SOLUTION of (2-14.e):

In fact, the basis functions are discontinuous, see Fig. 12: $b_h^i(\boldsymbol{x}_n) = -1$ if $\boldsymbol{x}_n$ is opposite of $\boldsymbol{m}_i$ on some triangle, but $b_h^i = 0$ on all other triangles touching $\boldsymbol{x}_n$, thus we have "different values from different sides":

$$\blacktriangleright \qquad \mathcal{CR}(\mathcal{M}) \not\subset C^0(\Omega) \qquad (\text{, if } \sharp\mathcal{M} > 1).$$

Since b_h^j is piecewise smooth, the assumptions of [Lecture $\rightarrow$ Thm. 1.3.4.23] are violated:

Theorem [Lecture $\rightarrow$ Thm. 1.3.4.23]. Compatibility conditions for piecewise smooth functions in $H^1(\Omega)$

Let Ω *be* partitioned *into sub-domains* Ω_1 *and* Ω_2*. A function* u *that is continuously differentiable in both sub-domains and continuous up to their boundary, belongs to* $H^1(\Omega)$*,* if and only if u *is* continuous *on* Ω*.*