



Can we Really Share *BA* in our Conversation?

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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



INTRODUCTION

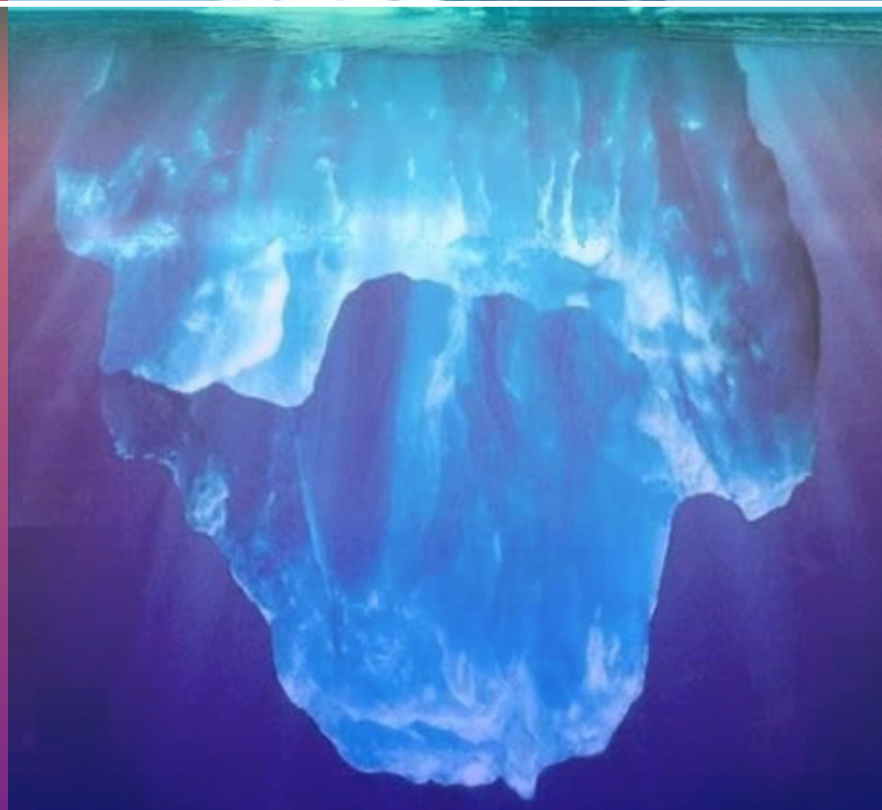
David Deutsch

- Deutsch (1997) *The Fabric of Reality*
 - *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



Language



Ba

Atsunobu Ichikawa

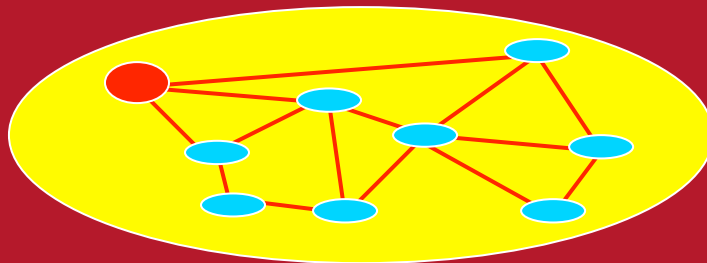
- Ichikawa (2000) 暴走する科学技術文明
 - Different cultures have different world views
 - Consistent View
 - Western world
 - God's eyes view
 - Inconsistent View
 - Japan
 - Allow/accept different rules for different groups

» Phrasing by Nakashima

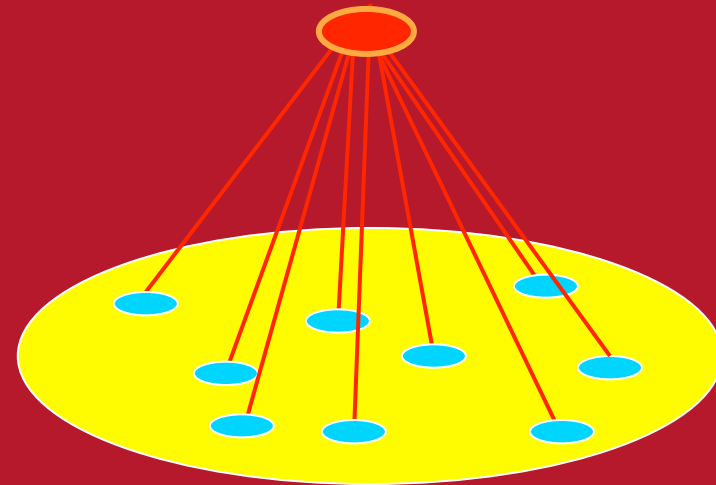
Exo and Endo-System Views

- 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)



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- English is expressed from birds-eyes-view



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
I/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)

