FROM DEONTIC LOGIC TO VALUE THEORY

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There are essentially two ways of studying norms systematically, i.e. regardless of their history. One is to admit them and attempt to analyze them and inter-relate them: this is the approach adopted by deontic logicians (see e.g. von Wright 195.., Sánchez Mazas 19 , Alchourrón & Bulygin 197). ~~The~~ Another way is to try and justify or validate ~~norms~~ in terms of values. We shall adopt the latter approach.

In our view norms should result from laws ~~and~~ together with value judgments according to schemata like the following.

Law: Means A is bound (or likely) to bring about ~~end~~ good B $A \Rightarrow B$

Value judg.: B is valuable & B is more valuable than A $V(B) > 0$

$\therefore$

Norm: Do A ~~is worth doing~~ (or A ought to be done). $A!$

Then given a lawful means-end relation, the problem is to find out whether the goal is worth the candle, i.e. whether it is worth while to employ the given means to attain the desired end. In short,

Given $A \Rightarrow B$ and $V(B) > 0$,

is $0 \leq V(A) \leq V(B)$ or, on the contrary,

is the ~~investment in~~ cost of A excessive compared to the ~~return~~ benefit B?

The theoretician is thus asked to construct a cost-benefit ~~calculus~~ (or means-end) calculus. The simplest such calculus is this:

CA (i) $V(A \vee B) = V(A) + V(B)$

(ii) $V(\bar{A}) = 1 - V(A)$

Applied to our previous case it yields

$V(A \Rightarrow B) = V(\bar{A} \vee B) = V(\bar{A}) + V(B) = 1 - V(A) + V(B) = 1$ by hyp.

$\therefore \; V(A) = V(B)$.

$$V(A \vee B) = \max\{V(A), V(B)\}$$

$$V(A \wedge B) = \min\{V(A), V(B)\}$$

No negative actions. However, there is ~~abstain~~ refraining from acting. We may interpret '$\neg A$' as not doing A (but not as doing the opposite of A).

$$V(\neg A) \begin{cases} \geq 0 & \text{iff } V(A) \leq 0 \\ < 0 & \text{iff } V(A) > 0 \end{cases}$$

$$V(\neg A) = -V(A)$$

$$V(\neg A \vee B) = \max\{-V(A), V(B)\} \begin{cases} V(B) & \text{iff } V(B) > -V(A) \\ |V(A)| & \text{iff } V(B) < -V(A) \end{cases}$$

Add: Blocking of actions

However, this calculus is unreasonable:

(i) $V(\bar{A})$ cannot equal $1-V(A)$, because <u>not doing</u> A may not cost us anything; i.e. even if $V(A) \neq 0$, $V(\bar{A}) = 0$.

(ii) If $B = A$, then $V(A \vee B) = V(A)$, not $2V(A)$.

Let us try the following <u>alternative</u>:

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(i) $V(\bar{A}) = \begin{cases} V(A) & \text{iff } V(A) = 0 \\ 0 & \text{iff } V(A) > 0 \\ -V(A) & \text{iff } V(A) < 0 \end{cases}$

(ii) $V(A \vee B) = \min\{V(A), V(B)\}$

(iii) $V(A \wedge B) = \max\{V(A), V(B)\}$

→

Example: Goal, side effect

$$(A \Rightarrow B \wedge C) \Leftrightarrow \neg\bar{A} \vee (B \wedge C)$$

$V(\bar{A} \vee (B \wedge C)) = 1$ because law.

$V(A) > 0, \quad V(B) \gg V(C)$

Since $V(A) > 0$, $V(\bar{A}) = 0$

Since $V(B) \gg V(C)$, ~~Min~~ $V(\bar{A} \vee (B \wedge C)) = \mathrm{Min}\{\underbrace{V(\bar{A})}_{0}, \underbrace{V(B \wedge C)}_{\mathrm{Max}\{V(B), V(C)\}}\} = V(B)$

$= V(B)$

$\therefore V(B) = 1$ regardless of the values of A and C.

~~i.e.~~

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