Consider a U_φ and denote by C_n ($n = 1, 2, \ldots$) the set of all irrational x such that $\varphi(x) < n$. Then some C_n is of 2. category, hence dense in an interval J; hence for any rational $a \in J$ the points (a, y), $|y| > n$ lie in $\overline{U}_\varphi$. As the closure of the set R of all (x, y), x rational, does not contain ω, it follows that ω is no regular point of P.

Let $\omega \in Q \subset P$. It can be easily shown that there exists a countable set $B \subset Q - R - \omega$ such that (1) $R\overline{QR} \subset \overline{B}$, (2) for any real x the set of all y such that $(x, y) \in B$ is finite or void. Choose φ such that $|y| < \varphi(x)$ for every $(x, y) \in B$. Given a U_ψ, set $\varphi_1(x) = \max(\psi(x), \varphi(x))$, $G = QU_{\varphi_1} + \omega$. Then G is a relative neighborhood of ω in Q, $G \subset U_\psi$, $B\overline{G} = 0$, and, for any $(x, y) \in Q(\overline{G} - G)$, $(x, y) \in R\overline{B}$, hence (x, y) is no interior point (in Q) of $Q\overline{G}$. Hence ω is a semiregular point of Q. All other points being regular Q is semiregular; hence P is hereditarily semiregular.

Example 2.[3]) The space P_2 consists of the points $(\frac{1}{n}, x)$ ($n = 1, 2, \ldots,\ 0 \leq x \leq 1$) of the plane (with the usual neighborhoods) and an additional point ω possessing the fundamental neighborhoods $U_m - A + \omega$, where U_m consists of all $(\frac{1}{n}, x) \in P$, $n > m$ ($m = 1, 2, \ldots$) and A is countable. Clearly P_2 is a Hausdorff space and, for any $G = U_m - A + z$, $\operatorname{Int} \overline{G} = U_m + z$, hence P_2 is not semiregular.

To show that P_2 is hereditarily nearly regular we have to show, for any $Q \subset S \subset P$, $\overline{Q} \supset S$, $F \subset S$, F relatively closed in Q, $a \in S - F$, that a set $B \subset S$ exists such that $\overline{B} \supset F$, $a \in S - \overline{B}$. This is obvious for $a \neq \omega$, since a is regular. For $a = \omega$, we have only to choose a countable $B \subset P_2 - \omega$ such that $\overline{B} \supset F$ which is evidently possible.

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Poznámka o poloregulárních a skoro regulárních prostorech.

(Obsah předešlého článku.)

Hlavním výsledkem článku je věta:

Dědičně skoro regulární prostor, splňující první axiom spočetnosti, je regulární.

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[3]) This example is essentially due to J. Novák (Čech and Novák, l. c., example 3).