Evaluativity as epistemic non-convergence

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1 Introduction

The embedding behavior of subjective attitude verbs (SAVs), e.g. English consider and find, offer a diagnostic for evaluative content (cf. Sæbø 2009; Bouchard 2012: ch. 3; Kennedy & Willer 2016; Coppock forthcoming, i.a.).

How to characterize evaluativity of propositions in a way that makes sense of the semantics of SAVs, and fine-grained distinctions between them?

In brief: SAVs as a class share a schematic meaning characterized by reference to the distinction between evaluative and descriptive propositions, defined in terms of epistemic ‘non-convergence’: they presuppose that some set of an agent’s alternatives ‘descriptively settle’ a proposition, and assert that this same set of alternatives ‘evaluatively verify’ that proposition.

2 A subjective attitude verb: consider

Near-synonymy with neutral doxastic think where predication is intuitively evaluative:

(1) a. Alfonse considers [licorice tasty].
   b. Alfonse thinks that licorice is tasty.

No synonymy where predication is intuitively non-evaluative (enforces ‘evaluative reading,’ e.g. regarding what ‘counts’ as wooden):

(2) a. Alfonse considers [the table wooden].
   b. Alfonse thinks that the table is wooden.

Where predication has both conventional descriptive (how tall someone is) and evaluative (how tall someone has to be to count as tall: cf. Richard 2004, i.a.) components, enforces ‘settledness’ in belief regarding the former:

(3) a. Alfonse considers [Bethany tall].
   #...but he isn’t sure how tall she is.
   b. Alfonse thinks that Bethany is tall.
   ...but he isn’t sure how tall she is.

(4) a. \([\text{Bethany (is) tall}]^w = \delta_{\text{height}}(w)(b) \geq s(w)(\delta_{\text{height}})\]
   b. \([\{3-b\}]^w = \forall w' \in D_{\text{Dox, a, w}}[\delta_{\text{height}}(w')(b) \geq s(w')(\delta_{\text{height}})]\]
   “Alfonse’s beliefs verify that Bethany’s height (whatever it is) meets the threshold.”
   c. \([\{3-a\}]^w \approx \forall w' \in D_{\text{Dox, a, w}}[\delta_{\text{height}}(w')(b) \geq s(w')(\delta_{\text{height}})],\]
      if \(\exists d[\forall w' \in D_{\text{Dox, a, w}}[\delta_{\text{height}}(w')(b) = d]]\);
      else undefined
   “Given that Alfonse’s beliefs decide Bethany’s height, his beliefs regarding the threshold place it at or below that height.”

Infelicitous with no ‘evaluative reading’ readily available (though conceivable):

(5) a. ?Alfonse considers [Bethany six feet tall].
   b. ?Alfonse considers Bethany [taller than Gamela].

Focusing only on the selectional requirements of SAVs, and otherwise assimilating them to ordinary doxastic verbs (e.g. Kennedy & Willer 2016; Coppock forthcoming) misses that SAVs differ from non-SAVs even

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when embedding identical propositions (2)-(3).

3 Evaluativity as epistemic non-convergence

The familiar notion of alternatives centered on an agent:

(6) a. \( ALT_{x,w} \) is a set of propositions (sets of worlds) centered on \( x \) in \( w \);
    b. \( Alt_{x,w} := \bigcap ALT_{x,w} \)
       i.e. the set of worlds compatible with \( ALT_{x,w} \).

