Dynamic Expressivism about Deontic Modality

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Outline

Expressivism
This is What a Bee Fly Looks Like

Expressivism
A Negative Thesis about Communication

An Expressivist Thesis

One can communicate a state of mind without referring to that state of mind and communicating a fact about it (or: describing a property of it). (E.g. Gibbard 1986: 473)

- Just as I communicated my state of attention without referring to it
- Just as you communicated your state of disgust without referring to it

What's the Controversy?
The Short Version

- Why is this expressivist thesis controversial when applied to language?
- Natural language semantics has profitably drawn on logical semantics (e.g. Tarski and Kripke)
- Profits have relied exclusively on non-expressivist ideas in those logical semantic theories
  - They've relied exclusively on reference
- The profits: compositionality and empirically adequate definitions of logical consequence and consistency

Composition and Communication
The Fregean Communion

Composition and Communication (Frege 1923: 1)

"It is astonishing what language can do. With a few syllables it can express an incalculable number of thoughts, so that even a thought grasped by a human being for the very first time can be put into a form of words which will be understood by someone to whom the thought is entirely new. This would be impossible, were we not able to distinguish parts in the thought corresponding to the parts of a sentence, so that the structure of the sentence serves as an image of the structure of the thought."

Frege on Force vs. Content
Connectives only Compose Truth-Conditional Content

Fregean Separatism (1923: 2-5)

"In language, the simplest case of a compound thought seems to be that of two main clauses conjoined by 'and'. But... [i]n an assertoric sentence we must distinguish between the thought expressed and the assertion. Only the former is in question here, for acts of judgement are not said to be 'conjoined'. I therefore understand the sentence conjoined by 'and' to be uttered without assertoric force."

- Background argument: meaning of *and* is fixed by its role in 'laws of truth', and it is only for thoughts, not acts of judgement, that the 'question of truth' arises

Beyond Fregean Logic
Laws of Truth and Expressivism

- Let us agree with Frege: logic fixes the meaning of *and*
- But we might resist the conclusion that *and* only combines truth-conditional content by resisting the view that logic concerns *only* laws of truth
- What *then*?

Dynamic Perspective (Heim, van Benthem, Veltman, *et.al.*)

Logic concerns laws governing the flow of information and motivation, i.e. transitions in logical and affective space.

- Dynamic expressivism: some transitions don't amount to referring to a point and stating a fact about it

Classical Intensional Semantics
Reference and Description

Logical Semantics

1. $[\![A]\!] = \{w \mid w(A) = 1\}$
2. $[\![\neg\phi]\!] = W - [\![\phi]\!]$
3. $[\![\phi \wedge \psi]\!] = [\![\phi]\!] \cap [\![\psi]\!]$
4. $[\![\phi \vee \psi]\!] = [\![\phi]\!] \cup [\![\psi]\!]$

- Sentences refer to a region of logical space, by referring to points and saying whether they fit some description
- Reference of complex determined by reference of whole
- No way to accommodate expressivist thesis

Classical Intensional Semantics
Deontic Modality and Preference

Descriptivist Preference Semantics (Lewis, Hansson)

$[\![\text{Must } \phi]\!]_> = \{w \mid \forall w_1, w_2 \colon w_2 >_w w_1 \text{ if } w_2 \in [\![\phi]\!]_> \ \& \ w_1 \notin [\![\phi]\!]_>\}$

- Must ϕ is true in w just in case every ϕ-world is (strictly) preferred in w to every $\neg\phi$-world
- $w_1 >_w w_2$: w_1 is strictly preferred to w_2 in w

- Distinguishes worlds by referring to preferences in those worlds and saying something about them
- Thus: non-expressivist!

