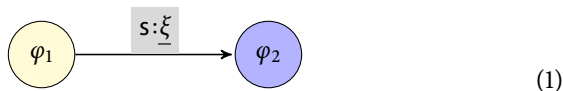


Practical reasoning and speech acts

Reasons to say, ways of understanding what has been said, intuitions on
language

Acts as modalities

In dynamic logic speech-acts are treated as modal operators. If there is an infinite number of simple locutions, then there is an infinite number of modal operators.



The change φ_1/φ_2 the locution $s:\underline{\xi}$ brings about is change in the subjective and the objective world.

Prototype $\mathcal{L}_{\text{effect}}$ dynamic modal language for communication theory

Definition (The prototype language $\mathcal{L}_{\text{effect}}$)

The prototype language $\mathcal{L}_{\text{effect}}$ is the formal language of communication theory defined by recursion to other formal languages:

$\mathcal{L}_{\text{world}}$	p is a sentence of propositional logic
$\mathcal{L}_{\text{reality}}$	$\varphi ::= p \mid \neg\varphi \mid (\varphi \wedge \varphi) \mid \diamond\varphi \mid \otimes_i\varphi \mid \text{i stit } \varphi \mid \odot_i\varphi \mid \chi$
$\mathcal{L}_{\text{utterance}}$	$\xi ::= !\text{i stit } \varphi \mid \cdot\varphi \mid \cdot\varphi \rightarrow !\text{i stit } \varphi$
$\mathcal{L}_{\text{locution}}$	$\chi ::= \text{i} : \underline{\xi}$
$\mathcal{L}_{\text{effect}}$	$\epsilon ::= \varphi \mid [\chi]\epsilon \mid \neg\epsilon \mid (\epsilon \wedge \epsilon) \mid \otimes_i\epsilon \mid \ulcorner \otimes_i\varphi \urcorner \in \Psi(\text{i} : \underline{\xi})$



Žarnić, B. (2013)

Logical roots of linguistic commitment.

In *Theory of Imperatives from Different Points of View, vol. II*. Eds.

A. Brożek, J. Jadacki, and B. Žarnić. Warsaw: Wydawnictwo Naukowe Semper.

Actors i, j, \dots

Propositional Letters

p, q, \dots

Intentionality

$\otimes_i \in \{B_i, D_i, \neg B_i, \neg D_i\}$ for ‘i believes that ...’ and ‘i desires that ...’, and their negations.

Action i stit for ‘i sees to it that ...’

Sentence Moods \cdot and $!$ for indicative and imperative sentence mood

Locution $\text{i} : \underline{\dots}$ for ‘i says: “...”’

Deontics $\odot_i \in \{P_i, F_i, O_i\}$ for generic deontic operator that stands in place of ‘it is permitted for i that ...’, ‘it is forbidden for i that ...’ and ‘it is obligatory for i that ...’.

Expression relation

$\ulcorner \otimes_i \varphi \urcorner \in \Psi(\text{i} : \underline{\xi})$ stands for ‘intentional state $\otimes_i\varphi$ is a sincerity condition of the locution $\text{i} : \underline{\xi}$ ’.

An overview

$\mathcal{L}_{\text{world}}$ p is a sentence of propositional logic

$\mathcal{L}_{\text{reality}}$

$\varphi ::= p \mid \diamond\varphi \mid \oplus_i\varphi \mid \text{i stit } \varphi \mid \odot_i\varphi \mid$

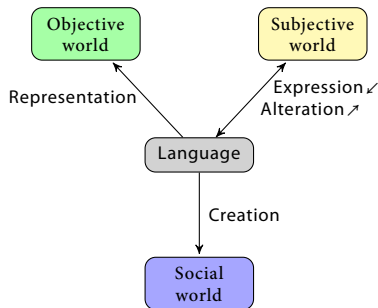
$\neg\varphi \mid (\varphi \wedge \varphi) \mid \underline{\chi}$

$\mathcal{L}_{\text{utterance}}$ $\xi ::= !\text{i stit } \varphi \mid \cdot\varphi \mid \cdot\varphi \rightarrow !\text{i stit } \varphi$

