VARIATIONAL ANALYSIS

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Errata and Additions: March 2009

p. 98, l.-5 Proposition 3.45, replace 'smallest convex set' by 'smallest closed convex set'

p.123, l.2 & l.4: replace $(\liminf_\nu^\infty C^\nu \cup \liminf_\nu K^\nu)$ by $\liminf_\nu^\infty (C^\nu \cup K^\nu)$

p.124, l.2 Definition 4.23, insert '*closed*' before '*set*'; note, *total convergence* to a set is only defined when that (limit) set is closed.

p.128, l.10 first line of the Proof of Proposition 4.30, replace '4.29(b)' by '4.29(d)'

p.128, l.15 replace '$\mathrm{con}\, K^\nu$ is closed' by '$\mathrm{con}\, K^\nu$ is also pointed'

p.154, l.4 part (b) of Theorem 5.7 should read: *(b) when S is closed-valued, S is osc relative to a set $X \subset \mathbb{R}^n$ ...*

p.174, l.15 Exercise 5.39: insert 'continuous' after 'single-valued'; i.e. the statement should read: '*A sequence of single valued continuous mappings ...*'

p.186, l.6 Theorem 5.53(b), replace '$S^\nu \xrightarrow{g} S$' by '$S^\nu \xrightarrow{t} S$'

p.186, l.17 replace '$S^-1(u^\nu)$' by '$(S^\nu)^-1(u^\nu)$'

p.186, l.19 substitute '$u \in S(x)$' for '$x \in S(u)$'

p.194, l.-3 also, Moreau[1978] (Moreau, J.-J., "Approximation en graphe d'une evolution discontinue", RAIRO 12 (1978), 75-84.)

p.199, l.4 replace $1/x_1$ by $\log |x_1|$

p.248, l.9 change ', instead of for all $\nu \in \mathbb{N}$,' to 'if $\lim_\nu f^\nu(\bar{x}) > -\infty$ and this'

p.248, l.14 change ', instead of for all $\nu \in \mathbb{N}$,' to 'if $\lim_\nu f^\nu(\bar{x}) > -\infty$ and this'

p.248, l.-7 insert at the end of the sentence '; note that *asymptocially equi-lsc* at $\bar{x}$ implies that the corresponding epigraphical profiles mapping are asymptotically equi-osc at $\bar{x}$ but not conversely, and the same holds for the relationship between *asymptotically equi-usc* at $\bar{x}$ and the asymptotic equi-outer semicontinuity of the corresponding hypographical profile mappings at $\bar{x}$'

p.249, l.-15 replace 'If' by 'Excluding $f^\nu(\bar{x}) \searrow -\infty$, if'

p.267, l.17 insert 'not' before 'counter-coercive'

p.278, l.-12 replace '*For a sequence* $\{f^\nu\}_{\nu\in\mathbb{N}}$' by '*For a sequence* $\{f^\nu \neq \infty\}_{\nu\in\mathbb{N}}$'

p.292, l.6 the inclusion should read

$$\varepsilon\text{-}\operatorname{argmin} f \cap \rho\mathbb{B} \subset \varepsilon\text{-}\operatorname{argmin} g + \eta\Big(1 + \frac{2\rho}{\eta + \varepsilon/2}\Big)\mathbb{B},$$

i.e., the enlargement of ε-argmin g by a $\eta(1 + 2\rho(\eta + \varepsilon/2)^{-1})$ ball.

p.303, l.-3 delete '0 and'

p.322, l.-11 change 'all $w \neq 0$' to 'all w'

p.359, l.6 insert after the first sentence of the proof '(It suffices to interpret local boundedness in (c) and (d) in the sense of f-attentive convergence, since the distinction drops away once the equivalence with (a) is established.)'

p.362, l.9 add to (d) at the end: 'with $\hat{\partial} f(\bar{x})$ and $\hat{\partial}[-f](x)$ nonempty.'

p.366, l.21 add after 'for all y': ',using the estimate that

$$\hat{\partial}[y^\nu F](x^\nu) \subset \partial[yF + (y^\nu - y)F](x^\nu) \subset \partial[yF](x^\nu) + \partial[(y^\nu - y)F](x^\nu),$$

where $\partial[(y^\nu - y)F](x^\nu) \to \{0\}$ when $x^\nu \to \bar{x}$ and $y^\nu \to \bar{y}$.

p.393, l.-8 insert 'continuous' before 'single-valued'

p.403, l.12 insert 'measurable' before 'set D'

p.435, l.3 insert 'too' before the comma

p.441, l.3 change '$I\!\!N_\infty$' to '$I\!\!N_\infty^\#$'

p.462, l.8 in this line each $\bar{x}$ should just be x

p.462, l.-4 insert before this line the following two sentences: 'If $\{y^\nu\}$ were unbounded, a contradiction could be produced for the assomption that the only $y \in \partial^\infty g(F(\bar{x}))$ with $0 \in (yF)(\bar{x})$ is $y = 0$. We can suppose therefore that y^ν converges to some y.'

p.483, l.6 remove the inverted '?' at he beginning of the line

p.487, l.-6 This formula is flawed because $K(x)$ apparently depends on the same x as in the sets over which the union takes place. The dependence can be avoided by a more elaborate argument in which the covering of $\operatorname{dom} f$ by the sets C_k is first refined to a covering by polyhedral sets whose relative interiors are disjoint. The details are too much to include here, but the replacement proof has been incorporated in the third printing of the book.

p.546, l.-4 insert 'locally lsc' after 'any'

p.546, l.-2 replace $\langle w, Aw \rangle$ by $\langle w, Ax \rangle$

p.554, 12.40 in both (a) and (b) of the statement, delete the short sentence that starts with 'Indeed'

p.557, l.-19 At the end of the sentence just before 'On the other hand' insert: 'with,

$$\langle \bar{y}, \bar{u} \rangle = \lim_\nu \langle u^\nu y^\nu, Ax^\nu - \lambda^\nu y^\nu \rangle = \langle y, A\bar{x} \rangle - \lim_\nu \rangle \mu^\nu y^\nu, \lambda^\nu y^\nu \rangle \leq 0$$

p.560, l.2 At the end of the the first paragraph of the proof of 12.48, add the sentence: 'For the rest, a reduction can be made (via the affine hull of C) to the case where $\operatorname{int} C \neq \emptyset$.'

p.646, l.-3: change 'for all $t \in T$' to 'for all $t \in \operatorname{dom} S$'

p.647, l.-9: change 'for all $t \in T$' to 'for all $t \in \operatorname{dom} S$'

p.669. l.12 Proposition 14.44(d), add the requirement: the functions $x_i \mapsto f_i(t, x_i)$ are proper, cf. Proposition 1.39.

Please report any typos to: *rjbwets@ucdavis.edu.*