Consistency and Consequence
No Room Here for the Expressivist Thesis

Consequence

$\phi_1, \ldots, \phi_n \vDash \psi \Leftrightarrow ([\![\phi_1]\!] \cap \cdots \cap [\![\phi_n]\!]) \subseteq [\![\psi]\!]$

- Region of logical space (collectively) referred to by premises, is included in space referred to by conclusion

Consistency

$\phi_1, \ldots, \phi_n$ are consistent $\Leftrightarrow ([\![\phi_1]\!] \cap \cdots \cap [\![\phi_n]\!]) \neq \varnothing$

- $\phi_1, \ldots, \phi_n$ do not (collectively) refer to nothing
- Referring and describing serve a function that is not achieved when they refer to nothing

- Both essentially rely on referential concepts

Communication: Modal Model
No Room Here for the Expressivist Thesis

- Useful model of how representational communication:
  - Providing information = excluding possibilities (Stalnaker, Lewis)
- One agent has some information, i.e. can rule out some possibilities $w_1, \ldots, w_n$.
- They can then utter a sentence ϕ that excludes those possibilities, i.e. $w_1, \ldots, w_n \notin [\![\phi]\!]$
- By combining this information with theirs, hearer agent can rule out some possibilities: $s \cap [\![\phi]\!]$
  - s is set of worlds, those compatible w/what agents are mutually supposing for purposes of exchange.

Basic Dynamic Semantics
Just Information

Classical Picture

- Sentences refer to regions of logical space
- Interpreters use utterances of them to shift to region of logical space within region referred to

Dynamic Semantics (Purely Informational Version)

- Sentences: recipes for moving around logical space
- Atomics: zoom in on a particular region
- Conjunction: apply each recipe in turn
- Disjunction: apply recipes separately; 'merge' results
- Negation: apply scope recipe; move to region outside it

The Dynamic Picture
In More Detail

The Basic Idea

Assign each ϕ a function $[\phi]$ encoding how it changes c:
$s[\phi] = s'$ (I.e.: $[\phi](s) = s'$)

Dynamic Informational Semantics (Veltman)

1. $s[\mathsf{A}] = \{w \in s \mid w(\mathsf{A}) = 1\}$
2. $s[\neg\phi] = s - s[\phi]$
3. $s[\phi \wedge \psi] = (s[\phi])[\psi]$
4. $s[\phi \vee \psi] = s[\phi] \cup s[\psi]$

Dynamic Informational Semantics
Support, Consequence and Consistency

Support, Consequence (Veltman)

- $s \Vdash \phi \iff s[\phi] = s$
- $\phi_1, \ldots, \phi_n \Vdash \psi \iff \forall s : s[\phi_1]\cdots[\phi_n] \Vdash \psi$

Dynamic Consistency

$\phi_1, \ldots, \phi_n$ are consistent $\Leftrightarrow \exists s : s[\phi_1]\cdots[\phi_n] \neq \varnothing$

- No immediate appeal to reference

Classical Logic as Logic of Omniscience
Classical Concepts are a Special Case of Dynamic Ones

d'Alembert (1751) on Truth

"The universe... would only be one fact and one great truth for whoever knew how to embrace it from a single point of view." (d'Alembert 1995: 29)

Truth, Propositions (Starr)

$$w \vDash \phi \iff \{w\}[\phi] = \{w\} \qquad [\![\phi]\!] = \{w \mid w \vDash \phi\}$$

Classical Consequence (Starr)

$\phi_1, \ldots, \phi_n \vDash \psi \iff \forall w : \{w\}[\phi_1]\cdots[\phi_n] \Vdash \psi$

- Classical logic is the logic of perfect information

Classical Semantics as a Corollary
Dynamic Semantics Entails Classical Semantics

Consequence of Dynamic Definitions

1. $[\![A]\!] = \{w \mid w(A) = 1\}$
2. $[\![\neg\phi]\!] = W - [\![\phi]\!]$
3. $[\![\phi \wedge \psi]\!] = [\![\phi]\!] \cap [\![\psi]\!]$
4. $[\![\phi \vee \psi]\!] = [\![\phi]\!] \cup [\![\psi]\!]$

- Leaves open whether or not these equalities capture meaning of sentences

Communication
Complete Equivalence

Update is Classical Communication

Fact: $s[\phi] = s \cap [\![\phi]\!]$

- Updating amounts to classical communication
- Eliminating points by referring to them and describing properties of them

- So: we do not yet have a language which embodies negative expressivist thesis about communication

Next Up

Enriching states and breaking this equivalence!

