Free monoids and Riguet Congruences

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For a set A, we associate to $\mathbf{A}^\star$, the free monoid on A, a category $\mathsf{C}(\mathbf{A}^\star)$, which, in general is not skeletal, and prove that it is equivalent to $\mathsf{Set}_\mathrm{f}^A$, the category of finite A-sorted sets. Following this, after recalling and completing the notion of Riguet congruence on a category, we obtain, for a suitable Riguet congruence on $\mathsf{C}(\mathbf{A}^\star)$, a skeletal quotient category $\mathsf{Q}(\mathbf{A}^\star)$ of $\mathsf{C}(\mathbf{A}^\star)$ and prove that it is also equivalent to $\mathsf{Set}_\mathrm{f}^A$.

References

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