Alternatives relate not only to beliefs (7), but to sources of evidence, e.g. perceptual (8-a) or reportative (8-b):

(7) a. \( DOX_{x,w} := \{ \phi : x \ believes \ \phi \ in \ w \} \)
    b. \( DOx_{x,w} = \bigcap DOX_{x,w} \)
       = \{ w' : w' is compatible with x's beliefs in \( w \) \}
(8) a. \( Per_{x,w} := \{ w' : w' is compatible with x's sensory perceptions in \( w \) \} \)
    b. \( Rep_{x,w} := \{ w' : w' is compatible with reports x has heard in \( w \) \} \)

The 'evidential alternatives' in (8) are those appealed to in accounting for the contribution of evidentials, e.g. in Murray (2017: §3.2.2):

(9) É-hó’tâheva-sêste Annie.
3-win-RPT.3SG Annie
'Annie won, I hear.' [Cheyenne: ibid.: 71, ex. 3.6]

Murray’s RPT plays the same role as \( Rep_{x,w} \) (10-b):'

(10) a. \( \llbracket (9) \rrbracket^w,^c = \text{win}'(w)(a) \)
    b. \( \llbracket (9) \rrbracket^w,_{\text{not-at-issue}} = \text{RPT}(s_e, (10-a)) \)
       = \( \forall w' \in Rep_{x,w}[\text{win}'(w')(a)] \)

'Evidential alternatives simpliciter' then characterize what’s compatible with an agent’s evidence of every sort.

(11) \( Evid_{x,w} := \{ w' : w' is compatible with x's evidence (simpliciter) in w \} \)

This can help characterize some propositions as epistemically 'non-convergent.' Where \( e \) is a 'body of evidence:'

(12) \( \phi \) is non-convergent iff
    a. \( \neg \exists e[\forall w[\forall x,y[\text{expose}(x,e,w) \land \text{expose}(y,e,w)] \rightarrow [Evid_{x,w}, Evid_{x,w} \subseteq \phi \lor Evid_{x,w}, Evid_{x,w} \subseteq \neg \phi]]] \)
    b. "...there is no body of evidence \( e \) such that (necessarily) if any \( x, y \) are exposed (solely) to \( e \) in \( w \), then the evidential alternatives of \( x, y \) agree in \( w \) as to the truth value of \( \phi \)."

Roughly: non-convergent propositions’ truth values are unsettled (across possible speakers) in principle by evidence.

(13) a. \( \phi \) is evaluative iff \( \phi \) is non-convergent;
    b. otherwise, \( \phi \) is descriptive.

4 Evaluativity and SAVs’ denotation

We distinguish between descriptive alternative-sets \( Alt^D_{x,w} \) and evaluative alternative-sets \( Alt^E_{x,w} \), the former decided purely by descriptive propositions (14), the latter purely by evaluative ones (15):

(14) a. \( DOX^D_{x,w} := \{ \phi : \phi is descriptive and x believes \phi in w \} \)
    b. \( DOx^D_{x,w} = \bigcap DOX^D_{x,w} \)
       = \{ w' : w' is compatible with x’s descriptive beliefs in \( w \) \}
(15) a. \( DOX^E_{x,w} := \{ \phi : \phi is evaluative and x believes \phi in w \} \)
    b. \( DOx^E_{x,w} = \bigcap DOX^E_{x,w} \)
       = \{ w' : w' is compatible with x’s evaluative beliefs in \( w \) \}

We then define a notion of a proposition \( \phi \) being 'descriptively settled’ by a set of worlds:

(16) a. \( W \) settles \( \phi \) iff
    \( W \subseteq \phi \) or \( W \subseteq \neg \phi \).
    \( W \) descriptively settles \( \phi \) iff
    For no \( W' \subseteq W \) such that \( W' \) doesn’t settle \( \phi \), there is a descriptive proposition \( \psi \)
    such that \( W' - \{ w : w \in \psi \} \) settles \( \phi \) (and \( \neq \emptyset \)).

A subjective attitude verb, on composing with a proposition and agent:

- **presupposes** that some set of the agent’s descriptive alternatives descriptively settles the proposition;
- **asserts** that the agent’s corresponding set of evaluative alternatives verifies the proposition.
A schematic denotation:

\[ [\text{SAV}]^w = \lambda \phi_{st}, \lambda x_e : Alt^D_{x,w} \text{ descriptively settles } \phi. \]
\[ \forall w' \in Alt^E_{x,w}[\phi(w')] \]

Just ‘plug in’ the sort of alternative set the verb is sensitive to.

