Additions to Part I: Numerical List of Forms

[94 S] If $X \subseteq \mathbb{R}$ and x is an accumulation point of X, then x is a limit point of X. Sierpiński [1918], Felscher [1979], and note 40. (See [94 F].)

The following are revisions of existing forms:

[14 AP] Suppose to each finite subset F of a set I there corresponds a set $\Phi(F)$ of functions whose domains are subsets of I including F and such that (a) $F_1 \subseteq F_2$ implies $\Phi(F_1) \subseteq \Phi(F_2)$ and (b) $\forall i \in I$, $\big\{\phi(i) : \phi \in \bigcup\{\Phi(F) : F \text{ finite and } F \subseteq I\}\big\}$ is finite. Then there is a function f with domain I such that for all finite $F \subseteq I$, $\exists \phi \in \Phi(F)$ such that ϕ and f coincide on F. Rav [1977], Cowen [1973] and note 80.

FORM 42. Löwenheim-Skolem Theorem: If a countable family of first order sentences is satisfiable in a set M then it is satisfiable in a countable subset of M. (See G. Moore [1982] p 251 for references.)

FORM 50. Sikorski's Extension Theorem: Every homomorphism of a subalgebra B of a Boolean algebra A into a complete Boolean algebra B' can be extended to a homomorphism of A into B'. Sikorski[1950], [1960] and [1964], p 141.

[94 F] For every $A \subseteq \mathbb{R}$ and $x \in \mathbb{R}$ the following definitions are equivalent:

(1) x is in the closure of A iff every neighborhood of x intersects A.

(2) x is in the closure of A iff there is a sequence $\{x_n\} \subseteq A$ such that $\lim x_n = x$.

Sierpiński [1918], Herrlich/Strecker [1997], Jech [1973b] p 21, and note 40. (See [94 S].)

[94 P]$(\forall f : \mathbb{R} \to \mathbb{R})(\forall x \in \mathbb{R})$ the following are equivalent:

(1) $(\forall \epsilon > 0)(\exists \delta > 0)((\forall y \in \mathbb{R})(|y - x| < \delta \to |f(y) - f(x)| < \epsilon)$.

(2) Whenever $\lim x_n = x$, then $\lim f(x_n) = f(x)$.

(A real valued function on $\mathbb{R}$ is continuous if and only if it is sequentially continuous.) Sierpiński [1918], Felscher [1979], and Herrlich/Strecker [1997].

FORM 345. Rasiowa-Sikorski Axiom: If $(B, \wedge, \vee)$ is a Boolean algebra, a is a non-zero element of B, and $\{X_n : n \in \omega\}$ is a denumerable set of subsets of B then there is a maximal filter F of B such that $a \in F$ and for each $n \in \omega$, if $X_n \subseteq F$ and $\bigwedge X_n$ exists then $\bigwedge X_n \in F$. Rasiowa/Sikorsky [1950] and Morillon [1988].