Erratum to:
A simple derivation of the
Hansen-Bliek-Rohn-Ning-Kearfott enclosure for linear interval equations

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Abstract. In the INTLAB program for the interval enclosure of the solution set of linear systems of equations with interval data, published in the above-mentioned paper, one rounding is in the wrong direction. A simple change amends this bug.

As observed by Helmut Jarausch (private communication), a rigorous upper bound for β_i in the formula (3) of the above paper, $\beta_i = u_i/d_i - |\mathbf{b}_i|$, requires a lower bound on d_i. However, the program at the end of the paper provides only an upper bound (needed for α_i). To correct this defect, replace the line

```
beta = u./d-abs(b);
```

in the program by

```
beta=u./dlow-abs(b);
```

where the lower bound `dlow` is computed by

```
dlow=v.*w-diag(B);dlow=-dlow;     % rigorous lower bound for d
```

to be inserted directly before the line computing

```
B=B+v*w;
```

The work only changes by negligible $O(n)$ operations. The corrected algorithm is available in INTLAB [2].

References

[1] A. Neumaier, A simple derivation of the Hansen-Bliek-Rohn-Ning-Kearfott enclosure for linear interval equations, Reliable Computing 5 (1999), 131-136.

[2] S.M. Rump, INTLAB – INTerval LABoratory, pp. 77-104 in: Developments in reliable computing (T. Csendes, ed.), Kluwer, Dordrecht 1999.