

Correction to:

Simplicial structures on model categories and functors

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Edoardo Lanari has pointed out a gap which stems from the fact the proof of Proposition 4.2 uses a stronger hypothesis than is guaranteed by Definition 4.1. Proposition 4.2 is not used anywhere in the paper, so this gap has no further consequences for the paper.

The fix to this problem is to strengthen Definition 4.1 as follows:

Definition 4.1'. For a simplicial model category \mathcal{C} , say that *the realization factors through simplicial sets* if the following hold.

- (1) There is a functor $U: \mathcal{C} \rightarrow \mathcal{S}$ such that f is a weak equivalence in \mathcal{C} if and only if Uf is a weak equivalence in \mathcal{S} .
- (2) U preserves fibrations and pullback squares.
- (3) For any object $X \in s\mathcal{C}$, $U|X|$ is naturally weakly equivalent to $|\bar{U}X|$ where \bar{U} is the prolongation of U defined by applying U to each level in $s\mathcal{C}$.

The difference between Definition 4.1' and the original Definition 4.1 in the published version is the additional requirement that the functor U also preserves pullbacks. In the applications we had in mind, the functor U is a right Quillen functor, hence a right adjoint, and so it satisfies the stronger Definition 4.1'. This is the case in the two explicit examples mentioned in the paper right after Definition 4.1, namely the singular complex functor from topological spaces to simplicial sets, and the forgetful functor from simplicial groups to simplicial sets.

Here is how the gap and its fix influence Proposition 4.2. Towards the end of the proof of Proposition 4.2 we claim that the functor U preserves homotopy pullback squares and \bar{U} preserves equifibered Reedy fibrations. These two claims need not hold under the original, weaker hypothesis. The requirement that U preserves not only fibrations, but also pullback squares, precisely fixes this.