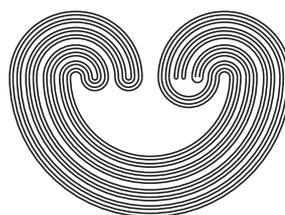


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## INDECOMPOSABLE CONTINUUM WITH A STRONG NON-CUT POINT

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## INDECOMPOSABLE CONTINUUM WITH A STRONG NON-CUT POINT

DARON ANDERSON

**ABSTRACT.** We construct an indecomposable continuum with exactly one strong non-cut point. The method is an adaptation of Bellamy [1]. We start with an  $\omega_1$ -chain of indecomposable metric continua and retractions. The inverse limit is an indecomposable continuum with exactly two composants. Our example is formed by identifying a point in each composant.

### 1. INTRODUCTION

Every point  $p$  of an indecomposable metric continuum  $M$  is a weak cut point. That means there are distinct  $x, y \in M - p$  such that each subcontinuum  $K \subset M$  with  $\{x, y\} \subset K$  has  $p \in K$ . The proof follows from  $M$  having more than one composant; and the composant-by-composant version of the result fails. Namely some  $q \in M$  might fail to weakly cut its composant  $\kappa(q)$ . In that case we call  $q$  a *strong non-cut point* of  $\kappa(q)$ . For example consider the endpoint  $c$  of the Knaster buckethandle. It is easy to see  $\kappa(c) - c$  is even arcwise connected. Hence  $c$  has only trivial reasons for being a weak cut point.

There exist indecomposable non-metric continua with exactly one composant – henceforth called *Bellamy continua*. Each Bellamy continuum is simultaneously an indecomposable continuum and a composant of an

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*Key words and phrases.* Continuum, Hausdorff Continuum, Indecomposable Continuum, Composant, One Composant, Bellamy Continuum, Weak Cut Point, Cut Point, Betweenness, Inverse Limit.

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