

# EXPR\_UNRELATED\_PTRCMP

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## Overview

This error is generated whenever an expression tries to compare pointers that do not point into the same memory block. This only applies to the operators `>`, `>=`, `<`, and `<=`. The operators `==` and `!=` are exempt from this case.

The ANSI C-language specification declares this construct undefined except in the special case where a pointer points to an address one past the end of a block.

Code	Description	Enabled	Reported	Platform
EXPR_UNRELATED_PTRCMP	Expression compares unrelated pointers		Runtime	Windows/Unix

## Problem

The following code illustrates the problem by comparing pointers to two data objects.

```
/*
 * File: expucmp.c
 */
#include <stdlib.h>

main()
{
    char a[10], *b;

    b = (char *)malloc(10);

    if(a > b) a[0] = 'x';
    else a[0] = 'y';
    return (0);
}
```

The error in this code is not that the two objects `a` and `b` are of different data types (array vs. dynamic memory block), but that the comparison in line 12 attempts to compare pointers which do not point into the same memory block. According to the ANSI specification, this is an undefined operation.

## Diagnosis at Runtime

```
[expucmp.c:12] **EXPR_UNRELATED_PTRCMP**
>>         if(a > b) a[0] = 'x';
Expression compares unrelated pointers: a > b
Left hand side: 0xf7fffb8c
In block: 0xf7fffb8c thru 0xf7fffb95 (10 bytes)
           a, declared at expucmp.c, 8
Right hand side: 0x00013870
In block: 0x00013870 thru 0x00013879 (10 bytes)
           block allocated at:
           malloc() (interface)
           main() expucmp.c, 10
Stack trace where the error occurred:
           main() expucmp.c, 12
```

- Line 1: Source line at which the problem was detected.
- Line 3: Description of the problem and the expression that is in error.

- Line 5: Description of the two pointers involved in the comparison. For each pointer, the associated block of memory is shown together with its size and the line number at which it was declared or allocated.
- Line 12: Stack trace showing the function call sequence leading to the error.

## Repair

While this construct is technically undefined according to the ANSI C specification, it is supported on many machines and its use is fairly common practice. If your application genuinely needs to use this construct, you can suppress this message by suppressing `EXPR_UNRELATED_PTRCMP` in the Suppressions Control Panel.