CONVERGENCE-THEORETIC CHARACTERIZATIONS OF COMPACTNESS: ERRATA CORRIGE

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I am grateful to Frédéric Mynard (Georgia Southern University), and to Iwo Labuda and Brian L. Davis (University of Mississippi) who advised me that my paper [2] contains some errors.

(1) F. Mynard observed [5] that
   (a) In Theorem 8.2 an assumption $\mathrm{inh}^{\natural}_{\tau}\, \mathfrak{P} \subset \mathfrak{P}$ should be added. This will enable the use of $\frac{\mathfrak{P}}{\mathfrak{R}}(\frac{\xi}{\iota})$-cover-compactness in the proof.[1]
   (b) On applying Proposition 7.1 to Theorem 10.3 and the subsequent corollaries, all the properties should be of cover-compactoid type.

(2) Later B. L. Davis and I. Labuda also noticed 1a and [4]
   (a) In (8.3) $\mathcal{G}\#\mathcal{A}$ should be $\mathcal{G}^{\cap}\#\mathcal{A}$.
   (b) An assumption lacks in Proposition 8.1.

In Theorem 10.3, $\mathfrak{D}_*$-*cover-compact* should be replaced by $\frac{\mathfrak{D}_*}{\mathfrak{J}_*}(\frac{\xi}{\xi})$-*cover-compact*.

As Davis and Labuda pointed out, errors of the type reported in (2a) occurred already in some of my previous papers, namely in [1, Theorem 2.1], where the class $\mathfrak{P}$ should be assumed to consist of finitely additive families of sets. They traced back the original error to the proof (not the theorem itself) of [3, Theorem 3.8]. The original confusion consisted in admitting that $\mathrm{adh}\,\mathcal{H}$ is equal to $\mathrm{adh}\,\mathcal{H}^{\cap}$. Here $\mathcal{H}$ is a family of subsets of a convergence space, $\mathcal{H}^{\cap}$ is the family of finite intersections of the elements of $\mathcal{H}$, and $\mathrm{adh}\,\mathcal{B}$ is the union of the limits of filters that mesh with $\mathcal{B}$.[2] The error had not been noticed before, because the special classes of families studied had the required property.

In order to correct (2b) the family $\mathcal{P}_{\mathfrak{R}}$ in the definition (8.4) should consist of all subsets of the unions of families $\mathcal{R} \in \mathfrak{R}$ which refine the family $\mathcal{P}$, and the class $\mathfrak{R}$ should contain all finite families of sets. Under these assumptions, the claim in the proof that $\mathcal{P}$ is a refinement of $\mathcal{P}_{\mathfrak{R}}$ is justified, and on the other hand, $\mathcal{P}_{\mathfrak{R}}$ is an ideal, the fact used in the proof.[3]

References

[1] S. Dolecki. Active boundaries of upper semicontinuous and compactoid relations; closed and inductively perfect maps. *Rostock. Math. Coll.*, **54**:51–68, 2000.

[2] S. Dolecki. Convergence-theoretic characterizations of compactness. *Topology Appl.*, **125**:393–417, 2002.

[3] S. Dolecki, G. H. Greco, and A. Lechicki. Compactoid and compact filters. *Pacific J. Math.*, **117**:69–98, 1985.

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[1] In the second line of the proof of Theorem 8.2, *thus by (8.7), there exists* should be *thus there exists.*

[2] that is, $F \cap B \neq \varnothing$ for each $F \in \mathcal{F}$ and $B \in \mathcal{B}$.

[3] In the second line of the proof of Proposition 8.1 $\mathcal{P}_{\mathfrak{R}} \in \mathfrak{P}_{\mathfrak{R}}$ should be $\mathcal{P}_{\mathfrak{R}} \in \mathfrak{P}$.

[4] I. Labuda. Compact families of sets. to appear, 2006.
[5] F. Mynard. Relations that preserve compact filters. to appear, 2006.

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