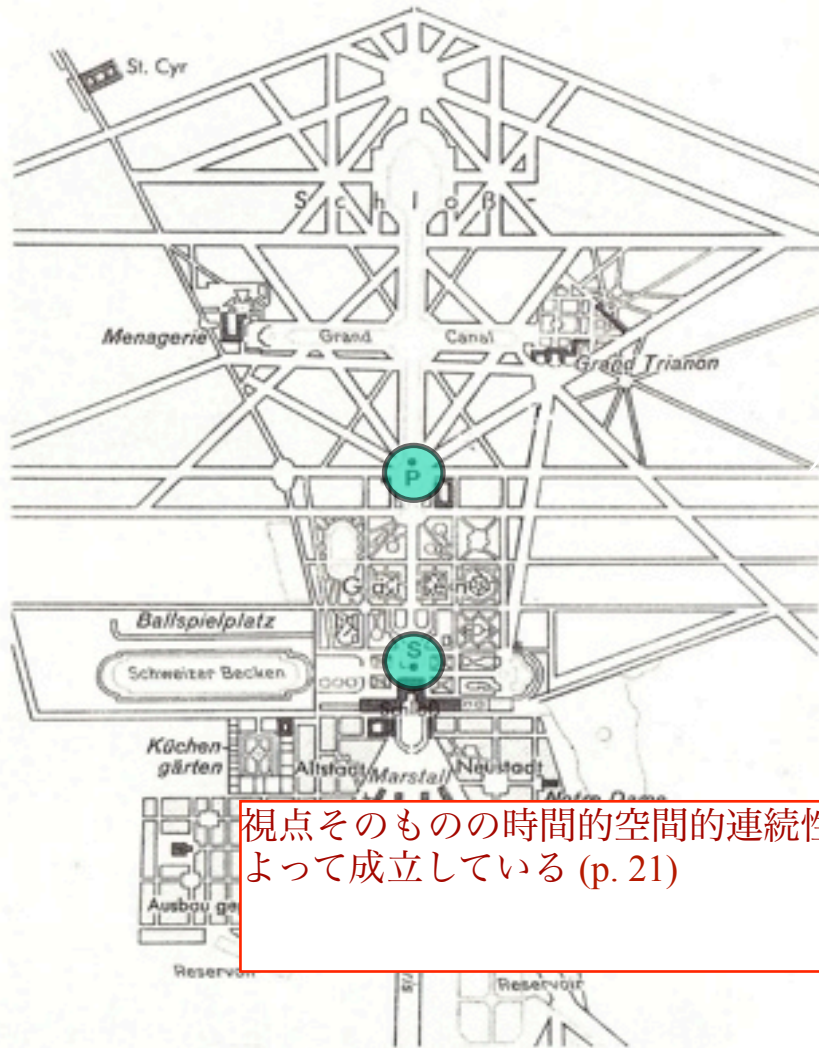


(A380)



庭園を見る視点の同一性

Integrity of several viewpoints are self justified (Europe) or embedded in the field (Japanese)



視点そのものの時間的空間的連続性によって成立している (p. 21)

図2 ヴェルサイユ宮殿の見取図



視点としての自己同一性は桂離宮という庭園の同一性に依存することによって成立する (p. 20)

図1 桂離宮の見取図

新形信和：日本人の〈わたし〉を求めて(pp. 16-17)



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...*

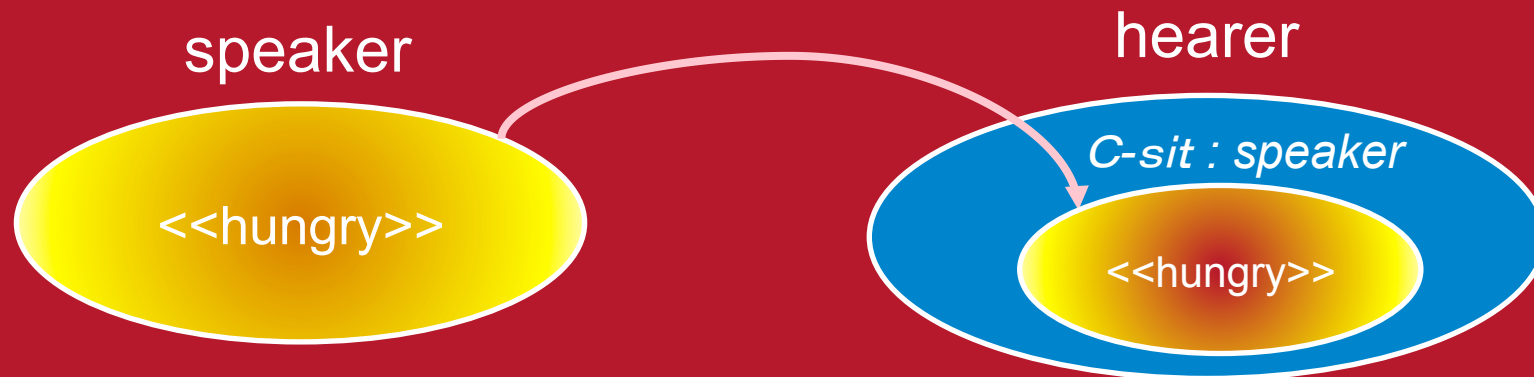
Situation Theory

- A logical sentence is written as $s \models \sigma$
 - Logical sentence in classical logic is just σ
 - A situation s supports an infon σ
 - 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 "

