

THEOREM 2. If  $f, g: K^{n+1} \rightarrow K^{n+1}$  are two continuous mappings such that  $f: S^n \rightarrow S^n$  and  $f|_{S^n}$  is essential, then there exists such an  $x \in K^{n+1}$  that  $f(x) = g(x)$ .

Proof. Suppose that  $f(x) \neq g(x)$  for every  $x \in K^{n+1}$ . Then we can define a continuous mapping  $h: K^{n+1} \rightarrow S^n$  putting

$$h(x) = \frac{f(x) - g(x)}{\|f(x) - g(x)\|}.$$

But this is not consistent with Theorem 1 since we shall prove that  $h|_{S^n}$  is essential. In fact,  $f|_{S^n}$  being essential, it is enough to show a homotopy between  $f|_{S^n}$  and  $h|_{S^n}$ . Since  $f(x) \neq tg(x)$  for  $x \in S^n$ ,  $0 \leq t \leq 1$  (because  $f(x) \neq g(x)$  and  $\|f(x)\| = 1$  for  $x \in S^n$ ), we obtain such a homotopy putting

$$h_t(x) = \frac{f(x) - tg(x)}{\|f(x) - tg(x)\|} \quad \text{for } x \in S^n, 0 \leq t \leq 1,$$

q. e. d.

Remark. If one uses the known fact that the identity is an essential mapping of  $S^n$  onto  $S^n$ , then Theorem 2 gives the Fixed Point Theorem for the closed  $n$ -cell (if one takes  $f =$  the identity).

## TABLE DES MATIÈRES DU VOLUME VIII C O M M U N I C A T I O N S

	Pages
R. P. Boas, <i>Differentiability of jump functions</i> . . . . .	81-82
K. Borsuk, <i>On a problem of V. Klee concerning the Hilbert manifolds</i> . . . . .	239-242
C. H. Cunkle and W. R. Utz, <i>Equicontinuous and related flows</i>	209-222
R. Engelking, <i>Sur un problème de K. Urbanik concernant les ensembles linéaires</i> . . . . .	243-250
— and A. Lelek, <i>Cartesian products and continuous images</i>	27-29
P. Erdős and E. Specker, <i>On a theorem in the theory of relations and a solution of a problem of Knaster</i> . . . .	19-21
G. Fodor, <i>Über die Äquivalenz von zwei Sätzen in der Mengenlehre</i> . . . . .	233-235
S. Gładysz, E. Marczewski and C. Ryll-Nardzewski, <i>Concerning distances of sets and distances of functions</i> . .	71-75
Б. Глейхгевихт, <i>Некоторые замечания о <math>\tau</math>-кольцах</i> . . . .	225-231
B. Grünbaum, <i>On some properties of convex sets</i> . . . . .	39-42
J. Hájek, <i>Concerning relative accuracy of stratified and systematic sampling in a plane</i> . . . . .	133-134
S. Hartman, <i>A remark about Cauchy's equation</i> . . . . .	77-79
— <i>On interpolation by almost periodic functions</i> . . . . .	99-101
J.-P. Kahane, <i>Problèmes et remarques sur les carrés de convolution</i> . . . . .	263-265
V. Klee, <i>Stability of the fixed-point property</i> . . . . .	43-46
K. Krzyżewski, <i>Remarks on totalisation of series</i> . . . . .	257-262
A. Lelek, <i>Some remarks on symmetric relations</i> . . . . .	23-26
— <i>Sur deux genres d'espaces complets</i> . . . . .	31-34
— and R. Engelking, <i>Cartesian products and continuous images</i> . . . . .	27-29
J. S. Lipiński, <i>Mesure et dérivée</i> . . . . .	83-88
— <i>Une simple démonstration du théorème sur la dérivée d'une fonction de sauts</i> . . . . .	251-255