5 Applications

5.1 consider-type: \( Alt = \text{Dox} \)

Consider is doxastic, so we plug in ‘Dox’ for ‘Alt’ to get its denotation:

\[ [\text{consider}]^w = \lambda \phi_{st}, \lambda x_e : \text{Dox}^D_{x,w} \text{ descriptively settles } \phi. \]
\[ \forall w' \in \text{Dox}^E_{x,w}[\phi(w')] \]

(3-a) composes as follows:

\[ [\text{Alfonse [considers [Bethany tall]]}]^w = \forall w' \in \text{Dox}^E_{w,a,w} [\delta_{\text{height}}(w')(b) \geq s(w')(\delta_{\text{height}})], \]

if \( \text{Dox}^D_{a,w} \) descriptively settles \( \lambda w_s. \delta_{\text{height}}(w')(b) \geq s(w')(\delta_{\text{height}}) \); else undefined

Given that:

a. The only descriptive propositions relevant to whether Bethany is tall entail something about her height;

b. No descriptive proposition entails anything about the threshold of height.

Where \( \exists d \forall w' \in \text{Dox}^D_{a,w} [\delta_{\text{height}}(w')(b) = d] \):

\[
\begin{array}{c|c|c|c|c|}
\delta_{\text{height}}(w_n)(b) & 50 & 50 & 50 & 50 \\
\text{s}(w_n)(\delta_{\text{height}}) & 40 & 50 & 60 & 60 \\
\text{Is Bethany tall?} & \checkmark & \checkmark & \checkmark & \checkmark \\
\end{array}
\]

\[ \leftrightarrow \text{doesn’t descriptively settle that Bethany is tall} \]

since \( \{w_1, w_2\} \subseteq \text{Dox}^D_{a,w} \), doesn’t settle it, and \( \{w_1, w_2\} - \{w : \delta_{\text{height}}(w)(b) = 60\} = \{w_1\} \), which does settle it.

So (19) (i) presupposes that Alfonse’s descriptive beliefs are settled as to Bethany’s height; (ii) asserts that Alfonse’s evaluative beliefs place Bethany’s height above the threshold (same as with think: for his beliefs to verify this is for his evaluative beliefs to).

Why near-synonymy with think with evaluative predication (1)?

\[ [\text{Alfonse [considers [licorice tasty]]}]^w = \forall w' \in \text{Dox}^E_{w,a,w} [\text{pleasant}'(w')(ix|\text{taste}'(w')(l)(x))], \]

if \( \text{Dox}^E_{a,w} \) descriptively settles \( \lambda w_s. \text{pleasant}'(w')(ix|\text{taste}'(w')(l)(x)) \), else undefined

Given that:

a. The only descriptive propositions relevant to whether licorice’s taste is pleasant entail something about what its taste is;

b. No descriptive proposition decides whether any taste is pleasant.

(1) presupposes only that Alfonse’s beliefs are settled as to what licorice’s taste is (cf. Lasersohn 2009: 366), yielding (at most) only a minor difference, while asserted content is identical:

a. Alfonse considers licorice tasty.

\[ \#...but he isn’t sure what licorice tastes like. \]

b. Alfonse thinks licorice is tasty.

...but he isn’t sure what it tastes like.\(^1\)

Where the predication is intuitively non-evaluative, an ‘evaluative reading’ is enforced where one can be construed (2-a), and infelicity results when one can’t (5), due to restriction to evaluative alternatives in the assertion (26-b), (27-b):

(26) a. Alfonse considers the table wooden.

b. \( \forall w' \in \text{Dox}^E_{w,a,w} [\text{wooden}'(w')(ix|\text{table}'(w')(x))] \)

c. “Alfonse’s evaluative beliefs (i.e. those not concerning just the table’s makeup) verify that the table is wooden.”

