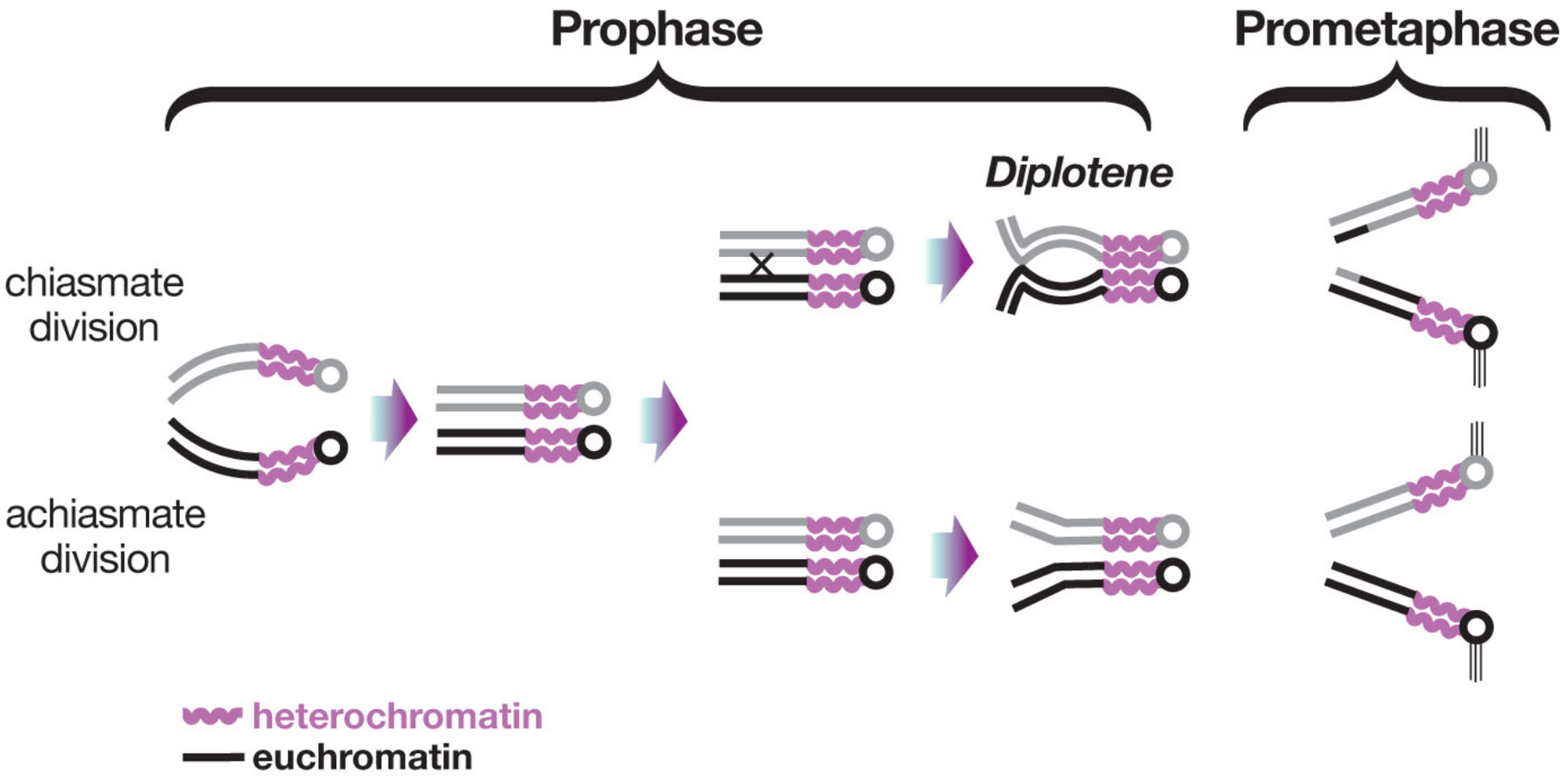

Figure 10. There Are Two Mechanisms for Ensuring the Segregation of Homologs in *Drosophila melanogaster* Females

The upper row of images reprises the canonical process as shown in Fig. 9. The lower row describes the meiotic process in *Drosophila* females which have an unusual diplotene. In a canonical meiosis, diplotene (sometimes referred to as diplotene-diakinesis) is defined as the last stage in prophase in which homologs repel, and are then held together only by chiasmata. However, in *Drosophila* females, only the euchromatic arms of chromosomes repel (or separate) at the end of prophase; the heterochromatic regions remain tightly paired even beyond the end of prophase (nuclear envelope breakdown) and into prometaphase (Dernburg et al. 1996). As discussed in the text, these heterochromatic pairings are both necessary and sufficient to ensure faithful segregation in the absence of crossing-over (Hawley et al. 1993; Karpen et al. 1996).