

0.1 Regarding Theorem 8.1.1

When going through the proof, I understood it but I believe it can be slightly modified without becoming more complicated, to be more easily understood by the reader.

Specifically, I think that points 3 and 4. of the proof are not very clear. For example, point 3. might never be satisfied, since there might be a VC of size $< k$. I believe that point 3. should be:

“3. Keep doing this until either the tree is of height k or there are no edges left in the set $G - R$, where $R \subseteq G$ is the set of vertices removed by this path of the algorithm’s tree so far.”

Similarly, point 4. should be:

“If one of the leaves’ graph $G - R$ contains no edges, then R is a vertex cover of size $\leq k$. If not, then there is not.”

0.2 Chapter Bugs/Improvements

Since some improvements I suggest can be also considered bugs, I added this section, where I explain them.

1. On page 213, in the proof of Theorem 8.2.1, on step 3, it should be “If there is a vertex v of degree *at least* $L + 1 \dots$ ”. The algorithm does not work properly with the exact value.
2. On page 214, Theorem 8.2.1 should be denoted Theorem 8.2.4.
3. Page 215, Ch.8.5, question mark missing in first sentence of second paragraph.

1 Improving Figure 9.1

Using Tikz, I improved Figure 9.1, which is also now easy to modify further in case the authors later want to use it in the book with some changed parameters/notation within the Figure.

$S_{4i-3,4j-3}^I : \\ (iN - z, jN + z)$	$S_{4i-3,4j-2}^J : \\ (iN + \alpha, jN + z)$	$S_{4i-3,4j-1}^I : \\ (iN - \alpha, jN + z)$	$S_{4i-3,4j}^J : \\ (iN + z, jN + z)$
$S_{4i-2,4j-3}^I : \\ (iN - z, jN + b)$	$S_{4i-2,4j-2}^J : \\ ((i+1)N, (j+1)N)$	$S_{4i-2,4j-1}^I : \\ (iN, (j+1)N)$	$S_{4i-2,4j}^J : \\ (iN + z, (j+1)N + b)$
$S_{4i-1,4j-3}^I : \\ (iN - z, jN - b)$	$S_{4i-1,4j-2}^J : \\ ((i+1)N, jN)$	$S_{4i-1,4j-1}^I : \\ (iN, jN)$	$S_{4i-1,4j}^J : \\ (iN + z, (j+1)N - b)$
$S_{4i,4j-3}^I : \\ (iN - z, jN - z)$	$S_{4i,4j-2}^J : \\ ((i+1)N + \alpha, jN - z)$	$S_{4i,4j-1}^I : \\ ((i+1)N - \alpha, jN - z)$	$S_{4i,4j}^J : \\ (iN + z, jN - z)$