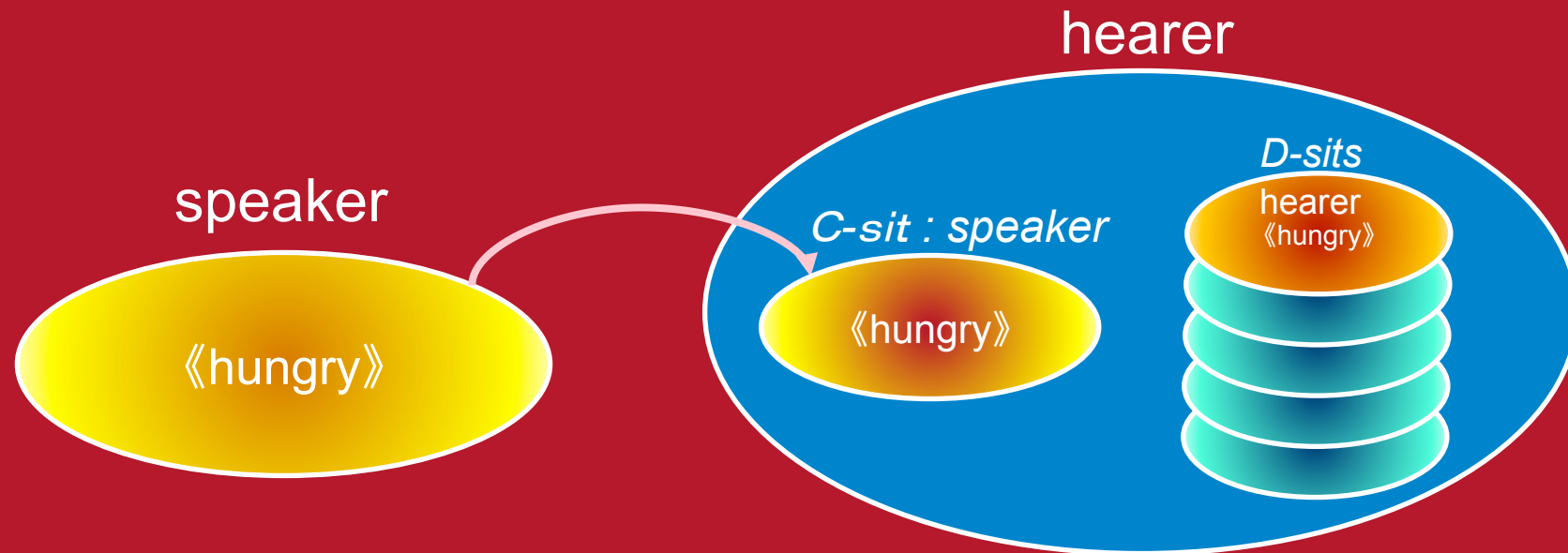
Who is hungry?



