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Riemann surfaces obtained by conformal sewings

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Introduction. For Riemann surfaces of *infinite genus*, it is known that there occur many phenomena which are completely different from the function theory on plane regions or Riemann surfaces of finite genus. Actually we see them in various examples in classification theory of Riemann surfaces. Undoubtedly such phenomena depend on, in intuitive sense, the distributions of holes and handles representing genus. Now we take a countable number of disjoint cycles $\{\gamma_n\}$ on Riemann surface R so that $G=R-\cup\gamma_n$ becomes a planar region. G is conformally equivalent to a slit region. So, in this note, we consider plane region R which has an infinite number of disjoint slits $\{\gamma_n\}$ clustering nowhere in R. $G=R-\cup\gamma_n$ is a subregion of R whose boundary consists of $\cup\gamma_n$ and the ideal boundary of R. We construct Riemann surfaces by conformal sewings (cf. sec. 1) of G and investigate some relations by *extremal length methods* between the classes of such surfaces and the types (weakness, semiweakness and so on) of the slit regions. Furthermore we give some examples related these topics. The last one will give a relevant remark for the extension of classical Koebe's theorem to open Riemann surfaces.

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1. Let R be an open Riemann surface. By a *slit* in R, we shall