$\mathcal{L}_{\text{locution}}$ $\chi ::= \text{i: } \underline{\xi}$

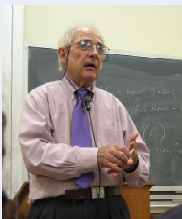
$\mathcal{L}_{\text{effect}}$ $\epsilon ::= \varphi \mid [\underline{\chi}]\epsilon \mid \neg\epsilon \mid (\epsilon \wedge \epsilon) \mid \oplus_i\epsilon \mid$

$\lceil \oplus_i\varphi \rceil \in \Psi(\text{i: } \underline{\xi})$



Expressive conception of language

Illocutionary logic. A sequence $i:\underline{\chi}_1, \dots, i:\underline{\chi}_n$ of locutions *entails* locution $i:\underline{\chi}_{n+1}$ IFF intentional states expressed by the sequence *are reasons for* intentional states expressed by the entailed locution.



Normative conception of language

Normative pragmatics. A sequence $i:\underline{\chi}_1, \dots, i:\underline{\chi}_n$ of locutions *entails* locution $i:\underline{\chi}_{n+1}$ IFF linguistic commitments of the sequence *include* linguistic commitments of the entailed locution.



Logico-structural conception of language

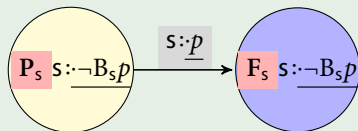
Dynamic logic. Supports the view that the logical structure of language-in-use is the root logic, the logic that manifests itself in the effects of language use, which include both linguistic commitments and rational psychological commitments but are not reducible to them.



Moore's paradox

Example

A locution can change the obligation pattern to which the speaker's locutions are subordinated, it can change the speaker's linguistic commitments.



(2)

Suppose that the speaker s neither believes that *It is raining* nor believes that *It is not raining*. The speaker can sincerely say *I don't believe that is raining* and it is permitted for him to say so. After the speaker utters *It is raining* the deontic status of the speaker's locution *I don't believe that is raining* changes and becomes forbidden.

Non-logical communication norms

- The category of non-logical communication act norms comprises norms whose condition for the assignment of deontic value to a locution is defined in terms of intentional state of one or more communication actors and possibly some other condition C . A typical logical form is given in (3).

$$\text{If } (\otimes_j \varphi \wedge C), \text{ then } \odot_i i:\underline{\xi}_n. \quad (3)$$

- The special case arises when the actor j , whose intentional state is mentioned in the precondition part of the norm, is identical to the norm-subject i . The *honesty principle* (as termed by van Eemeren and van Grootendorst) is an example of this $i = j$ type.

Honesty (sincerity) principle

If the speaker's i having an intentional state $\otimes_i \varphi$ is a sincerity condition of (i.e., is expressed in) the locution $i:\underline{\xi}$, then it is forbidden for i to perform the locution if i does not have that intentional state.

$$(\neg \otimes_i \varphi \wedge \ulcorner \otimes_i \varphi \urcorner \in \Psi(i:\underline{\xi}_n)) \rightarrow \mathbf{F}_i i:\underline{\xi}_n \quad (4)$$

Logical requirement in language use

- The effect of Moore-type of locutions:

$$[i:\underline{\xi}][i:\underline{\neg \otimes_i \varphi}] \perp \quad \text{for all } \ulcorner \otimes_i \varphi \urcorner \in \Psi(\ulcorner i:\underline{\xi} \urcorner)$$

- The effect of Moore-type sentences has been discovered by Searle and Vanderveken and termed ‘the principle of non-deniability of the sincerity conditions’:¹ *A speaker cannot simultaneously express a psychological state and deny that he has that state.*
- The normative reading of the principle of non-deniability of the sincerity conditions as expressed in the language of dynamic modal logic (5) shows that the prohibition of performing some locutions is a regular, logical effect of a locution performance. The norm can be understood as an instance of the principle of avoidance of communicative incoherence.

If $\otimes_i \varphi$ is a sincerity condition of $i:\underline{\xi}$, then $[i:\underline{\xi}]F_i i:\underline{\neg \otimes_i \varphi}$. (5)

- Sincerity requirement and linguistic commitments are parallel: to an intentional state required by sincerity there corresponds the linguistic commitment—the prohibition for negation of direct expressive of the state.

¹In *Foundations of Illocutionary Logic*, p. 91, 1985.

