inserting artificial clarification requests into the dialogue



12 mazes, 2 artificial clarifications per participant per maze

Two kinds of clarification request are inserted into the dialogue:

- Why?: "Sorry why?", "could you please say why?
- Fragment: Single word repeat of referring expression: "top?", "square?", "row"

Clarification requests are inserted at two levels of coordination:

- Early: trials 1, 2, 3, 4, 5, 6.
- Late: trials

7, 8, 9, 10, 11, 12.

2 x 2 design: Clarification (Why? / Fragment) x Coordination (Early / Late) Disruption is measured at increasing distance from the clarification requests.

# **Hypotheses**

#### Intentions as prerequisite:

Cartesian Schema (x,y)

= High coordination

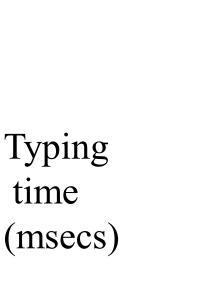
- High-level intentions are readily available to speakers from the start of the dialogue.
- "Why? / Late" clarification will query ratified information, causing more disruption
- Fragment < Why Early ≤ Why Late

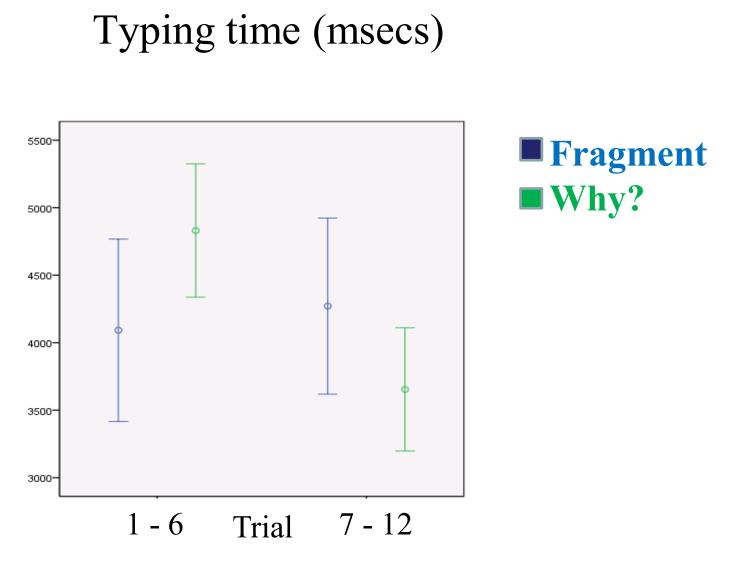
#### Intentions as joint construal:

- At the start of the dialogue, high-level intentions haven't been established yet.
- Querying WHY? should be less disruptive later, once intentions are established
- Why Early > Why Late

# Clarification responses

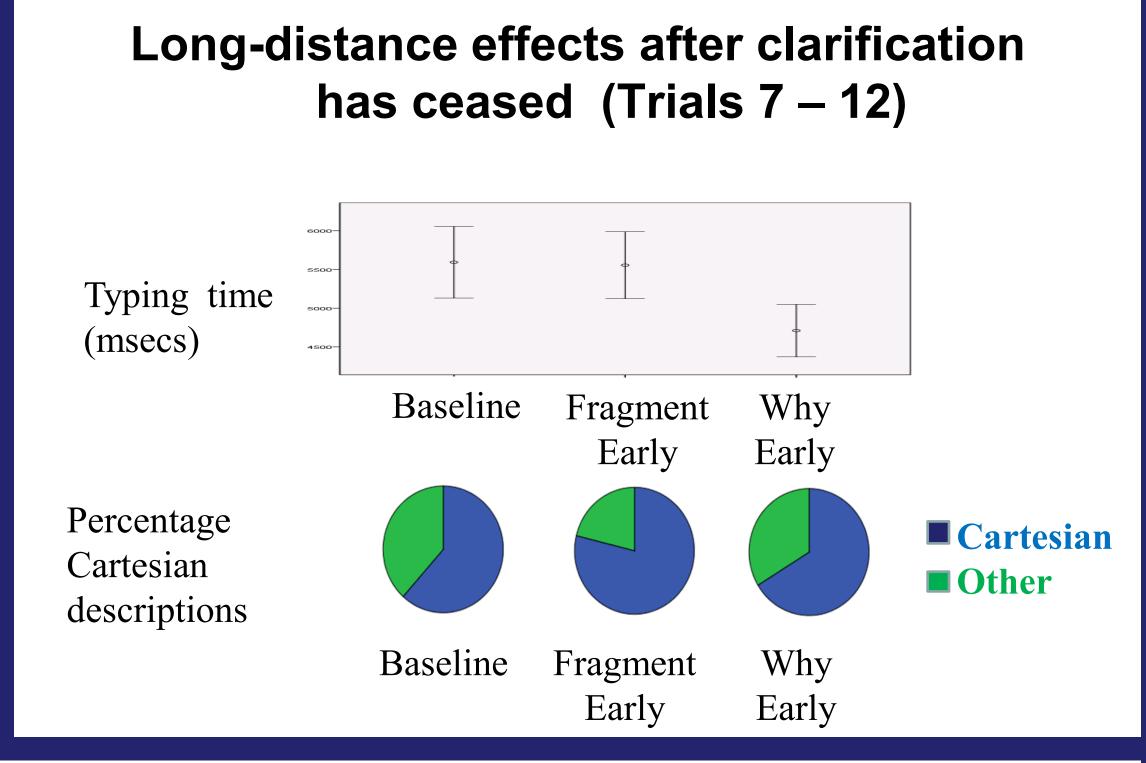






Similar pattern for other measures (speed, edits, installments)

# Turns outside clarification dialogue Turn length (characters) **■** Fragment ■ Why? Turn length (chars) Trial 1 - 6



#### **Example clarification responses**

	Early (Trials 1-6)	Late (Trials 7 - 12)
Fragment	A: Could you go to the top row?	A: Could you go to 3,5
	B: top?	B: 3?
	A: yeah next to the long row	A: 3 across
Why?	A: Could you go to the top?	A: Could you go to 3,5
	B: why?	B: why?
	A: I dunno, just go there	A: it's my switch

# Acknowledgments

Herb Clark, Pat Healey, Eleni Gregoromichelaki, Ruth Kempson. Marie Curie PIOF-GA-2009-236632-ERIS, DiET (EPSRC /D057426/1)

# Conclusions

FRAGMENT and WHY? Clarification have differential effects on the development of coordination.

Responses to clarification confirm the joint construal hypothesis, suggesting that

Successful articulation of higher-level intentions requires prior coordination.

But, in normal dialogue outside of the clarification subdialogue, the effect is inverted

When clarification requests cease, the effect is **inverted again** 

Introducing artificial "trouble" has a beneficial effect on coordination.