Representing Representing
the Ontology of Aboutness

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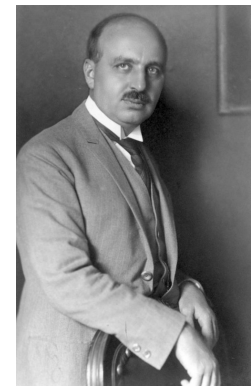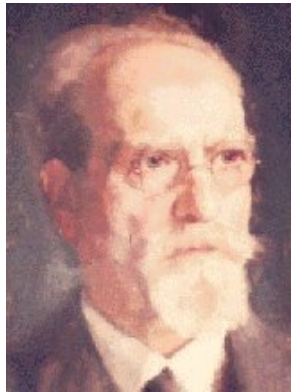
Apology

Filosofo sono!

Motto

"A[n onto]logical theory may be tested by its capacity for dealing with [examples], and it is a wholesome plan, in thinking about [ontology], to stock the mind with as many [examples] as possible, since these serve much the same purpose as is served by experiments in physical science."

Adapted from Bertrand Russell, 'On Denoting', 484-5.

Some Heroes

Contents

1. Representation and Aboutness

2. Why you might want to represent it in an ontology

3. Basic and Derived Representation

4. Historical Accounts of Basic Representation

5. Preferred Account

6. Extensions to Derived Representation

7. Recommendations

Representing and Aboutness: Examples

- Jan sees Maria
- Jan hears Maria coming up the stairs
- Jan believes that Maria loves him
- Jan wants Maria to be happy
- This photo shows Jan and Maria on their wedding day
- Maria remembers their wedding
- This painting portrays Queen Elizabeth I
- This painting (*Die Familie*) portrays Egon Schiele, his wife, and their child
- The name 'Jan Woleński' denotes my oldest Polish friend
- The word 'dassie' denotes the rock hyrax *Procavia capensis*
- The Warren Commission Report is about the assassination of JFK
- The Third Geneva Convention prescribes treatment of prisoners of war
- *War and Peace* is about people involved in the French invasion of Russia
- This database records flight bookings for airline X
- This database records patient notes for hospital trust Y

Representing and Aboutness: Main Types by Medium

- Mental
- Graphical
- Auditory
- Linguistic
- Information Entities
- Other

Why you might want to represent it (examples)

- To represent unresolved disagreements, e.g. different medical opinions or conflicting results about the same case, the patient's own opinion etc.
- Conflicting witness statements about an event or situation (e.g. to police, before a court or commission of inquiry).
- Conflicting interpretations of events by prosecution and defence in a court case.
- Compliance of (statements of) policy to normative regulations (or not)
- Changes of (statements of) policy, opinion (and need to track legacy)
- Rollback of policy changes to an earlier stage
- Divergent and/or changing views or actions among different agents in an organization (especially a large one)
- Representation of plans or expectations (that may or may not come about)
- Representation of possibilities that pose a risk or opportunity
- … ?

Basic and Derived

All the other forms of representation depend on mental representation: without it, there are no pictures depicting anything, no expressions expressing and denoting anything (Husserl). (Theory of "animation".)

This is not to deny that mental representation is (considerably) enhanced by graphical and linguistic awareness and competence.

A theory of representation that gets mental representation wrong will get the other types wrong, too.

Roughly speaking:
theory of graphical representation = theory of mental representation + theory of visual perception and interpretation
theory of linguistic representation = theory of mental representation + theory of meaning

Historical Models of Mental Representation I

Two element (containment) model (BRENTANO 1874)

Every mental representation (mental act) has two components: ACT-TYPE and the CONTENT/OBJECT

The content/object exists in the act: hence "Intentional inexistence".

