CORRECTION TO "CO-EQUALIZERS AND FUNCTORS"

BY
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G. M. Kelly has pointed out (Mathematical Reviews, vol. 35 (1968), #5491) that certain results in *Co-equalizers and functors* (this journal, vol. 11 (1967), pp. 336–348) are incorrect. There appear to be two distinct errors. The first is in the proof of the second assertion of Theorem 2.4: while the morphisms βGX are well defined, β is not a natural transformation. The second sentence in the statement of Theorem 2.4 should be deleted as well as the statement of Theorem 2.5. To compensate for the loss of 2.5 the second sentence of the statement of Theorem 2.7 should be altered to read: "If S is an X-functor in $\mathbf{V}$, if $(\otimes, r)$ admits sections or if r is surjective and S is X-constructive then αS is a co-equalizer of $LR\alpha S$ and αLRS." No alteration to the proof of 2.7 is necessary. Corollary 2.10 can be left as it stands however it may be misleading since it is easy to show that if $(\otimes, r)$ admits sections then every valuable X-germ is constructive. Theorem 0.2 must be altered to read: "S is an X-functor in $\mathbf{V}$ if and only if αS is a co-equalizer of $LR\alpha S$ and αLRS". The sentences in §3 relating to the proof of 0.2 should be deleted, the present form of 0.2 being a corollary of 2.7 as modified.

The second error is in the proof of Theorem 3.1, which is incorrect as stated. 3.1 should be altered to read:

THEOREM 3.1. *$\mathrm{Ext}^n(C, -)$ is a $(K_n \oplus P_n)$-functor.*

Proof. For every Λ-module Y we certainly have

$$\mathrm{Ext}^n(C, Y) \approx \mathrm{Hom}(K_n, Y)/\chi^* \mathrm{Hom}(P_n, Y)$$

where

$$0 \to K_n \xrightarrow{\chi} P_n \to P_{n-1} \to \cdots \to P_1 \to C \to 0$$

is an exact sequence with P_i projective $(1 \le i \le n)$. By 2.8, $\mathrm{Hom}(K_n, -)$ is a K_n-functor and $\mathrm{Hom}(P_n, -)$ is a P_n-functor. Hence $\mathrm{Hom}(K_n, -)$ and $\mathrm{Hom}(P_n, -)$ are both $(K_n \oplus P_n)$-functors. Thus the required result is a consequence of the following.

LEMMA. *If S and T are X-functors, if $Q \in \mathbf{V}$ and if $w : T \to Q$ is a co-equalizer of $u, v : S \to T$ then Q is an X-functor.*

The lemma may be proved by an application of the 3×3-lemma for co-

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equalizers [1; Lemma 2.2] to a diagram of the form

$$\begin{array}{ccccc} LRLRS & \Rightarrow & LRS & \rightarrow & S \\ \Downarrow & & \Downarrow & & \Downarrow \\ LRLRT & \Rightarrow & LRT & \rightarrow & T \\ \downarrow & & \downarrow & & \downarrow \\ LRLRQ & \Rightarrow & LRQ & \rightarrow & Q. \end{array}$$

In conclusion I should like to draw attention to the following misprints in [1]. On page 21, line 1 and again in line 7 "SP" should read "P". On page 25, line 3, the last "X" should read "Y".

REFERENCE

1. K. A. HARDIE, *Weak homotopy-equivalence of P-functors*, Quart. J. Math. Oxford Ser (2), vol. 19 (1968), pp. 17–31.

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