

# Cobordisms of Legendrians and of their generating families

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Suppose a Legendrian submanifold  $L$  has a generating family  $f$ , and assume we are given a Legendrian isotopy – a special kind of Legendrian cobordism – of  $L$  to  $L'$ . Then, by a classic theorem of Sikorav,  $f$  can be continued uniquely through the isotopy to give a generating family of  $L'$ . Does this hold for more general cobordisms? In the first part of my talk, I will answer this question – a joint work with Sylvain Courte and Vivek Shende based on Cerf's and Hatcher's heirloom. Spoiler: it needs vanishing of certain obstruction classes, and the continuation may be non-unique. In a second part, I will show some applications of this to geography and botany problems of Legendrians, including the corrected proof of a theorem of Bourgeois, Sabloff, and Traynor on generating family homology, and an extension of Pezzimenti's work on Lagrangian fillings.

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