Acts and changes

- An act cannot be reduced to a changes.
- In philosophy of action and in methodology of social science an act is change which occurred because of the actor's reasons.
- According to Davidson, the reasons can cause an action. There are many sets of reasons that can show that an action is reasonable but the action can be explained only by the set that caused it.

Acts and changes

- The act is a meaningful change, a rational event; an event the understanding of which cannot be constructed using the methods of natural sciences.
- According to Von Wright, the methodological autonomy of social sciences resides in its unique logical form called *practical inference*.
- The logical theory of practical inference has not as yet reached a clear cut form. There is no generally known theory serves as a point of reference either for the critique or for the further development. The theoretical reason for the underdevelopment lies in the logical complexity of practical inference.
 - ① The number of logical elements involved in the practical inference is high and their theories are under dispute.
 - ② The consequence relation of practical inference seems not to be Tarskian, but rather a very weak relation (non-transitive, non-reflexive, non-monotonic).
 - ③ There is a rich variety of candidate means-end relations (sufficient, necessary, INUS, SUIN,... conditions) and this fact produces different forms of the instrumental type of practical inference.

An exemplar form of instrumental practical inference

Practical inference

A intends to bring about *p*.

A considers that he cannot bring about *p* unless he does *a*.

Therefore *A* sets himself to do *a*.

A schema of this kind is sometimes called a practical inference (or syllogism). I shall use this name for it here, without pretending that it is historically adequate, and consciously ignoring the fact that there are many different schemas which may be grouped under the same heading.



Georg Henrik von Wright. 1971. *Explanation and Understanding*, p. 96.

London: Routledge & Kegan Paul

A rough analysis

modal 1a *modal 2a*
A **intends to bring about** *p*.

modal 3 *modal 4* *modal 2a* *modal 2b*
A **considers that** he **cannot bring about** *p* unless he **does** *q*.

modal 1b
Therefore A **sets himself to do** *q*.

We find at least four expressions that invoke modal logic treatment:

“intentionality modalities” :

praxeologic modality [A brings it about that], [A does so that], [A sets himself to do]

bouletic modality [A intends to]

doxastic modality [A considers that]

alethic modality ⟨it is possible that⟩ for ‘can’

Meaningfulness

- The science that seeks to interpret the meaning of action does so by reconstructing the practical inferences that might have made the action internally reasonable from the actor's perspective.
- Speech acts are meaningful by themselves. A speech act $s:\underline{\xi}$ necessarily means something because:
 - it uses an utterance ξ which represents something,
 - it expresses the speaker's (writer's) intentional states ('sincerity conditions', Searle): $\Psi(s:\underline{\xi})$,
 - it alters the addressee's intentional states: $[s:\underline{\xi}] \otimes_a \varphi$,
 - it modifies the normative reality ('deontic score', Brandom): $[s:\underline{\xi}] \odot_s s:\underline{\xi}'$
- It seems that no reconstruction of practical **REASONS** is needed in **UNDERSTANDING** of speech acts since our **INTUITIONS** on relations between a locution and the objective, the subjective and the social world are sufficient to establish the meaning.

No practical inference for locutions understanding?

- In the literature on practical reasoning we find no discussion on speech-act in the role of the conclusion of practical inference.
- The reason for the absence of the discussion on practical reasoning leading to communicative actions is most probably connected to its seemingly redundant character.

Practical inferences with sufficient cond.

$$D_s B_a \varphi$$
$$B_s [i:\underline{\varphi}] B_a \varphi$$
$$\hline i:\underline{\varphi}$$
$$D_s D_a a \text{ stit } \varphi$$
$$B_s [i:\underline{!a \text{ stit } \varphi}] D_a a \text{ stit } \varphi$$
$$\hline i:\underline{!a \text{ stit } \varphi}$$

Regularities of language use

$$[i:\underline{\varphi}] B_a \varphi$$
$$[i:\underline{!a \text{ stit } \varphi}] D_a a \text{ stit } \varphi$$

Non-informativeness

It is not informative to explain why the speaker said $\cdot\varphi$ ($!a \text{ stit}\varphi$) by pointing to the speaker desire to induce the addressee's belief that φ (desire that $a \text{ stit}\varphi$) and by mentioning the speaker's belief that the performance of the locution $i:\underline{\varphi}$ ($i:!\underline{a \text{ stit}\varphi}$) is a sufficient condition for the realization of the desired end. It is just the way how the language works! Almost no additional information is acquired by the reconstruction of practical inferences leading to speech acts under interpretation. All we get is the claim that the speaker was sincere (the first premise) and that she believed that the addressee knows the language and obeys the norm of trust (the second premise).

