(induced by the composition with u), and for any morphism of functors

$$I = \bigcup_{v}^{u} J$$
,

one has a morphism of functors

Moreover, the prederivator $\mathbf{Ho}(\mathscr{V})$ is then a Grothendieck derivator; see [Ciso3, Thm. 6.11]. This means in particular that, for any functor between small categories $u: I \longrightarrow J$, the functor u^* has a left adjoint

(3.2.13.2)
$$\mathbf{L}u_{\sharp}: \mathbf{Ho}(\mathscr{V})(I) \longrightarrow \mathbf{Ho}(\mathscr{V})(J)$$

as well as a right adjoint

$$(3.2.13.3) \mathbf{R}u_* : \mathbf{Ho}(\mathscr{V})(I) \longrightarrow \mathbf{Ho}(\mathscr{V})(J)$$

(in the case where J=e is the terminal category, $\mathbf{L}u_{\sharp}$ is the homotopy colimit functor, while $\mathbf{R}u_{*}$ is the homotopy limit functor).

If \mathscr{V} and \mathscr{V}' are two model categories, a morphism of derivators

$$\Phi: \mathbf{Ho}(\mathscr{V}) \longrightarrow \mathbf{Ho}(\mathscr{V}')$$

is simply a morphism of 2-functors, that is, the data of functors

$$\Phi_I: \mathbf{Ho}(\mathscr{V})(I) \longrightarrow \mathbf{Ho}(\mathscr{V}')(I)$$

together with coherent isomorphisms

$$u^*(\Phi_I(F)) \simeq \Phi_I(u^*(F))$$

for any functor $u: I \longrightarrow J$ and any presheaf F on J with values in \mathscr{V} (see [Ciso3, p. 210] for a precise definition).

Such a morphism Φ is said to be *continuous* if, for any functor $u: I \longrightarrow J$, and any object F of $\mathbf{Ho}(\mathscr{V})(I)$, the canonical map

$$(3.2.13.4) \Phi_J \operatorname{R} u_*(F) \longrightarrow \operatorname{R} u_* \Phi_I(F)$$

is an isomorphism. One can check that a morphism of derivators Φ is continuous if and only if it commutes with homotopy limits (i.e. if and only if the maps (3.2.13.4) are isomorphisms in the case where J=e is the terminal category); see [Ciso8,