The Grothendieck Construction for Double Categories

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I will give a notion of double index functor F taking values in double categories, describe a Grothendieck construction of a double category of elements of F, and discuss its relationship with other 2-dimensional Grothendieck constructions. I will also show that our construction is the lax double colimit of F. This is a new notion of lax limit involving double categories, which has a 3-dimensional flavor, and I will explain how it is related to other notions of 2- and 3-categorical colimits.