Practical inferences with sufficient cond.

$$\frac{D_s B_a \varphi \quad B_s [i:\underline{\varphi}] B_a \varphi}{i:\underline{\varphi}} \quad \frac{D_s D_a a \text{ stit}\varphi \quad B_s [i:!\underline{a \text{ stit}\varphi}] D_a a \text{ stit}\varphi}{i:!\underline{a \text{ stit}\varphi}}$$

Regularities of language use

$$[i:\underline{\varphi}] B_a \varphi \quad [i:!\underline{a \text{ stit}\varphi}] D_a a \text{ stit}\varphi$$

Is interpretation of speech acts superfluous?

Argumentation is a verbal, social, and rational activity aimed at convincing a reasonable critic of the acceptability of a standpoint by putting forward a constellation of propositions justifying or refuting the proposition expressed in the standpoint.

F. van Eemeren and R. Grootendorst (2004) *A Systematic Theory of Argumentation*, p.1

The elements of definition:

- the two roles: the actor s and the reasonable critic rc ,
- the actor s 's standpoint: φ ,
- a complex speech act performed by the speaker s , i.e. a sequence of locutions $s: \xi_1 \dots s: \xi_n$,
- the actor's belief that complex speech act $s: \xi_1 \dots i: \xi_n$ is a sufficient means for the end $B_{rc}\varphi$: $B_s([s: \xi_1] \dots [s: \xi_n]B_{rc}\varphi)$,
- the actor's desire to convince the reasonable critic into φ : $D_s B_{rc}\varphi$.

Practical inference and argumentation

The practical inference is not irrelevant for speech act understanding. The definition of argumentation gives an example where a discourse type is defined by reference to its background practical reasoning.

The translation for van Eemeren & van Grootendorst definition

Argumentation is a performance of a discourse on the background of practical reasoning that includes the actor's desire to convince a reasonable critic and the actor's belief that discourse will bring about the desired effect.

A complex speech act ($s: \underline{\xi}_1; \dots; s: \underline{\xi}_n$) is an argumentation if (6) holds.

$$D_s B_{rc} \varphi \wedge B_s ([s: \underline{\xi}_1] \dots [s: \underline{\xi}_n] B_{rc} \varphi) \quad (6)$$

Grice's thesis on 'speaker's meaning'

Definition (Speaker's meaning)

Grice: "U meant something by uttering x' is true iff, for some audience A, U uttered x intending: (1) A to produce a particular response r, (2) A to think (recognize) that U intends (1), (3) A to fulfil (1) on the basis of his fulfilment of (2)."

An utterance x means $\otimes_a \varphi$ for the speaker s iff

- 1 $D_s \otimes_a \varphi$,
- 2 $D_s B_a D_s \otimes_a \varphi$,
- 3 $D_s ((B_a D_s \otimes_a \varphi \wedge \dots) \rightarrow \otimes_a \varphi)$.

A critique

A straightforward critique for the Grice's thesis is a simple question: *Why the speaker does not directly say what she means* if the language provides an expressive locution $\cdot D_s \otimes_a \varphi$? Then, under the principle of trust, the recognition must occur: $[s: \cdot D_s \otimes_a \varphi] B_a D_s \otimes_a \varphi$ since

$D_s \otimes_a \varphi \in \Psi(s: \cdot D_s \otimes_a \varphi)$

Reconstructing reasons

- If Grice's thesis on existence of speaker's meaning is true, then there are cases in which communicative act interpretation requires non-redundant reconstruction of the speaker's practical reasoning concluding with the act performed.
- Suppose that g is the speaker of Gricean type. g utters x ($g:\underline{x}$) intending to produce the addressee's response $\otimes_a \varphi$ where the regular "meaning effects" of $g:\underline{x}$ do not include $\otimes_a \varphi$ ($\neg[g:\underline{x}] \otimes_a \varphi$). First, the addressee must guess that in uttering x no regular meaning effect is intended by the speaker. Second, the addressee must discover some practical inferences whose premises imply the act $g:\underline{x}$. Third, the addressee must select (perhaps by the inference to the best explanation) one among candidate practical inferences. Finally, the 'desire premise' of the selected inference ought to become the content of the addressee's belief.

