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split short exact sequence

Canonical name	SplitShortExactSequence
Date of creation	2013-03-22 12:09:32
Last modified on	2013-03-22 12:09:32
Owner	antizeus (11)
Last modified by	antizeus (11)
Numerical id	8
Author	antizeus (11)
Entry type	Definition
Classification	msc 16E05
Synonym	backmap
Synonym	splitting backmap

In an abelian category, a short exact sequence  $0 \rightarrow A \xrightarrow{f} B \xrightarrow{g} C \rightarrow 0$  is *split* if it satisfies the following equivalent conditions:

- (a) there exists a homomorphism  $h : C \rightarrow B$  such that  $gh = 1_C$ ;
- (b) there exists a homomorphism  $j : B \rightarrow A$  such that  $jf = 1_A$ ;
- (c)  $B$  is isomorphic to the direct sum  $A \oplus C$ .

In this case, we say that  $h$  and  $j$  are *backmaps* or *splitting backmaps*.