Figure 1: Illustration of the species coupling in case of a coinciding interface. In the figure, the dashed interface lies on top of the edge between two cells. It is assumed that K_j in Equation ?? is the cell with the lower index and owns the coinciding interface. The affected edge $\partial K_i \cap \partial K_j$ belongs to the species $\mathfrak{A}$ and takes care of the coupling between cells $K_{i,\mathfrak{A}}$ and $K_{j,\mathfrak{A}}$. The species are then coupled inside K_j via the interface, from the empty cell $K_{j,\mathfrak{A}} = \emptyset$ to the full cell $K_{j,\mathfrak{B}} = K_j$. Finally, by performing the agglomeration, the discrete system is algebraically modified. This modification eliminates the (edge) contributions on $\partial K_{j,\mathfrak{A}}$ of the empty cell and combines the cell and species coupling, establishing the connection between $K_{i,\mathfrak{A}}$ and $K_{j,\mathfrak{B}}$. The lower part of the figure shows an exploded view of the situation to clarify the connectivity.