The optimal rate of miscommunication

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The starting point: Successful communication as intention recognition

Miscommunication occurs when a hearer fails to recognise a speaker's communicative intention

- Miscommunication is typically contrasted with **successful communication**, which is typically thought of in terms of hearers (successfully) inferring speakers' communicative intentions
- When things go wrong, interlocutors can pose clarificatory requests and engage in repair sequences (Schegloff et al. 1977)
- This model assumes a goal of **perfect alignment**, where interlocutors share attitudes towards issues of relevance, including beliefs about communicative intentions

Miscommunication is not always a bad thing

- Local processes of resolving misalignments can have positive effects on interactional outcomes (Brennan & Schober 2001; Healey 2008; Bjørndahl et al. 2015)
- We add that a high rate of information flow may depend on accepting a non-zero error rate
- A temporary misalignment can add value to the joint communicative project, sometimes without any overt repair

What does it mean to recognise a speaker's intention?

- Speakers have a multitude of communicative intentions per communicative act
  - Intentions about form, (propositional) content, implicatures, speech acts, preserving face, ... (Cappelen & Lepore 2005)
- Speakers' intentions can be more or less determinate, and more or less inferable (Sperber & Wilson 2015; Moeschler 2012)
- This implies that there are different ways in which a hearer can recognise/misread a speaker's communicative intention

Towards a hierarchy of miscommunication

- We present a 5-part hierarchy of miscommunication, focussing on cases with no immediate repair
- This hierarchy shows the range of miscommunication from less to more problematic, based on type and severity of the miscommunication

Case I: Pseudo miscommunication

- Misalignment with respect to some non-crucial aspect of an utterance, e.g. phonetic, syntactic, lexical disparities
- Can arise due to communicative disturbances, slips of the tongue, syntactic indeterminacy, inaccurate descriptions...
- Despite disparities in alignment, hearer nevertheless recovers the main intended message

Pseudo miscommunication: Missing words

> **Example**
>
> [A and B are discussing air pollution]
>
> A: But, then I still cars going down the road with all this smoke pouring out the back end of them
>
> B: Uh-huh
>
> (Switchboard 2082)

- ▶ Misalignment is not functionally significant
- ▶ No clarification/repair necessary

Case II: Benign miscommunication

- Speaker doesn't have a determinate meaning in mind
- Hearer recovers a message which is compatible with possible speaker intentions, but may be more determinate
- Hearer's uptake contributes to process of grounding

Elective construals

"speakers deliberately offer their addressees a choice of construals, so when addressees make their choice, they help determine what the speaker is taken to mean." (Clark 1997: 588)

Benign miscommunication: Open-ended disjunction

Example

D: Like it's his own bed-sit and he rents out three bedrooms

A: It's shared but... Oh right.

B: Is that sort of official or...?

A: No.

D: Well no

B: I don't know how it works

A: But a lot of people do that sort of thing you know.

(Jaszczolt et al. 2016: 257)

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(Jaszczolt et al. 2016: 257)

Benign miscommunication: Possible interpretations

Example

Is that sort of official or...

1. ...perhaps I shouldn't have asked?
2. ...perhaps 'being official' is not relevant in this situation?
3. ...do we have to register it somewhere?
4. ...is this in the contract?

(Jaszczolt et al. 2016: 258)

- ▶ Miscommunication is rhetorically harmless
- ▶ Beneficial if it helps interlocutors develop their joint attitudes within the conversation
- ▶ Clarification/repair would be costly and unnecessary

Case III: Conceded miscommunication

- Speaker has a determinate intention
- Hearer misconstrues the intention
- Speaker accepts the misconstrual

Accepted misconstruals

"speakers present an utterance with one intention in mind, but when an addressee misconstrues it, they change their minds and accept the new construal." (Clark 1997: 589)

Conceded miscommunication: 'Accepted misconstruals'

> **Example**
>
> Between Clark and a Waitress
>
> W: And what would you like to drink?
>
> C: Hot tea, please. Uh, English breakfast.
>
> W: That was Earl Grey?
>
> C: Right.

> "I initially intended to be taken as meaning one thing, but I changed my mind. Speakers may accept a misconstrual because they deem it too trivial, disrupting, or embarrassing to correct. Still, once it is grounded, it is taken to be what they mean." (Clark 1997: 589)

- ▶ Rhetorically significant miscommunication is resolved by acceptance
- ▶ Repair is too costly due to production effort, or social reasons

Case IV: Severe miscommunication (reconcilable)

- Speaker has a determinate meaning intention
- Hearer miscontrues the intention, but without immediate speaker awareness
- If miscommunication is unnoticed, this will have negative consequences
- However, in this case the miscommunication is not over deeply held beliefs, so there is potential for reconciliation (cf. case V to come!)