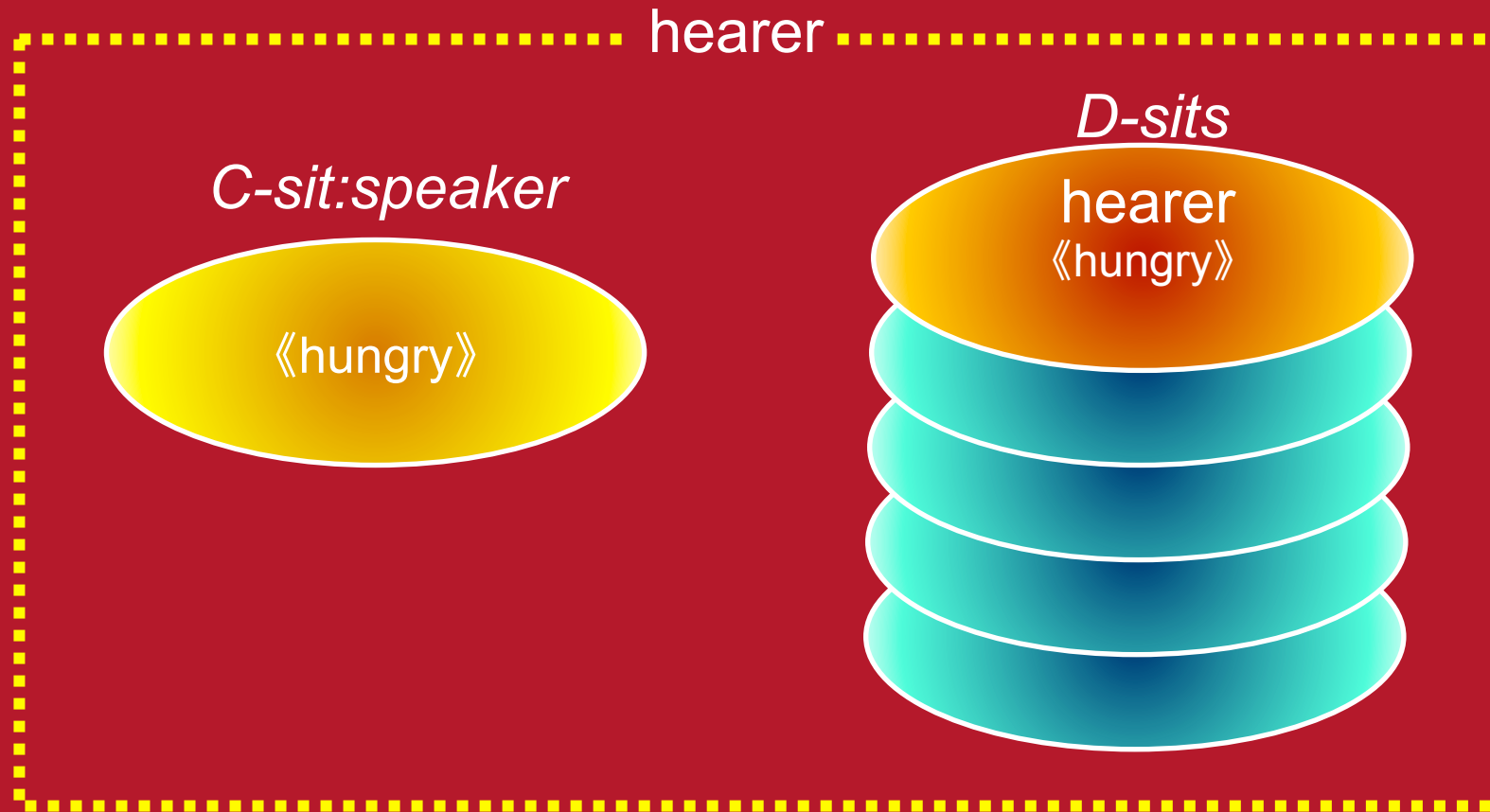
Use of mental situations



Use of mental situations revised



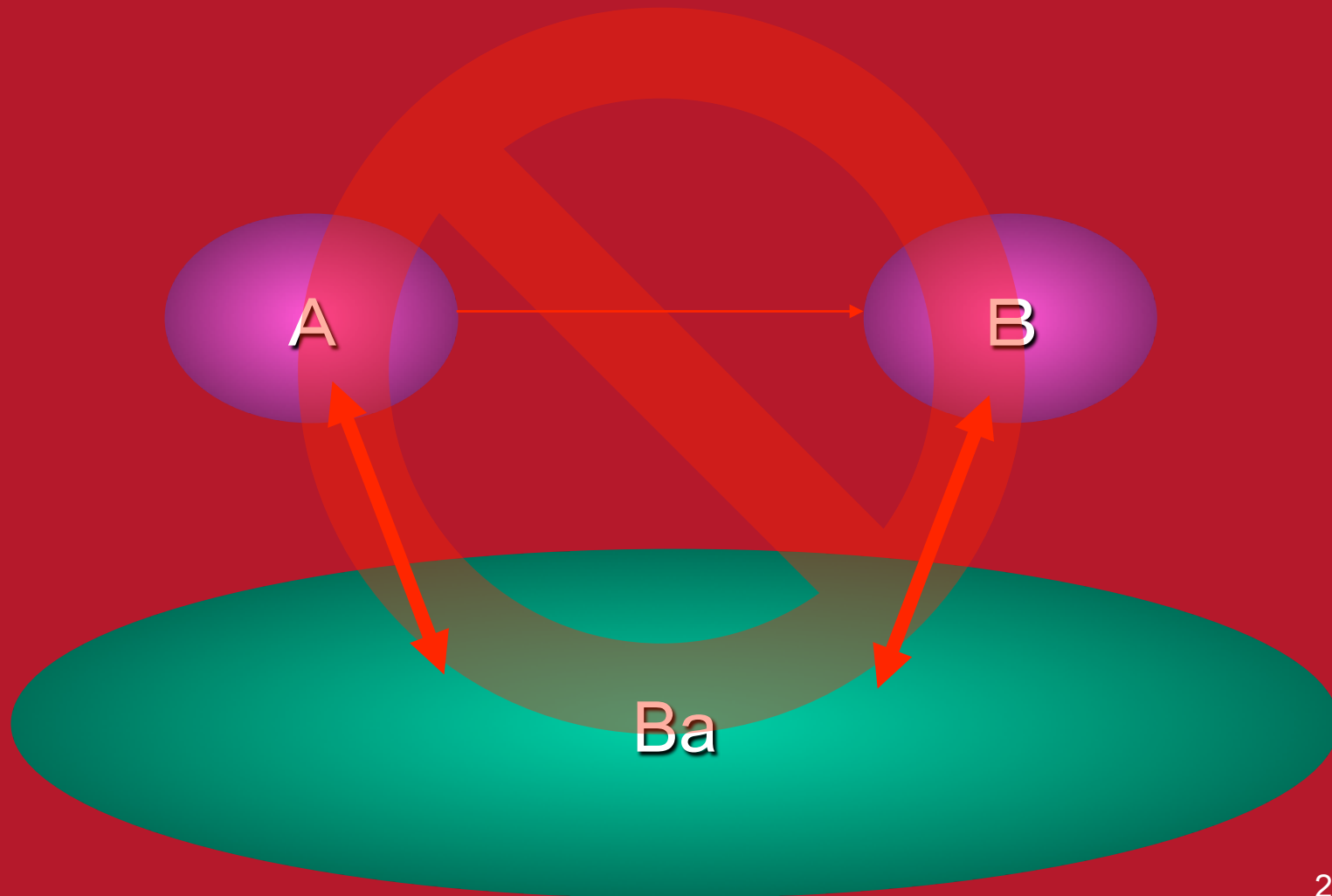
Agent's View



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

