

Suppose  $u = [\underline{u}, \bar{u}]$  and  $v = [\underline{v}, \bar{v}]$  are two interval numbers and known; and  $x = [\underline{x}, \bar{x}]$  is an unknown interval number. Consider the following equivalent equations:

1.  $x = u + v$
2.  $x - u = v$
3.  $x - v = u$
4.  $x - u - v = 0$

Using RDM interval arithmetic approach the mentioned equations can be translated to:

1.  $x^{gr} = \underline{u} + (\bar{u} - \underline{u})\alpha_u + \underline{v} + (\bar{v} - \underline{v})\alpha_v; \alpha_u, \alpha_v \in [0,1]$
2.  $x^{gr} - \underline{u} - (\bar{u} - \underline{u})\alpha_u = \underline{v} + (\bar{v} - \underline{v})\alpha_v$
3.  $x^{gr} - \underline{v} - (\bar{v} - \underline{v})\alpha_v = \underline{u} + (\bar{u} - \underline{u})\alpha_u$
4.  $x^{gr} - \underline{u} - (\bar{u} - \underline{u})\alpha_u - \underline{v} - (\bar{v} - \underline{v})\alpha_v = 0$

So, as can be seen all the equations have the same solution and the span of the solution can be obtained as

$$x = [\underline{x}, \bar{x}] = [\min_{\alpha_u, \alpha_v} \{x^{gr}\}, \max_{\alpha_u, \alpha_v} \{x^{gr}\}]$$

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