Reconstructing reasons

Suppose that g is the speaker of Gricean type. g utters x ($g:\underline{x}$) intending to produce the addressee's response $\otimes_a \varphi$. The regular "meaning effects" of $g:\underline{x}$ do not include $\otimes_a \varphi$ ($\neg[g:\underline{x}] \otimes_a \varphi$). First, the addressee must guess that in uttering x no regular meaning effect is intended by the speaker. Second, the addressee must discover a family of practical inferences whose premises imply the act $g:\underline{x}$. Third, the addressee must select (perhaps by the inference to the best explanation) one among candidate practical inferences. Finally, the 'desire premise' of the selected inference ought to be made the content of the addressee's belief.

$$\begin{array}{c}
 ? \\
 ? \\
 \hline
 g:\underline{x}
 \end{array}
 \xrightarrow{\text{abduction}}
 \begin{array}{c}
 \text{Set of} \\
 \text{candidate} \\
 \text{practical} \\
 \text{infer-} \\
 \text{ences.}
 \end{array}
 \xrightarrow{\text{selection}}
 \frac{D_g \otimes_a \varphi}{B_g(\diamond \otimes_a \varphi \rightarrow g:\underline{x})}
 \xrightarrow{\text{belief formation}}
 B_a D_g \otimes_a \varphi$$

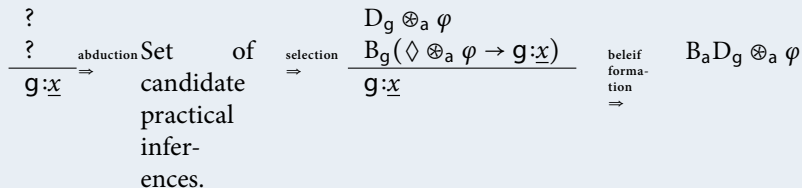
Impossible task

$$\frac{?}{g:\underline{x}} \xrightarrow{\text{abduction}} \text{Set of candidate practical inferences.} \xrightarrow{\text{selection}} \frac{D_g \otimes_a \varphi}{B_g(\diamond \otimes_a \varphi \rightarrow g:\underline{x})} \xrightarrow{\text{belief formation}} B_a D_g \otimes_a \varphi$$

Recognition process takes three steps:

- ❶ In abduction step the addressee is confronted with an non-explorable problem space since x is not used in regular way.
- ❷ In selection step the choice is underdetermined.
- ❸ In belief formation step a great leap into the unknown is required.

Impossible task



Suppose that the process of recognition of the speaker's intention has been completed and that the addressee has acquired the belief that $D_g \otimes_a \varphi$ ($B_a D_g \otimes_a \varphi$). It is obvious that the process of the addressee's belief formation is *unreliable*. In order to understand the speaker's meaning, the addressee must make the final step and change his mind to $\otimes_a \varphi$ (partly) because this is what the speaker wants. Even if the addressee is fully justified in relying on the speaker's desires, it is not fully rational for the addressee to change his mind since the process of formation of the belief (about the speaker's desire) is unreliable.

Concluding remarks

- Understanding of an action is an attempt at reconstruction of the actor's practical inference.
- Understanding of a speech act is just a kind of understanding action.
- The regular cases of understanding speech-acts are so simple that the reconstruction of practical inferences goes unnoticed.
- The thesis on existence of speaker's meaning, if it is true, gives support that there are non-trivial cases of the speaker's practical reasoning reconstruction needed for the understanding of his speech acts. The process of belief formation involved in the reconstruction of the speaker's practical reasoning is unreliable.
- For the sake of promoting rationality as a social and communicative value, *Humpty Dumpty* way of communication ought to be avoided.

Thank you!

$$(\neg[i: \xi_1] \dots [i: \xi_{n-1}] \perp \wedge [i: \xi_1] \dots [i: \xi_{n-1}] [i: \xi_n] \perp) \rightarrow [i: \xi_1] \dots [i: \xi_{n-1}] \mathbb{F} i: \xi_n$$