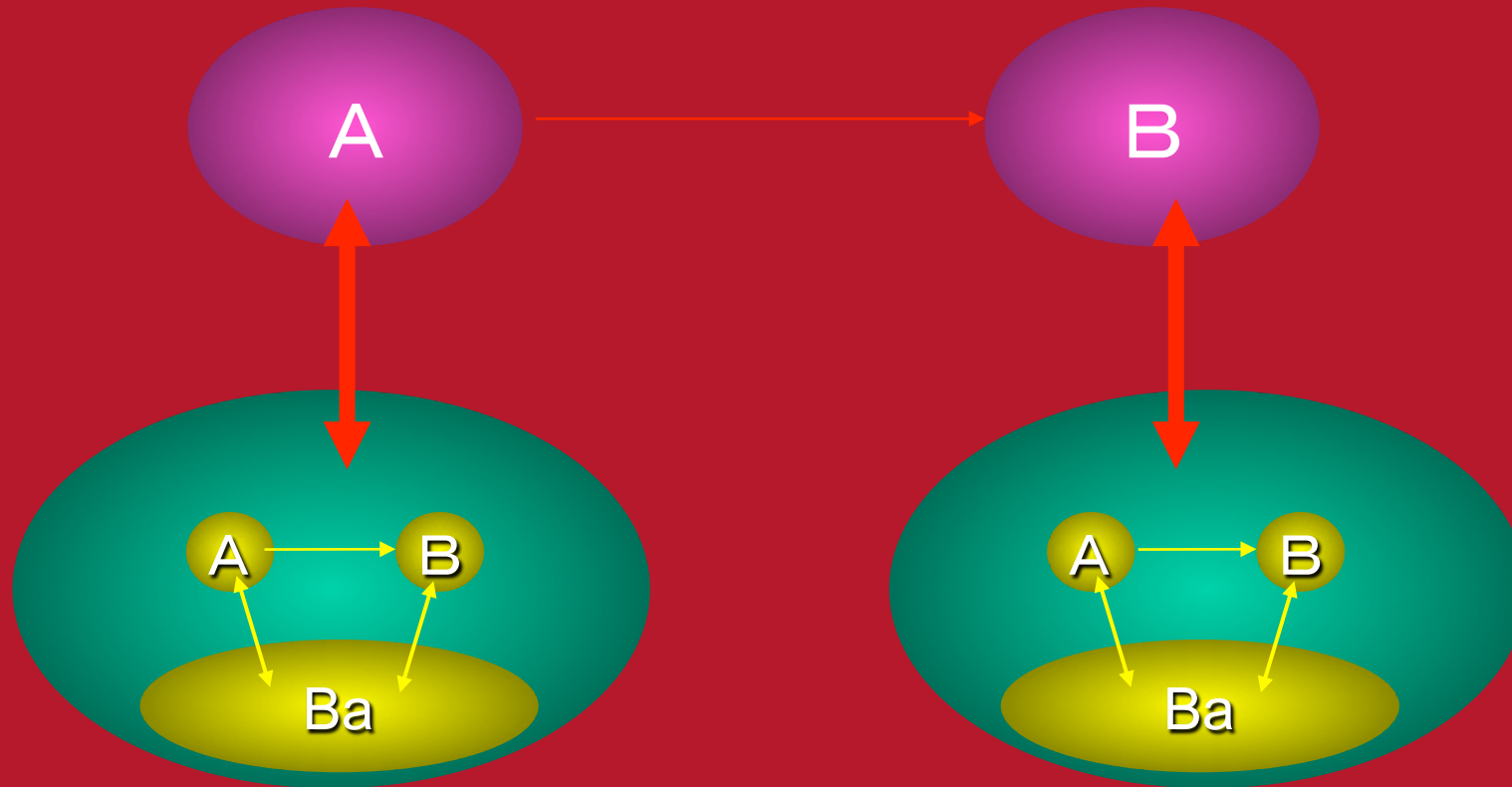
Sharing Ba is impossible



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



蒟蒻問答

A funny story from Rakugo
Konnyaku Dialogue

