Knowledge and normality

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1 The normality framework

$w \leq v$ ("$w$ is at least as normal as $v$") is reflexive and transitive

$w \ll v$ ("$w$ is sufficiently more normal than $v$") is asymmetric

$w \ll v \Rightarrow w \leq v$

$w' \leq w, w \ll v, v \leq v' \Rightarrow w' \ll v'$

FACTIVITY

$w$ is epistemically accessible from $w$.

$w \in R_K(w)$

EVIDENTIAL KNOWLEDGE

If $v$ is not evidentially accessible from $w$, then $v$ is not epistemically accessible from $w$.

$v \notin R_E(w) \Rightarrow v \notin R_K(w)$

INDUCTIVE KNOWLEDGE

If $w$ is sufficiently more normal than $v$, then $v$ is not epistemically accessible from $w$.

$w \ll v \Rightarrow v \notin R_K(w)$

INDUCTIVE LIMITS

If $v$ is evidentially accessible from $w$ and no $v'$ evidentially accessible from $w$ is sufficiently more normal than $v$, then $v$ is epistemically accessible from $w$.

$(v \in R_E(w) \land \lnot \exists v' \in R_E(w) : v' \ll v) \Rightarrow v \in R_K(w)$

CONVEXITY

If $v$ is evidentially accessible from $w$ and is at least as normal as some $v'$ epistemically accessible from $w$, then $v$ is epistemically accessible from $w$.

$(v \in R_E(w) \land \exists v' \in R_K(w) : v \leq v') \Rightarrow v \in R_K(w)$

2 Bjorn

Bjorn’s scale reads 175.4 pounds. Claim: He learns that his weight is in a certain non-trivial interval, which includes both 175.4 pounds and his actual weight. And the scale over-/(under-)estimates his weight, then anything Bjorn learns he would still have learned had the scale over-/(under-)estimated his weight by less. This claim follows from the normality framework and four assumptions:

(i) The evidentially accessible situations are those in which the scale reads 175.4 pounds and Bjorn has the same evidence he in fact does.

(ii) A situation in which the scale overestimates Bjorn’s weight by a given amount is at least as normal as one in which the scale overestimates his weight by a greater amount (and likewise for underestimation).

(iii) The actual situation is sufficiently more normal than some situations in which the scale overestimates Bjorn’s weight (and likewise for underestimation).

(iv) The situation in which the scale displays Bjorn’s actual weight is not sufficiently more normal than every situation in which it overestimates it (and likewise for underestimation).

3 The normality landscape

COMPARABILITY

If $v$ is evidentially accessible from $w$, then $w$ and $v$ are comparable.

$v \in R_E(w) \Rightarrow (w \leq v \lor v \leq w)$

COLLAPSE

If $v$ is more normal than $w$, then $v$ is sufficiently more normal than $w$.

$(w \leq v \land v \not\ll w) \Rightarrow w \ll v$

MARGINS

If $v$ is evidentially accessible from $w$ and $v$ is comparable with $w$ and not sufficiently less normal than $w$, then $v$ is epistemically accessible from $w$.

$(v \in R_E(w) \land w \leq v \land w \not\ll v) \Rightarrow v \in R_K(w)$
K-NORMALITY
Epistemic accessibility is the most restrictive relation compatible with factivity, inductive limits, and convexity.

KM-NORMALITY
Epistemic accessibility is the most restrictive relation compatible with margins, inductive limits, and convexity.

I-NORMALITY
Epistemic accessibility is the most inclusive relation compatible with evidential knowledge and inductive knowledge.

