Can we Really Share BA in our Conversation?

Hideyuki Nakashima
Future University Hakodate
Disclaimer:

• I am not a (computational) linguist
• This talk is from the view point of intelligence
• Although I have a computer simulation of a simple dialogue system to show my point, I will not cover it today

– Languages are theories. In their vocabulary and grammar, they embody substantial assumptions about the world. Whenever we state a theory, only a small part of its content is explicit: the rest is carried by the language. (p. 153)

» Quantum physics
» Multiverse
Language is only a part of communication
Atsunobu Ichikawa

• Ichikawa (2000) 暴走する科学技術文明
  – Different cultures have different world views
  – Consistent View
    • Western world
    • God’s eyes view
  – Inconsistent View
    • Japan
    • Allow/accept different rules for different groups

» Phrasing by Nakashima
Exo and Endo-System Views

• Observation affects the system being observed

Agents’ views
= Internal observer

God’s view
The theorist’s view
= External observer
Endo-system View

• The merit of endo-system view
  – There are things that can be observed only by participating the process

• The limitation of exo-system view
  – There are things that cannot be observed from outside

• The limitation of endo-system view
  – Hard to “objectize”
Yasunari Kawabata’s “Snow Country”
- The famous first sentence -

• Original Japanese: 国境の長いトンネルを抜けると雪国であった。

• (commonsense entailment)

* Yasunari Kawabata is a winner of the 1968 Nobel Prize in Literature

• English translation by E. Seidensticker: The train came out of the long tunnel into the snow country.
View Points of A System
(Biased by Culture/Language)

- Japanese is expressed from insects-eyes-view
  » By Tatsuhiko Ikegami
  » 金谷武洋「英語にも主語はなかった」(2004)

- English is expressed from birds-eyes-view

© Hideyuki Nakachima
Birds’ eyes view vs. insects’ eyes view

- Insects’ eyes view is embedded in Ba
- Birds’ eyes view is detached from the object to be described
  - Unsituated
  - Unembedded

行く/来る  
我/われ      go/come

l/you
自己 vs. Self

• 自分
  = endo-system view

• {my, your, him, her, it} self
  = exo-system view

» Bin Kimura
Another example ...

ANA (B777)  (A380)
Integrity of several viewpoints are self justified (Europe) or embedded in the field (Japanese)
SITUATEDNESS
Situatedness of Living Things (or, Situatedness of Intelligence)

- Evolution and development are situated
  - shape of tree
  - layout of leaves
- Imprinting
- Co-evolution
- and many more examples…
Situation Theory

• A logical sentence is written as $s \models \sigma$
  – Logical sentence in classical logic is just $\sigma$
  – A situation $s$ supports an infon $\sigma$
  – Example
    • $Japan \models \langle \langle \text{time}, 4:00 \rangle \rangle$
    • $World \models \langle \langle \text{time}, 4:00, \text{JST} \rangle \rangle$
    • When a situation gets wider, situatedness gets lower, and thus infons must be larger.
    • Nakashima’s theory: part of information moves across “$\models$”
Who is hungry?
Use of mental situations

speaker

<<hungry>>

hearer

C-sit : speaker

<<hungry>>
Use of mental situations revised
Agent’s View
What are necessary and sufficient conditions of a successful dialogue

• No explicit (noticed) gap/inconsistency
  – Gricean Maxim

• Transfer of intention
  – Speech act theory

• Common knowledge
  – Proved to be impossible
Sharing Ba is impossible
Reasons

• Ba is not an objective entity
  – Ba is personal
• Ba cannot be represented in full
Agents just assume they share Ba
Notes

• **Ba is not representable**
  – Agents just assume the stated of Ba (not necessarily correct)
• Traditional observe-represent-compute-act model is not used here
• Agents acts just happen to be correct (or incorrect) : Ba is outside the control of agents
A funny story from Rakugo
Konnyaku Dialogue
A head priest of the temple will be away
A konnyaku seller keeps his absence
An archbishop visits the temple
And challenges Zen dialogue
Konnyaku seller keeps silence (because he cannot loose)
Shift to sign dialogue
The outcome

- Archbishop: The chief priest of this temple is erudite. His wisdom is certainly beyond mine. When I asked "What is between the heaven and the ground?" (by making a gesture of small circle), he replied "It is like a vast ocean" (by making a large circle). Then I asked about "the ten directions of the world", he responded "Keep it by five commandments", ...
Q: What is between sky and earth
A: Large ocean

Q: Is your good this size
A: No, this big
Q: How do you keep TEN worlds
A: By FIVE commandments

Q: How much for TEN pieces
A: FIVE hundred mon
Q: Where are THREE priests
A: Look before your eyes

Q: How about THREE hundred mon
A: No way
Is the dialogue in 「こんにゃく問答」 a successful communication?

・ 大僧正：「当寺の和尚は博学多識。拙僧の及ぶところではございません。私が『天地の間は』（と言って、小さな円を作る）と伺ったら、『大海のごとし』（大きな円）とお答え、『十方世界は』と問えば、『五戒で保つ』さらに『三尊の弥陀は』と聞けば、『目の前を見ろ』とおっしゃられた。」

・ 和尚に扮した蒟蒻屋：「あれは、俺の昔の商売を知っていてからかいに来たに違いない。おまえのところのこんにゃくは、こんなに小さかったと言い出したので、こんなことはない、こんなに大きかったと言い返すと、10枚でいくららだと値を聞いてきた。『500だ』と言うと、『300文ぐらいだろ』と値切り出したので、『あかんべえ』...」
My claim

• こんにちは問答 is successful in any practical criteria
  – No gap or inconsistency detected by the participants
  – Agreement of the result

• Only the story teller (with God’s eyes view) and the audience know the inconsistency
Conclusion

• Utterane (language) is only a small part of communication
• $Ba$ is important
• But $Ba$ is unusable from birds’ eyes point of view
• $Ba$ cannot be shared (we can only assume that $Ba$ is shared)