Setup of こんにゃく問答

- 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

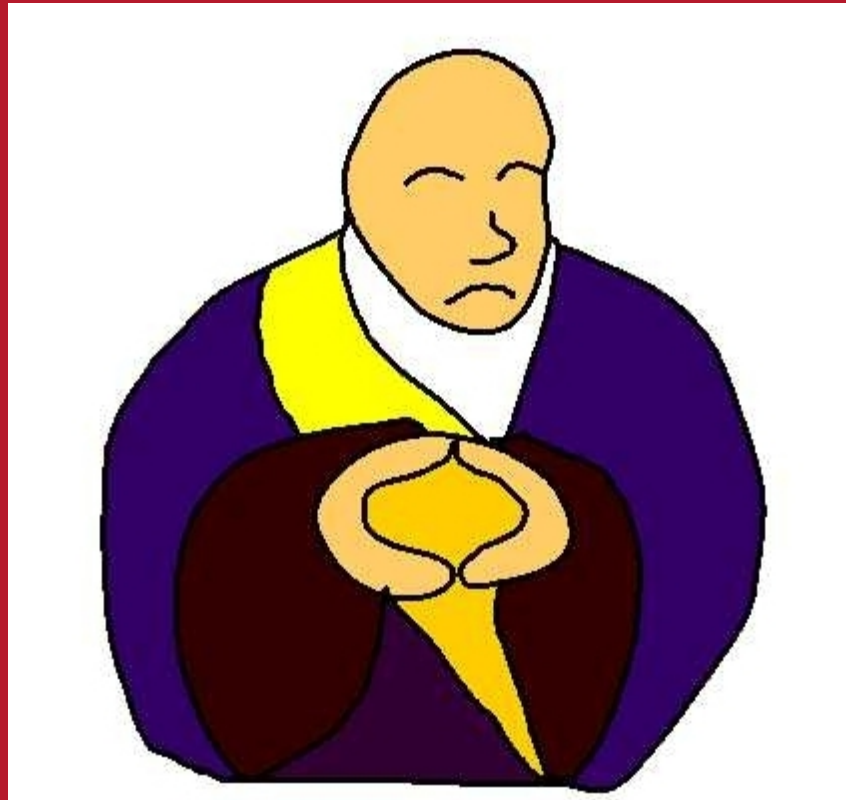
The outcome

- 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 comandments", ...