Indar S. Luthar, <i>On an application of uniform distribution of sequences</i> . . . . .	89-93
Z. Łuszczki und Z. Zieleźny, <i>Distributionen der Räume <math>D'_{L^p}</math> als Randverteilungen analytischer Funktionen</i> . . . . .	125-131
S. Marcus, <i>Sur les fonctions quasicontinues au sens de S. Kempisty</i> . . . . .	47-53
E. Marczewski, S. Gładysz and C. Ryll-Nardzewski, <i>Concerning distances of sets and distances of functions</i> . . . . .	71-75
E. Marczewski and T. Traczyk, <i>On developable sets and almost-limit points</i> . . . . .	55-66
Jan Mycielski, <i>On a problem of interpolation by periodic functions</i> . . . . .	95-97
W. Nitka, <i>Une généralisation du théorème de Kuratowski sur la caractérisation métrique de la rétraction</i> . . . . .	35-37
— <i>Self-dependent elements in abstract algebras</i> . . . . .	15-17
A. Pełczyński, <i>On the impossibility of embedding of the space <math>L</math> in certain Banach spaces</i> . . . . .	199-203
S. Rolewicz, <i>On a generalization of the Dvoretzky-Rogers theorem</i> . . . . .	103-106
C. Ryll-Nardzewski, S. Gładysz and E. Marczewski, <i>Concerning distances of sets and distances of functions</i> . . . . .	71-75
R. Sikorski, <i>On the definition of multi-valued analytic functions</i> . . . . .	267-269
— <i>Representation and distributivity of Boolean algebras</i> . . . . .	1-13
— <i>The determinant theory in Banach spaces</i> . . . . .	141-198
E. Specker and P. Erdős, <i>On a theorem in the theory of relations and a solution of a problem of Knaster</i> . . . . .	19-21
S. Świerczkowski, <i>Integrals on quotient spaces</i> . . . . .	107-114
T. Traczyk, <i>On the approximations of mappings by Baire mappings</i> . . . . .	67-70
— and E. Marczewski, <i>On developable sets and almost-limit points</i> . . . . .	55-66
K. Urbanik, <i>A proof of a theorem of Żelazko on <math>L^p</math>-algebras</i> . . . . .	121-123
W. R. Utz and C. H. Cunkle, <i>Equicontinuous and related flows</i> . . . . .	209-222
T. Varadarajan, <i>On two extensions of the Hardy-Landau theorem</i> . . . . .	271-276
A. D. Wallace, <i>A note on convexity</i> . . . . .	237-238
— <i>Problems on semigroups</i> . . . . .	223-224
Z. Zieleźny und Z. Łuszczki, <i>Distributionen der Räume <math>D'_{L^p}</math> als Randverteilungen analytischer Funktionen</i> . . . . .	125-131
W. Żelazko, <i>A theorem on the discrete groups and algebras <math>L_p</math></i> . . . . .	205-207
— <i>On the algebras <math>L_p</math> of locally compact groups</i> . . . . .	115-120

## P R O B L È M E S

P 1, P 2, ... désignent les problèmes posés; R 1, R 2, ... désignent les réponses et remarques concernant le problème en tête de ligne. Les autres numéros indiquent les pages. Celles des communications déjà citées dans les remarques sont omises. Le trait | indique la clôture du problème.

P 56, R 1 135.	P 268, R 1 136.
P 83, R 1 135.	P 269, R 1 136.
P 93, R 1 135.	P 282, R 2 137.
P 173, R 1 135.	P 287, R 1 137.
P 205, R 1 277.	P 312-P 316 137.
P 206, R 1 277.	P 317-P 321 138.
P 227, R 1 135.	P 322-P 325 139.
P 235, R 1 277.	P 326-P 339 278.
P 254, R 2 136.	P 340-P 341 279.
P 258, R 1 136.	P 342-P 345 280.
	P 346-P 347 281.

## A U T E U R S

Borsuk P 335-P 336 278.	Mathéev P 344 280.
Courant P 341 279.	Mostowski P 342 279.
Engelking P 325 139.	Mycielski P 315-P 316 137; P 317-
Guichardet P 345 280.	— P 321 138; P 341-P 342 279.
Kahane P 338-P 339 278.	Steinhaus P 346-P 347 280.
Knaster P 323-P 324 139; P 340 278.	Urbanik P 323 139; P 337 278.
Lelek P 312-P 313 137.	Wallace P 326-P 334 278.
Lipiński P 314 137.	

## C O M P T E S R E N D U S

Société Polonaise de Mathématique . . . . .	281-284
---	---------

## A U T E U R S

Jaśkowski 281	Pieczkowski 282
Mycielski 283	