Additional elements not spelled out by Brentano: BEARER (a soul, hence his reluctance in 1874 to mention it); TIME

Kinds of Act (Descartes):

Presentation (*Vorstellung*) e.g. of a horse

Judgment: in two opposed kinds: acceptance (e.g. of a horse) and rejection

Attitude: (like, dislike, come in polar opposites with degrees)

Can be iterated, e.g. Jan remembers being unhappy seeing Maria crying

Historical Models of Mental Representation I

MAIN PROBLEM:

No way to distinguish true from false, veridical from falsidical, accurate from inaccurate, perceptual from hallucinatory, correct from erroneous acts, because the object always exists in the act.

The view thus fails to secure the objective existence of objects beyond consciousness. (Cartesian skepticism.)

Historical Models of Mental Representation II

Three element model (TWARDOWSKI, MEINONG, 1894 ff.)

Every mental act has two components and one associated item
ACT-TYPE, CONTENT, OBJECT
Content is mental, object usually is not. (Add BEARER and TIME again.)
e.g. I see a horse: the act-type is seeing, the content is my internal "image" of the horse that points beyond itself, the object is the horse itself.

ARGUMENTS FOR:
Contents always exist and are simultaneous with the act, objects may be past, future (e.g. Battle of Trafalgar, the 2020 US Presidential election)
or non-existent (Zeus, unicorns, Harry Potter, Vulcan, caloric, kryptonite)
Different contents may represent the same object
   The city on the site of Roman Juvavum = the city where Mozart was born
(cf. Frege sense vs reference)

Historical Models of Mental Representation II

PROBLEMS

EXPLOSION

All acts have an object, even if it does not or cannot exist (round square, golden mountain, 2m carat diamond, largest prime number, Harry Potter)

Twardowski's arguments for this and against common sense are weak, and Meinong does not add any.

CONFUSION

Twardowski does not clearly distinguish between content as a real mental instance and content as a type (using the latter for meanings).

Meinong's theory often said to be inconsistent (e.g. Russell) but this is not certain.

Historical Models of Mental Representation III

2 + 1 element model (HUSSERL, 1901)

Every act has an ACT-TYPE (act-quality) and CONTENT (act-matter), but only some have an OBJECT (e.g. thinking of Bismarck vs thinking of Zeus)
In 1901 Husserl under the influence of Hume rejected BEARER
Different act-types may have different referent-types, e.g. judgments and other propositional attitudes may have states of affairs as referents.

3+1 element model (HUSSERL 1913)

Every act has an ACT-TYPE (noesis) and CONTENT (hylesis), and an objective correlate (intentional object or NOEMA), but only some have an external or target object (REFERENT).
The noema is abstract and a generalization of Frege's notion of sense.
In 1913 Husserl accepted BEARER (= transcendental ego)

Historical Models of Mental Representation III

CONS

For methodological reasons Husserl thought foundational science should not accept or reject REFERENTS (epoché, transcendental reduction). Realists cannot follow this.

Transcendental egos do not exist. The BEARER is a physical system.

Husserl's terminology is deliberately idiosyncratic.

PROS

Actually Husserl's theory is more complicated still: he has Platonic kinds as well, but what we have here is complicated enough for most jobs.

It is in conformity with common sense (not all acts have referents)

Husserl is right that fleeting mental contents are "elusive"; he prefers to place more descriptive weight on noemata and their complexes.

This is basically because the terms we use to describe noemata are transferred from those we use to describe objective referents (the Wittgenstein point).

Suggested Model of Mental Representation

We need the following elements

BEARER

ACT (concrete mental occurrence) or DISPOSITION (e.g. belief)

TIME of occurrence or possession of disposition or PERIOD of disposition

ACT-TYPE

MENTAL CONTENT (real part of the act)

MENTAL CONTENT TYPE

INTENTIONAL OBJECT or NOEMA (projected correlate)

REFERENT (for "good" acts, not for all)

REFERENT-TYPE (e.g. substance, quality, quantity, relation, boundary, process, state of affairs, collective, …)

Dismissive note on the Metaphysics of Mind

Apart from (hopefully) making the distinctions needed to represent representation adequately, note we are striving to maintain metaphysical **neutrality**.