天地の間は：大海のごとし／蒟蒻の大きさ

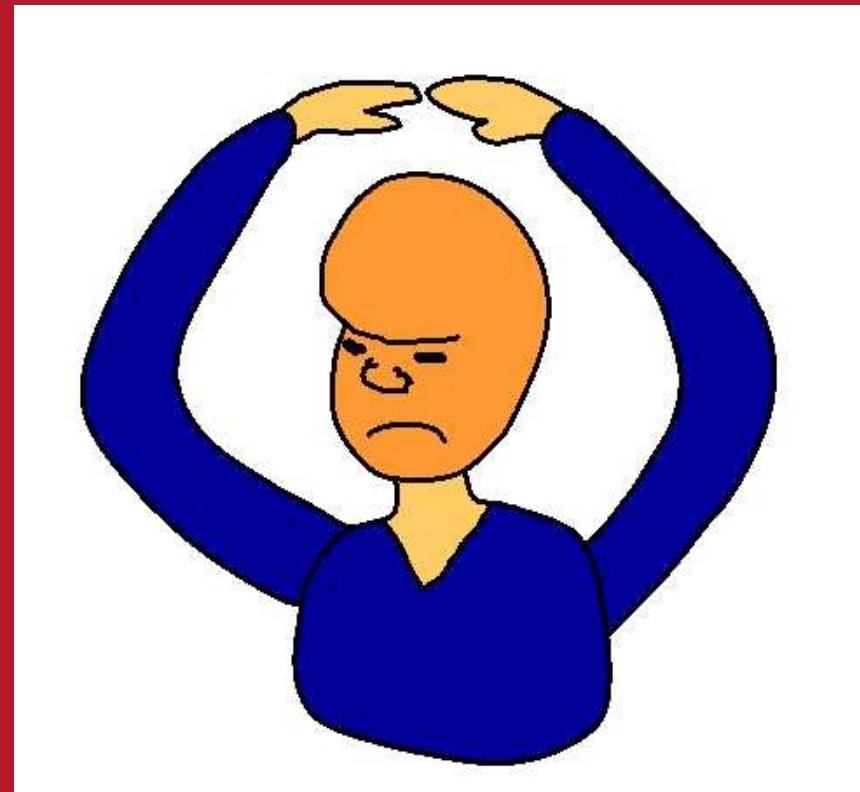
Q: What is between sky and earth

A: Large ocean



Q: Is your good this size

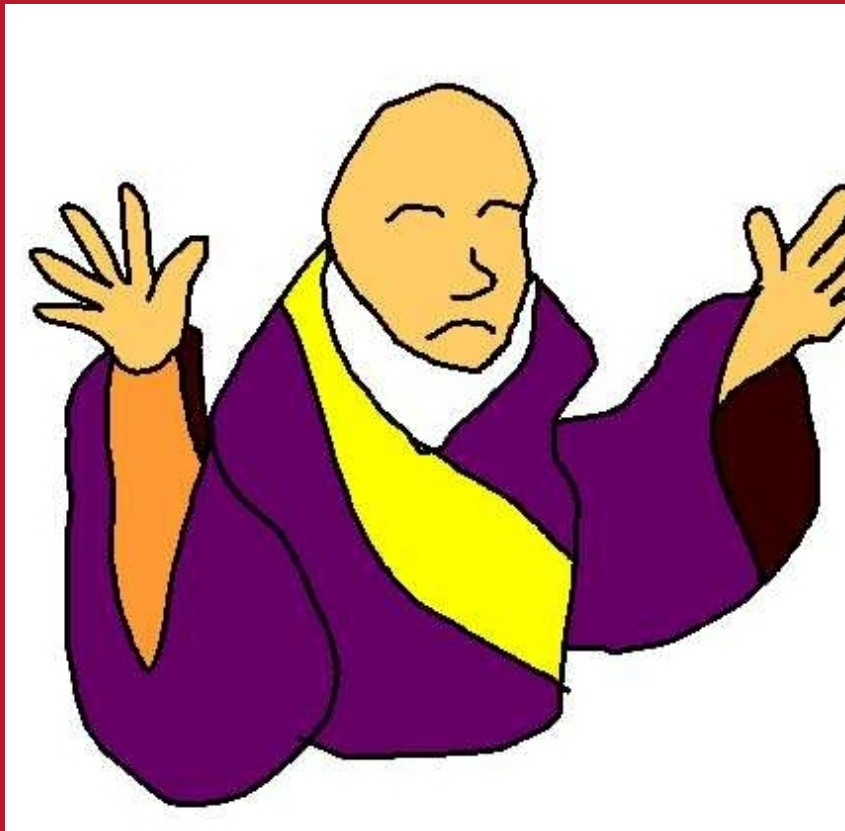
A: No, this big



十方世界は:五戒で保つ／十枚で:五百文

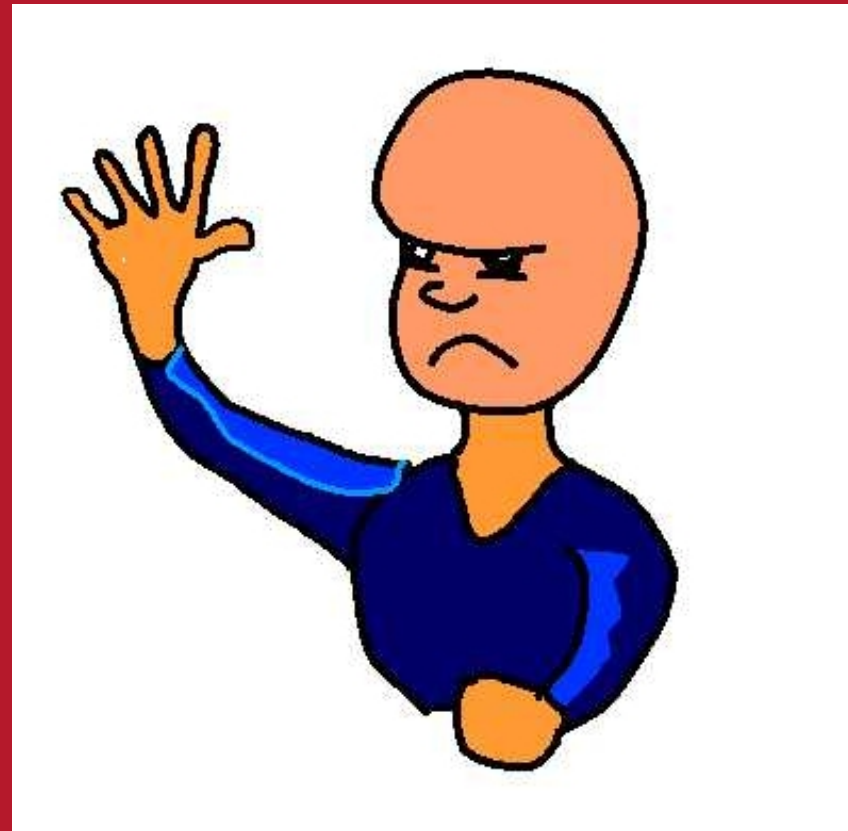
Q: How do you keep TEN worlds

A: By FIVE commandments



Q: How much for TEN pieces

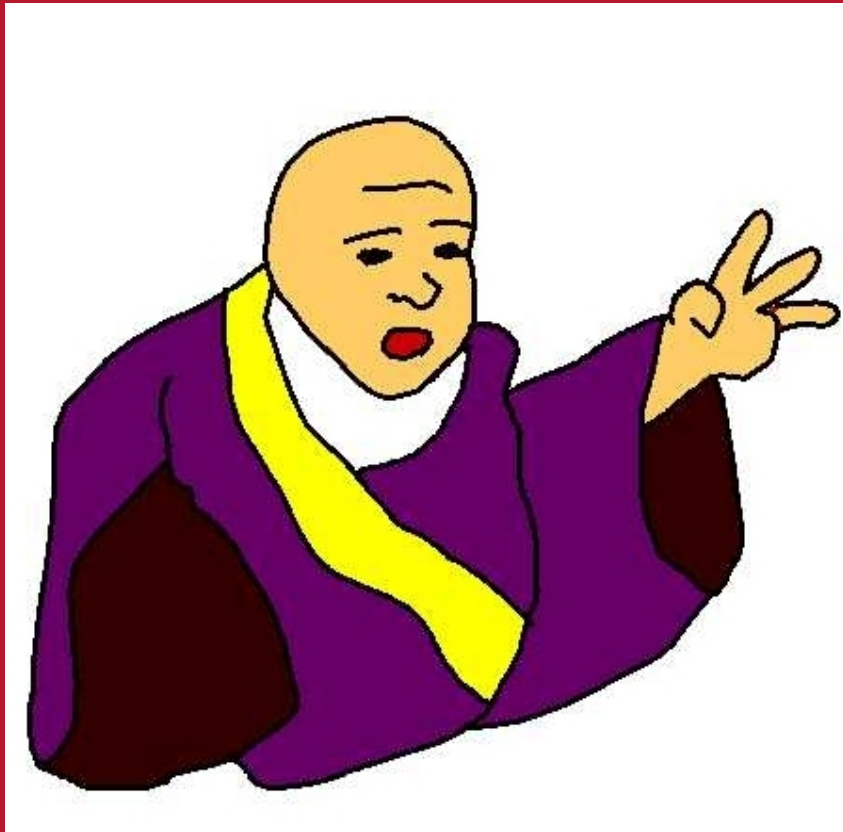
A: FIVE hundred mon



三尊の弥陀は：目の前を見ろ／三百にまけろ：あっかんべえ

