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**What selects the velocity of fingers and bubbles in a Hele-Shaw cell?** GIOVANI VASCONCELOS, MARK MINEEV-WEINSTEIN, ARTHUR BRUM, Federal University of Pernambuco — It has been widely accepted that surface tension is responsible for the selection of a single pattern out of a continuum of steady solutions for the interface dynamics. Recently, however, it was demonstrated by using time-dependent solutions that surface tension is not required for velocity selection in a Hele-Shaw cell: the velocity is selected entirely within the zero surface tension dynamics, as the selected pattern is the only attractor of the dynamics. These works changed the paradigm regarding the necessity of surface tension for selection, but were limited to a single interface. Here we show that the same selection mechanism holds for any number of interfaces. We present a new class of exact solutions for multiple time-evolving bubbles in a Hele-Shaw cell. The solution is given by a conformal mapping from a multiply connected domain and is written in closed form in terms of certain special functions (the secondary Schottky-Klein prime functions). We demonstrate that the bubbles reach an asymptotic steady velocity, $U$, which is twice greater than the velocity, $V$, of the uniform background flow, i.e., $U = 2V$. The result does not depend on the number of bubbles. This confirms the prediction that contrary to common belief velocity selection does not require surface tension

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