

## §6. Example 1

### Cobordism group of Morse functions on surfaces

$f_i : M_i^m \rightarrow \mathbb{R} \quad (i=0,1)$  Morse functions  
 $M_i^m$  closed

$f_0$  &  $f_1$  are cobordant

DEF  
 $\Leftrightarrow$

$\exists W^{n+1}$  : cpt. mfd with  $\partial W^{n+1} = M_0 \sqcup M_1$

$\exists F : W^{n+1} \rightarrow \mathbb{R} \times [0,1]$  fold map

s.t.  $F|_{\text{collar nbd of } M_i} = \text{susp. of } f_i \quad (i=0,1)$

$\mathcal{M}(n)$  : set of all cob. classes of  
 Morse functions on  $n$ -dim. mfd's  
abelian grp w.r.t. disjoint union

$\mathcal{M}^{SO}(n)$  : oriented version

(cf. Ikegami [3])