- K-NORMALITY, KM-NORMALITY and I-NORMALITY all imply the normality framework.
- COMPARABILITY $\Rightarrow$ KM-NORMALITY $\Leftrightarrow$ I-NORMALITY
- COLLAPSE $\Rightarrow$ K-NORMALITY $\Leftrightarrow$ KM-NORMALITY

Applications to Bjorn-like cases:
- Greco (2014), Stalnaker (2015) are naturally seen as endorsing comparability and collapse, with Greco having only a binary norma/abnormal distinction.
- Cohen and Comesana (2013), Goodman and Salow (2018) are naturally seen as endorsing K-NORMALITY without collapse; the former without comparability
- Goodman (2013), Williamson (2013) are naturally seen as endorsing KM-NORMALITY/I-NORMALITY with comparability

4 KK

PARTITIONALITY
Evidential accessibility is an equivalence relation.

EE
Evidential accessibility is a transitive relation.

- K-NORMALITY + PARTITIONALITY $\Rightarrow$ KK
- K-NORMALITY + EE + COMPARABILITY + COLLAPSE $\Rightarrow$ KK
- K-NORMALITY + EE + (COMPARABILITY or COLLAPSE) $\not\Rightarrow$ KK

5 Belief

$S$ k-believes $p$ in $w := \text{in } w S$ does not know that they do not know that $p$

$S$ g-believes $p$ at $w := p$ is true at all $v$ doxastically accessible from $w$

where $R_B(w) := \{v \in R_E(w) : \forall v'(v' \in R_E(w) \Rightarrow v' \not\ll v)\}$

the foundation of a set of situations := the set of its members that are not sufficiently less normal than any other of its members

a set is supported by another if, for each member of the former, some member of the latter is at least as normal as it

GROUNDEDNESS: The set of situations evidentially accessible from $w$ is supported by its foundation.

$\forall v \in R_E(w) \exists v' \in R_E(w)(v' \leq v \land \forall v'' \in R_E(w)(v'' \not\ll v'))$

- GROUNDEDNESS + PARTITIONALITY + (COMPARABILITY or K-NORMALITY) $\Rightarrow$ k-belief = g-belief
- GROUNDEDNESS + PARTITIONALITY $\Rightarrow$ you g-believe $p$ iff $p$ is a consequence of everything you k-believe

$S$ e-believes $p$ at $w := \text{the set of situations in which } p \text{ is true supports the set of situations evidentially accessible from } w$

- GROUNDEDNESS $\Rightarrow$ g-belief = e-belief

without GROUNDEDNESS, we can g-believe contradictions
CONJUNCTION
If you k-believe \( p \) and you k-believe \( q \), then you k-believe \( p \) and \( q \).

- **GROUNDEDNESS + PARTITIONALITY \( \not\Rightarrow \) CONJUNCTION**

\[
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\text{w} \\
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\end{array}
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CONSISTENCY
If you k-believe \( p \), then you don’t k-believe not-\( p \).

- **CONSISTENCY**

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- **CONSISTENCY\(_E\) \( \not\Rightarrow \) CONSISTENCY**

\[
\begin{array}{c}
\text{u} \\
\text{v} \\
\text{w} \\
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5.1 Challenging cases
- Essentially perceptual knowledge: perceptual knowledge that could not have been had inductively from evidence about how things appear. This is a challenge for belief as g-belief.
- The weird good case: perceptual knowledge that things are sufficiently less normal than a corresponding illusion. This is a challenge for belief as g-belief and for belief as k-belief.
- Thinking that \( p \) without being sure that \( p \) is compatible with remembering that \( p \). This is a challenge for EE and, on some interpretations, that knowledge implies belief (Goodman and Holguin (in preparation), Goodman (unpublishedb)).
- People believe contradictions in cases of identity confusion. (Goodman and Lederman, forthcoming)
- Should we allow knowledge without e-belief (if GROUNDEDNESS fails in the right way)?
6 Further applications

• Knowledge of laws of nature
• Non-monotonic belief-revision
• Anti-skeptical response to ‘Boltzmann brain’-worries
• Knowledge of facts with non-trivial objective chances/statistical mechanical probabilities
• The lottery paradox
• and more!

References


Jeremy Goodman. Induction and lotteries. unpublisheda.

Jeremy Goodman. The myth of full belief. unpublishedb.

Jeremy Goodman and Ben Holguin. Thinking and being sure. in preparation.


