Closed images of spaces having g-functions

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Lutzer(1971) は k-semistratifiable space を定義して、

(1) A first countable k-semist. space is stratifiable and hence, Nagata space.

さらに同じ論文で

(2) If f:X⟶Y is compact-covering closed map, X is k-semistratifiable , so is Y.

を示した。Mohamad(1999) は k-semist. より弱い、ks-space(k-semist. $\Longrightarrow$ ks, and ks, $T_2 \Longrightarrow$ k-semist.) の closed image について次の結果を得た。

(3) If f:X⟶Y is closed map, X is a regular ks-space, then Y is ks.

しかし、彼の証明は私にとって明らかでない。

Question f:X⟶Y is a closed map or perfect map, X is ks, T_1-space $\Longrightarrow$ Y also is ks ?

Theorem 1. f:X⟶Y is closed map, X is ks, Frëchet T_1, then so is Y.

次に、wcc-space(この空間は contraconvergent space [by Sabella(1973)] or MCP space[by Good, Knight and Stares (2001)] より弱い) を定義して、その closed images と metrizations をあたえる。

Theorem 2. f:X⟶Y is closed map, X is wcc, T_1, then Y is wcc.

Theorem 3. If X is wcc, developable T_2, or wcc, γ T_2, then X is metrizable.

（この結果は、Good, Knight, Stares のそれを少し一般化する）

最後に、γ-space の closed images について考える。

(1) metric space の closed image は必ずしも γ-space にならない。

(2) [Gittings(1975)] f:X⟶Y is finite-to-one open map, X is γ, then so is Y.

Theorem 4. If f:X⟶Y is closed open map, X is γ T_1, then so is Y.

Theorem 5. If f:X⟶Y is quasi-perfect map, X is γ, then so is Y.