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Γ1 [vd_VD] := Module[{js, s1, i1, j1, s2, i2, j2},
  js = Cases [vd, X_ [_, j_] :=> j] ∩ Cases [vd, X_ [i_, _] :=> i - 1];
  If [Length [js] == 0, vd,
    j1 = RandomChoice [js]; i2 = j1 + 1;
    Cases [vd, X_s_ [i_, j1] :=> (s1 = s; i1 = i)];
    Cases [vd, X_s_ [i2, j_] :=> (s2 = s; j2 = j)];
    Tidy@Join [Complement [vd, VD [X_s1 [i1, j1], X_s2 [i2, j2]]],
      VD [X_s2 [j1, j2], X_s1 [i1, i2], X_s1_s2 [i1 - s1 / 3, j2 + s2 / 3],
        X_-s1_s2 [i1 + s1 / 3, j2 - s2 / 3]]
    ] ] ]

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