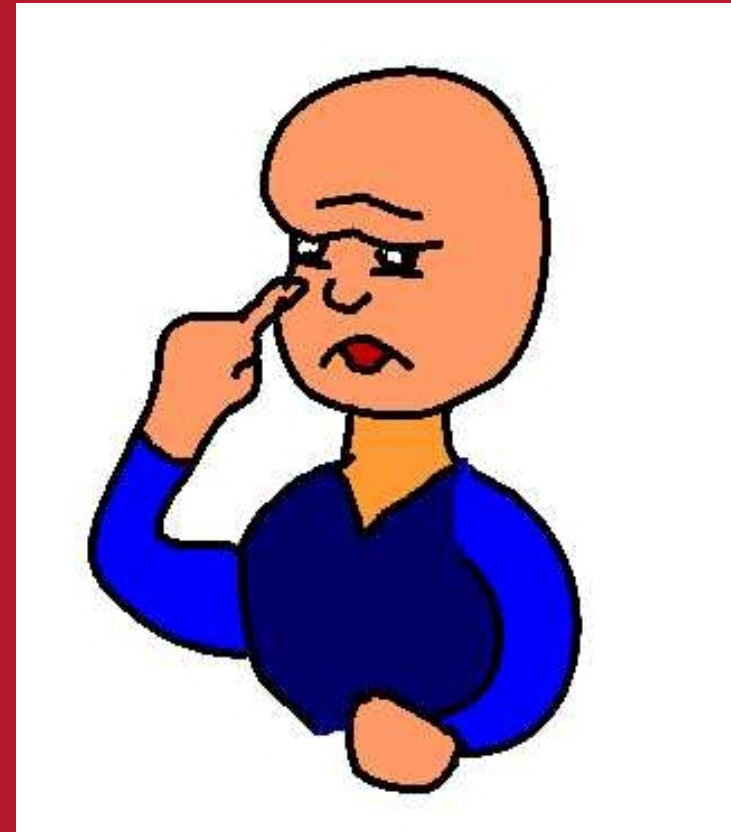
Q: Where are THREE priests

A: Look before your eyes



Q: How about THREE hundred mon

A: No way



Is the dialogue in 「こんにやく問答」 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やくは、こんなに小さかったと言いつ出したので、そんなことはない、こんなに大きかったと言いつ返すと、10枚でいく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

- こんにやく問答 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

- Utterance (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)