States
An Enriched View

States: information and desires

A **state** $s_> = \langle s, > \rangle$.

(1) s is a set of worlds, namely those compatible with what the agents are mutually supposing for the purposes of their exchange. (As before.)

(2) $w > w'$ if and only if it is mutually supposed that w is strictly more desirable than w'. (The domain and range of $>$ needn't be limited to s.)

(3) *Notation*: any set theoretic notation applied to '$s_>$' is understood as being applied to s, e.g. $s_> \subseteq W$ means that $s \subseteq W$.

States
Good Possibilities

Good Possibilities

$Good(s_>) := \{w \in s \mid \nexists w' \in s : w' > w\}$

- Good possibilities in s are those not strictly less desirable than some possibility in s.

Dynamic Expressivist Semantics
For *May* and *Must*

Expressivist *May* and *Must*

$$(1) \quad s_{>}[\mathsf{May}(\phi)] = \begin{cases} s_{>} & \text{if } s_{>}[\phi] \cap Good(s_{>}) \neq \varnothing \\ \varnothing & \text{otherwise} \end{cases}$$

$$(2) \quad s_{>}[\mathsf{Must}(\phi)] = \begin{cases} s_{>} & \text{if } Good(s_{>}) \subseteq s_{>}[\phi] \;\&\; Good(s_{>}) \neq \varnothing \\ \varnothing_{>} & \text{otherwise} \end{cases}$$

- Doesn't eliminate worlds by referring to something in a world and saying whether or not it has a property

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Dynamic Expressivist Semantics
Clarifying its Expressivist Nature

Expressivist *May* and *Must* (Equivalent Formulation)

$$s_{>}[\mathsf{May}(\phi)] = \{w \in s \mid s_{>}[\phi] \cap Good(s_{>}) \neq \varnothing\}_{>}$$

$$s_{>}[\mathsf{Must}(\phi)] = \{w \in s \mid Good(s_{>}) \subseteq s_{>}[\phi] \;\&\; Good(s_{>}) \neq \varnothing\}_{>}$$

- w occurs in restriction of set members, but not in condition that members must meet
- All worlds are not eliminated on basis of their particular, internal goings-on
- Instead: all treated on a par, and eliminated on basis of a global feature of a state

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Dynamic Expression
Is Not Providing Descriptive Information

Fact: Non-classical update

$$s_{>}[\mathsf{May\,A}] \neq s_{>} \cap [\![\mathsf{May\,A}]\!]_{>}$$

Embracing the Omniscient Perspective
Evaporates Deontic Distinctions

What We've Seen

$$s_{>}[\mathsf{May\,A}] \neq s_{>} \cap [\![\mathsf{May\,A}]\!]_{>} \text{ because } [\![\mathsf{May\,A}]\!]_{>} = [\![\mathsf{A}]\!]_{>} \text{ and } s_{>}[\mathsf{May\,A}] \neq s_{>}[\mathsf{A}].$$

d'Alembert (1751) on Truth

"The universe... would only be one fact and one great truth for whoever knew how to embrace it from a single point of view." (d'Alembert 1995: 29)

Truth, Propositions (Starr)

$$w \vDash \phi \iff \{w\}_{>}[\phi] = \{w\} \qquad [\![\phi]\!]_{>} = \{w \mid w \vDash \phi\}$$

Positive Arguments?
Non-Monotonic Consequence

- Non-monotonicity: $\phi_1, \ldots, \phi_n \Vdash \psi$ does not imply that $\chi, \phi_1, \ldots, \phi_n \Vdash \psi$
- Perspectival nature and non-montonicity of indicative conditionals (Starr 2014a)
- Consider simplified Gentle Murder scenario:
  (1) You must not hit me
  (2) You are going to hit me
  (3) You must hit me softly
- Plausibly: (1)$\Vdash$ (1) but (1), (2), (3) $\nVdash$((1)
  (See Willer 2014 for a much more sophisticated development of this idea.)