Around 90% of contemporary analytic philosophy of mind is concerned with metaphysical issues, mainly to do with the relationship between the mental and the physical: dualism, monism, functionalism, emergentism, panpsychism, epiphenomenalism, also the metaphysical status of mental contents, and the question whether consciousness is sui generis or reducible.

For descriptive IS-ontological purposes these metaphysical speculations are an unnecessary distraction.

Advice: Leave that to neuroscientists and philosophers: they may still need several hundred years to approach an answer.

Extending the Model I: Pictorial

Act-type is VISUAL

Additional intermediaries:
SUBSTRATE
   e.g. paper, canvas, screen
VISUAL PATTERN
   (objective: what any competent observer will see)
And sometimes
PRODUCER
   causal process such as television, computer software running

NB The substrate and the visual pattern are not the intentional object or (if there is one) referent. Sometimes there is no clear intentional object.

Cf. Ingarden on visual works of art.

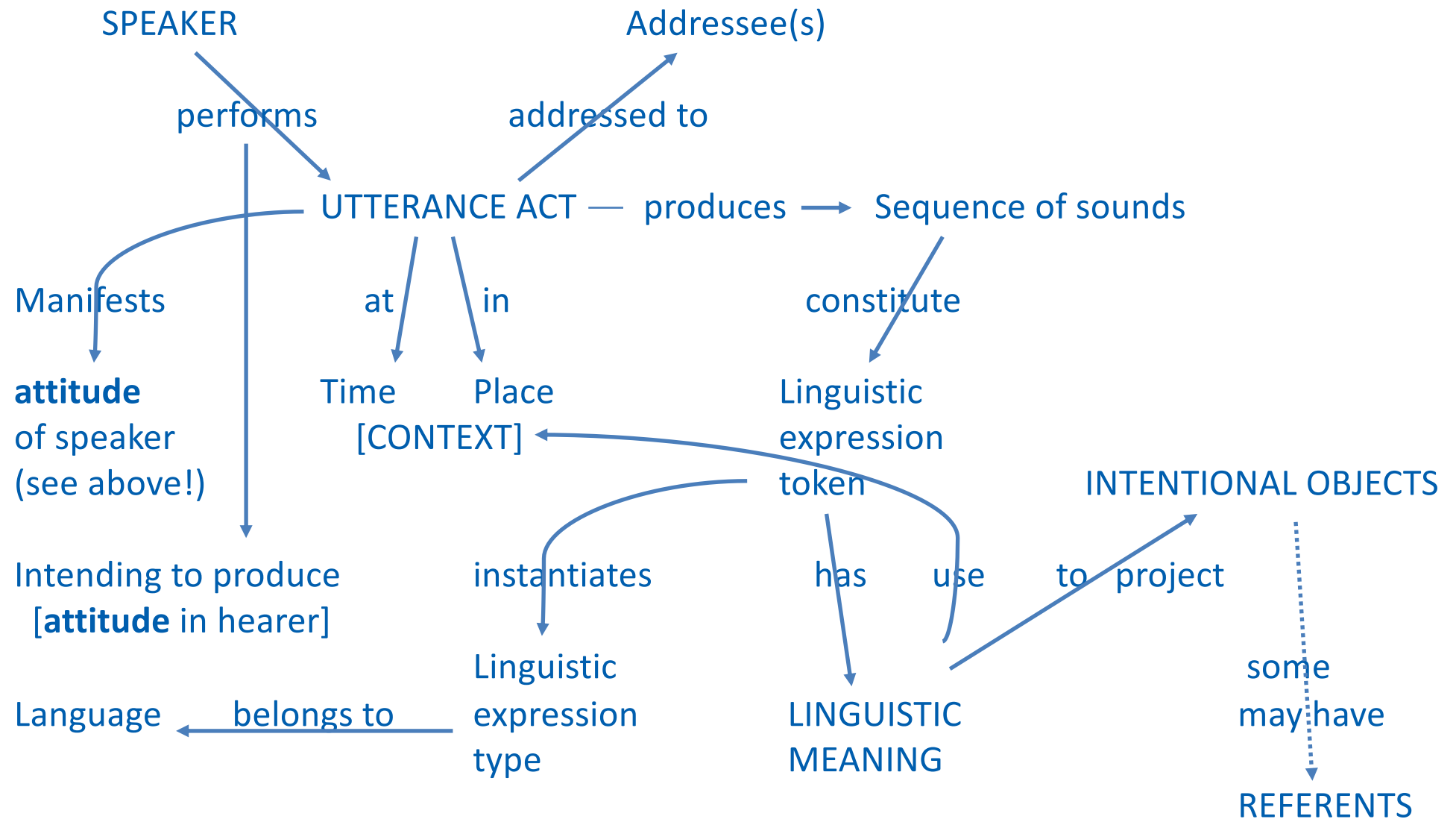# Extending the Model II: Linguistic A – Speech 1