Reconcilable miscommunication: Misaligned background

> ### Example
>
> B aims to telephone a retail store to buy a new television, but mistakenly calls speaker A at a repair centre
>
> A: Seventeen inch?
> B: Okay.
>   ((pause))
> A: Well is it portable?
>
> (Varonis & Gass 1985)

▶ Rhetorically critical miscommunication may be later reconciled through repair sequence

▶ Cost of repair is presumably low enough that once the miscommunication is noticed, repair would be expected

Case V: Severe miscommunication (catastrophic)

- Speaker may or may not have a determinate meaning in mind
- Interlocutors disagree on the speaker's communicative intention, and the misalignment involves deeply held contrary convictions (possibly involving disagreement about form)
- Speaker and hearer cannot reconcile their disagreement

Catastrophic miscommunication: Phonetic ambiguity

> ## Example
>
> M: Got the keys (ambiguous intonation)
>
> R: Okay
>
>   ...
>
> M: Why are we standing here?
>
> R: We're waiting for you to open the door. You got the keys
>
> M: No I don't
>
> R: Yes, you do. When we left, you said, "got the keys"
>
> M: No I didn't. I asked, "got the ke-eys?"
>
> R: No, no, no, you said, "got the keys"
>
> C: Do either of you have the keys?   (*Friends* S01E09)

▶ Unresolvable miscommunication with detrimental effects

The 5 cases: A summary

   I Pseudo miscommunication

  II Benign miscommunication

 III Conceded miscommunication

 IV Severe miscommunication (reconcilable)

  V Severe miscommunication (catastrophic)

★ Miscommunication of types I-III can be beneficial, as it supports information flow and even advances the joint agenda

★ When a speaker and hearer have radically different views of what was intended, miscommunication is potentially problematic as no mutually accepted meanings are grounded

Effective communication

- Effective communication involves a situation-specific optimization of:
    1. Utterance form
    2. Accuracy of transmission
    3. Rate of information transfer
- What is considered optimal depends on many factors, including institutional norms, face-saving concerns, and cost of errors

The inevitability of miscommunication (critical situations)

- In sensitive situations, e.g. air traffic control, an operating theater, or a nuclear power station, miscommunication can be very costly
- In such cases, a lower information flow rate must be accepted
- We can increase accuracy by
    - (i) limiting the range of alternative expressions
    - (ii) increasing redundancy
    - (iii) grounding — explicit agreement about assumptions and goals

The inevitability of miscommunication (non-critical situations)

- In less sensitive situations, e.g. a bar, a playground, or an academic conference, stakes are lower
- Miscommunication may be part of an exploratory process in which interlocutors refine their beliefs through joint action
- Note that the *pipeline* metaphor for communication is not helpful here
- In such cases, interlocutors optimize for a higher information flow rate, with less grounding and less redundancy

The (variable) optimal rate of miscommunication

- All conversation involves a non-zero probability of miscommunication, but ideally it should fall in cases I–III, which compromise accuracy of information transfer for the sake of efficiency of information transfer
- The benefit of engaging in repair sequences in such cases outweighs any potential negative effects due to miscommunication
- A non-zero probability of even severe miscommunication (cases IV–V) may be a risk worth taking for high communicative efficiency

How to calculate the optimal rate of miscommunication?

- To calculate the ideal rate of miscommunication in some situation calling for information exchange, we would need to know:
  - Value of increased alignment (per unit of information conveyed)
  - Immediate cost of misalignment (per unit misaligned for each case)
  - Probability of alignment for a given level of grounding and redundancy
  - Computational cost and time taken for grounding and redundancy
  - Expected cost of repair sequence, where available

★ Crucially, this rate is always non-zero, although it may be very low in a sensitive and thus fault-intolerant environment

Conclusions

▶ Successful communication is not just a matter of recognizing speaker intention

▶ The rate of miscommunication may be strategically manipulated in order to benefit information exchange

▶ Even the possibility of occasional catastrophic miscommunication may sometimes be strategically motivated

References

Bjørndahl, J. S., R. Fusaroli, S. Østergaard & K. Tylén. 2015. 'Agreeing is not enough: The constructive role of miscommunication'. *Interaction Studies* 16 (3), 495–525.

Brennan, S. E. & M. F. Schober. 2001. 'How listeners compensate for disfluencies in spontaneous speech'. *Journal of Memory and Language* 44 (2), 274–296.

Cappelen, H. & E. Lepore. 2005. *Insensitive Semantics: A Defense of Semantic Minimalism and Speech Act Pluralism*. Oxford: Blackwell Publishing.

Clark, H. H. 1997. 'Dogmas of understanding'. *Discourse Processes* 23 (3), 567–598.

Healey, P. 2008. 'Interactive misalignment: The role of repair in the development of group sub-languages'. In *Language in Flux*, R. Cooper & R. Kempson, eds. College Publications, pp. 13–39.

Jaszczolt, K. M., E. Savva & M. Haugh. 2016. 'The individual and the social path of interpretation: The case of incomplete disjunctive questions'. In *Interdisciplinary Studies in Pragmatics, Culture and Society*, A. Capone & J. L. Mey, eds. Dordrecht: Springer, pp. 251–283.

Moeschler, J. 2012. 'Conversational and conventional implicatures'. In *Cognitive Pragmatics*, H.-J. Schmid, ed., vol. 4. Berlin, Boston: Walter de Gruyter, pp. 405–436.

Schegloff, E. A., G. Jefferson & H. Sacks. 1977. 'The preference for self-correction in the organization of repair in conversation'. *Language* , 361–382.

Sperber, D. & D. Wilson. 2015. 'Beyond speaker's meaning'. *Croatian Journal of Philosophy* 15 (2 (44)), 117–149.

Varonis, E. M. & S. Gass. 1985. 'Miscommunication in native/nonnative cconversation'. *Language in Society* 14, 327–343.

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