Moral Reasoning by Cases

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Reasoning by cases, valid as it is in classical mathematics, is not that reliable in the moral domain. ‘If global warming will change our climate, we do not have the obligation to reduce greenhouse gases (since, by assumption, the climate will change anyhow). If global warming will not change our climate, we do not have the obligation to reduce greenhouse gases (since, by assumption, the climate will *not* change anyhow). Therefore, we do not have the obligation to reduce greenhouse gases.’ This moral reasoning is invalid, because, we feel, the performance of the actions stated in the consequent are causally relevant to the truth of the antecedent. Compare (Horty 2001, § 5.3).

In his groundbreaking study of deontic logic, Horty also proposes a definition of conditional obligations (Horty 2001, p. 100). These conditional obligations can be used to formally study moral reasoning by cases. We show that Horty’s definition of conditional obligations leads to counter-intuitive results. In this paper, we propose an alternative definition to avoid these difficulties, focussing on actions rather than on propositions.

We leave out Horty’s branching-time framework, as we study conditional obligations on a single moment in time. We adopt Horty’s basic definitions, although we introduce some new notation. See (Kooi & Tamminga 2007). Our proposal is the following:

Definition 1 (Conditional Obligations) Let $\mathfrak{M}(= \langle \mathfrak{S}, \mathfrak{I} \rangle)$ be a consequentialist model. Let $w \in W$ and let $\phi, \psi \in \mathfrak{L}$. Then

$\mathfrak{M}, w \models \odot_{\mathcal{G}}(\psi/\phi)$ iff for all K in $Choice(\mathcal{G})$ with $K \cap [\![\phi]\!] \not\subseteq [\![\psi]\!]$ there is a K' in $Choice(\mathcal{G})$ with $K' \cap [\![\phi]\!] \subseteq [\![\psi]\!]$ such that (1) $K' \cap [\![\phi]\!] \succ_{\mathcal{G}} K \cap [\![\phi]\!]$, and (2) for all K'' in $Choice(\mathcal{G})$ with $K'' \cap [\![\phi]\!] \succeq_{\mathcal{G}} K' \cap [\![\phi]\!]$ it holds that $K'' \cap [\![\phi]\!] \subseteq [\![\psi]\!]$.

If we restrict the range of the variables ϕ and ψ to action statements (Horty 2001, p. 83), we obtain a semantical rule for *strong action obligations*:

Lemma 1 (Strong Action Obligations) Let $\mathfrak{M}(= \langle \mathfrak{S}, \mathfrak{I} \rangle)$ be a consequentialist model and let $w \in W$. Let $K \in Choice(\mathcal{G})$ and $L \in Choice(\mathcal{H})$ for $\mathcal{H} \subseteq A - \mathcal{G}$. Then

$\mathfrak{M}, w \models \odot_{\mathcal{G}} A^K_{\mathcal{G}}$ iff for all K' in $Choice(\mathcal{G})$ with $K' \neq K$ it holds that $K \succ_{\mathcal{G}} K'$

$\mathfrak{M}, w \models \odot_{\mathcal{G}}(A^K_{\mathcal{G}}/A^L_{\mathcal{H}})$ iff for all K' in $Choice(\mathcal{G})$ with $K' \neq K$ it holds that $K \cap L \succ_{\mathcal{G}} K' \cap L$.

The latter notion of conditional action obligations is too strong, however, to prove the converse of Horty's Proposition 5.14 (Horty 2001, p. 110), which gives a sufficient condition for the validity of moral reasoning by cases. One would expect Proposition 5.14 to be a biconditional, in the sense that the converse of moral reasoning by cases would be valid as well. We think that the requirement of strong dominance in the definition of conditional action obligations spoils the proof. Weak action obligations are defined as follows:

Definition 2 (Weak Action Obligations) Let $\mathfrak{M}(= \langle \mathfrak{S}, \mathfrak{I} \rangle)$ be a consequentialist model and let $w \in W$. Let $K \in \mathit{Choice}(\mathcal{G})$ and $L \in \mathit{Choice}(\mathcal{H})$ for $\mathcal{H} \subseteq A - \mathcal{G}$. Then

$\mathfrak{M}, w \models \obar_{\mathcal{G}} A^K_{\mathcal{G}}$	iff	for all K' in $\mathit{Choice}(\mathcal{G})$ with $K' \neq K$ it holds that $K \succeq_{\mathcal{G}} K'$
$\mathfrak{M}, w \models \obar_{\mathcal{G}} (A^K_{\mathcal{G}} / A^L_{\mathcal{H}})$	iff	for all K' in $\mathit{Choice}(\mathcal{G})$ with $K' \neq K$ it holds that $K \cap L \succeq_{\mathcal{G}} K' \cap L$.

Note that $\odot_{\mathcal{G}} A^K_{\mathcal{G}}$ implies $\obar_{\mathcal{G}} A^K_{\mathcal{G}}$, but not the other way round. Intuitively, we read $\obar_{\mathcal{G}} A^K_{\mathcal{G}}$ as 'K is at least as good as all of $\mathcal{G}$'s other courses of action'.

Weak conditional action obligations enable us to prove a biconditional which is close to Horty's Proposition 5.14 (with strong conditional action obligations 1. does not follow form 2.):

Theorem 1 Let $\mathfrak{M}(= \langle \mathfrak{S}, \mathfrak{I} \rangle)$ be a consequentialist model and let $w \in W$. Then the following statements are equivalent:

1. for all $\mathcal{H} \subseteq A - \mathcal{G}$ for all $L \in \mathit{Choice}(\mathcal{H})$ it holds that $\mathfrak{M}, w \models \obar_{\mathcal{G}} (A^K_{\mathcal{G}} / A^L_{\mathcal{H}})$
2. $\mathfrak{M}, w \models \obar_{\mathcal{G}} A^K_{\mathcal{G}}$.

References

Horty, J.F. (2001). *Agency and Deontic Logic*. New York: Oxford University Press.

Kooi, B.P. & A.M. Tamminga (2007). Moral conflicts between groups of agents. *Journal of Philosophical Logic*, to appear.