Re: subset of contractible

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On 11 Lip, 11:54, Sonya84 <sonianard...@xxxxxxxxx> wrote:

> On 11 Lug, 11:41, Sonya84 <sonianard...@xxxxxxxxx> wrote:
>
>> Suppose X is a contractible topological space
>> and S subset of X is a topological subspace of X.
>>
>> Is S contractible itself?
>>
>> Since X is contractible we have that X is pathwise−connected, so −
>> without loss of generality − we can suppose X is homotopically
>> equivalent to a point p in S.
>>
>> Sonia
>
> since X is contractible to p, by definition there exists an homotopy
> h: X x [0, 1] −−> X such that h(*, 0) = id_X while h(*,1) = c_p
> (c_p denotes the constant which maps every x in X to p in X).
>
> So h|S: S x [0, 1] −−> X is such that h(*, 0) = id_S while h(*,1) =
> c_p.
>
> The problem is that it ISN'T true that − in general − for every t
> in]0, 1[and for every x in S, h(x, t) belongs to S.
>
> So, why S need to be contractible if such is X ?

This means that S is conractible in X,
however S is not contractible itself.

In the case S = S^n, does not exist a homotopy
F : S x [0,1] −−> S joining id_S with a constant
map.

Regards, Z. Karno

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