Positive Arguments?
Dynamic Composition

- Composition of conditionals (Starr 2014b, forthcoming)
- Compositional imperative semantics (Starr 2013)
  - Data: declarative ($\triangleright$) and imperative (!) moods scope under conjunction/disjunction, and mix; e.g. $\triangleright A \wedge !B$
  - Assume imperatives have non-propositional semantics
  - And communicate non-propositionally
  - Problem: composing these hybrids using classical accounts of conjunction/disjunction and capturing hybrid communicative functions of mixed sentences
- Basic idea: !A changes $>$ by adding preference for A-worlds over ¬A-worlds; dynamic semantics for $\wedge, \vee$

Truth-Conditional Semantics
Non-Informational Communication

Yalcin-Style Truth-Conditional Semantics
$[\![\mathsf{Must}(\phi)]\!]_{w, s_>} = 1 \iff$
$$\forall w' \in Good(s_>) : [\![\phi]\!]_{w', s_>} = 1 \ \& \ Good(s_>) \neq \varnothing$$
- $\mathsf{Must}(\phi)$ is true at $w, s_>$ iff all the $s_>$-good worlds are ϕ-worlds (and there are some $s_>$-good worlds).

- "[U]nlike the factualist, [the expressivist] rejects the view that the sentences of the relevant discourse are apt for truth in a richer sense, the sense of truth which applies to factual information content – the kind of content whose mainbusiness is to rule out ways things might be." (Yalcin 2011: 330)

Pragmatic Expressivism
What is Non-Informational Communication?

"Relative to a context, [a] possibility claim determines a condition, or property,... on states of mind. It is the satisfaction of this property that the speaker aims to coordinate his listeners on. The speaker thereby expresses a feature of his state of mind, and does so without describing himself, or the world." (Yalcin 2011: 329)
- Basic idea:
  - Possibility claim expresses condition on states: $\{s_> \mid [\![\mathsf{May}\,\phi]\!]_{w, s_>} = 1\}$
  - Conversational state changes by becoming one of these
- But choosing any one seems arbitrary

Pragmatic Expressivism v1
One Non-Informational Model of Communication

Pragmatic Expressivism: Implementation 1

1. Conversation navigates a *space* of states $S_> = \{s_{>_0}, \ldots, s'_{>_n}\}$
2. Factual discourse eliminates worlds point-wise from s's
3. Deontic modal expresses property $\{s_> \mid \llbracket \mathsf{May}\,\phi \rrbracket_{w,s_>} = 1\}$ which is intersected w/$S_>$

- Question: communicative impact of $\mathsf{A} \wedge \mathsf{May\,B}$?
    - Not just property of states, not just proposition
    - Same question for disjunction, etc.

Pragmatic Expressivism v2
Non-Informational Model?

Pragmatic Expressivism: Implementation 2

1. $\llbracket \phi \rrbracket = \{\langle w, s_> \rangle \mid \llbracket \phi \rrbracket_{w,s_>} = 1\}$
2. $S + \llbracket \phi \rrbracket = \{s_> \mid \langle w, s_> \rangle \in \llbracket \phi \rrbracket \;\&\; \exists s' \in S : s = s' \cap W_\phi\}$
    - Where $W_\phi = \{w \mid \langle w, s \rangle \in \llbracket \phi \rrbracket\}$

- This lapses into factualism: deontic modals express centered-worlds propositions
    - $\llbracket \phi \rrbracket$ refers to a world and a state of mind in it
    - And describes a feature that point has

Thank you!

(Slides available at `http://williamstarr.net/research`)

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