Speech and writing differ enough to require separate treatment

Model: Karl Bühler, *Sprachtheorie* (1934)

Language is essentially communicative and expressive

The number of items to be taken into account is large: here are rough diagrams for the two ends of the communication process, the points of view of speaker and hearer.

Extending the Model II: Linguistic A – Speech 1

SPEAKER   Addressee(s)

performs   addressed to

UTTERANCE ACT — produces → Sequence of sounds

Manifests   at   in   constitute

attitude   Time   Place   Linguistic
of speaker   [CONTEXT]   expression
(see above!)   token   INTENTIONAL OBJECTS

Intending to produce   instantiates   has   use   to   project   some
[**attitude** in hearer]   may have

Language   belongs to   Linguistic   LINGUISTIC
                          expression   MEANING   REFERENTS
                          type

Extending the Model II: Linguistic A – Speech 2

HEARER

Hears sounds produced by speaker

Understands them as words

Knows their language (disposition) and activates that knowledge to recover LINGUISTIC MEANINGS (simple and complex)

Exploits awareness of contextual features to

ACT OF UNDERSTANDING: Hearer understands what the speaker meant, and thereby project INTENTIONAL OBJECTS (noemata)

Communication is *successful* when the hearer's understanding matches the speaker's intention (as the speaker intended)

(They intend the same abstract intentional objects)

NB Successful understanding does not require the intentional objects to correspond to actual referents.

Extending the Model III: Linguistic B – Writing

New elements:

AUTHOR (producer of the writing)

     Authoring act

READER

     Reading act

SUBSTRATE (paper, papyrus, vellum, parchment, screen, rock, …)

GLYPHS (physical marks or patterns which form written TEXT)

     Features of glyphs

?

Recommended Essential Elements

BEARER of representation (person, machine, object)

TIME of occurrence

TYPE of representation (visual, auditory, graphical, linguistic (spoken|written), machine, …)

INTENTIONAL OBJECT(s) (nominative, propositive)

REFERENT(s) where their existence is certain*

*Certain = soundly assured, not secure against silly skepticism

NOTES

Other elements may be added on a case-by-case basis e.g. addressee, linked action where appropriate

CONTENT generally drops out of the picture

Specification of INTENTIONAL OBJECT: treat as a specification of REFERENT but add a modifier NOEMA_OF to indicate neutrality on the existence question

Some Recommendations for IS Ontologies

Don't get involved in **irrelevant** philosophical disputes e.g. mind-body
Maintain metaphysical **neutrality** as far as possible
Be **weakly realist**, i.e., be not afraid to flag the definite existence of some referents (Anti-Kantian)
Do not however **block non-veridical** representations which have no actual referents, e.g. plans, false opinions, erroneous data: those are needed (Anti-Reductionist)

Thank you

Go raibh maith agat