\(^1\)The felicity of this continuation may be marginal: it improves with focus on think (whereas the continuation in (25-a) doesn’t.)
The beliefs relevant for (26) might be e.g. what material, given that Alfonse knows what it is, he ‘counts’ as wooden (particle board?).

(27) a. ?Alfonse considers Bethany six feet tall.
   b. \( \forall w' \in \text{Dox}_{a,w} \delta_{\text{height}}(w')(b) = 6 \text{ ft.} \)
   c. “Alfonse’s evaluative beliefs (i.e. those not concerning Bethany’s height) verify that Bethany is six feet tall.”

But what evaluative beliefs could be relevant for (27)? It’s felicitous to the extent you can think up an answer!

### 5.2 find-type: \( \text{Alt} = \text{Per} \)

Find (i) has stricter felicity requirements on predication than consider (28) (cf. Kennedy & Willer 2016: §1); (ii) reports experiential reactions, not beliefs (29-b); (iii) presupposes ‘direct experience’ with the subject (29-c) (cf. Hirvonen 2014: ch. 4).

(28) a. ?Alfonse finds [the table wooden].
   b. ?Alfonse finds [Bethany tall].
   c. ?Alfonse finds [Bethany six feet tall].

(29) a. Alfonse finds [licorice tasty].
   b. \( \forall x \) Alfonse thinks that licorice is tasty.
   c. \( \#... \) but he’s never tasted licorice.

Plug in ‘find’ (8-a) for ‘Alt’ and see the results:

(30) \( [\text{find}]^w = \lambda \delta_{\text{alt}}. \lambda x. x : \text{Per}_{x,w}^D \) descriptively settles \( \phi \).
   \( \forall w' \in \text{Per}_{x,w}^E [\phi(w')] \)

(31) \( [\text{Alfonse}[\text{finds [licorice tasty]}}]^{w,w'} = \forall x \in \text{Per}_{x,w}^E [\text{pleasant}(x(w'))(x[taste'(x(w'))(l(x))])], \)
   if \( \text{Per}_{x,w}^D \) descriptively settles
   \( \lambda x. \text{pleasant}(x(w'))(x[taste'(x(w'))(l(x))]); \) else undefined

And so (29):

- **presupposes** that \( \text{Per}_{a,w}^D \) settles what licorice’s taste is (cf. (24-a))
  (i.e., Alfonse’s perceptions settle this; Alfonse has tasted licorice);
- **asserts** that according to \( \text{Per}_{a,w}^E \), licorice’s taste is pleasant.
  (i.e., licorice’s taste produces pleasant experience in Alfonse).

Not doxastic (ala Sæbø 2009; pace e.g. Stephenson 2007: 61, ex. 101).

Infelicity with non-evaluative content has same source as for consider (cf. (27)), but stricter:

(32) a. ?Alfonse finds the table wooden.
   b. \( \forall w' \in \text{Per}_{a,w}^E [\text{wooden}(x(w'))(x[taste'(x(w'))(l(x))])] \)
   c. “Alfonse’s evaluative perceptions (those not concerning just the table’s makeup) verify that the table is wooden.”

Evaluative perceptions can be decided e.g. as to what tastes are pleasant, but can’t be decided e.g. as to what ‘counts’ as wooden: there is in principle no perceptual evidence for this (even though there are evaluative beliefs [opinions] deciding it, making consider okay).

### 6 Comment on further prospects

Refusal to embed epistemic modals: likely epistemically convergent.

(33) Jag tror/h?tycker att det kanske borjar kvart över.
   [Swedish: Coppock forthcoming: 2, ex. 2d]

Synonymy with think where embedded proposition is ‘out of local epistemic reach’:

(34) “Even scholars who considered [the earth flat] believed the skies were hemispherical.”

**References.**


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2E.g., Alfonse can find licorice tasty without thinking it is, if he’s mistaken about his own experiential reactions, or takes them to be defective: but often, beliefs will track perceptions.

3From p. 1 of Flattening the Earth: Two Thousand Years of Map Projections, J. P. Snyder, UChicago Press.