Errata to "Categories for Quantum Theory"

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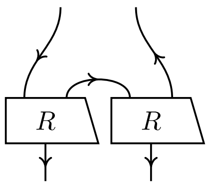
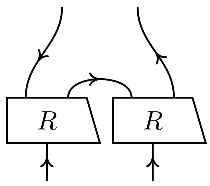
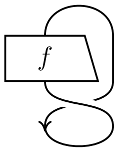
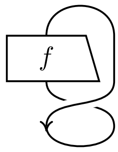
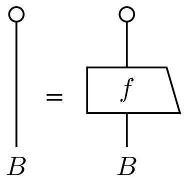
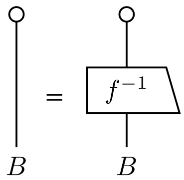
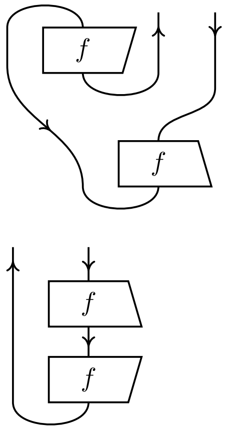
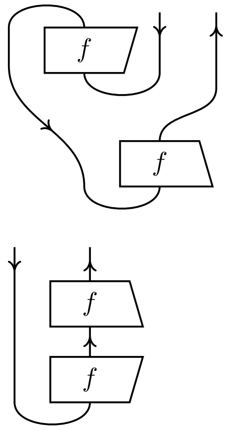
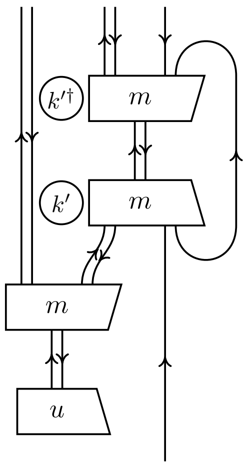
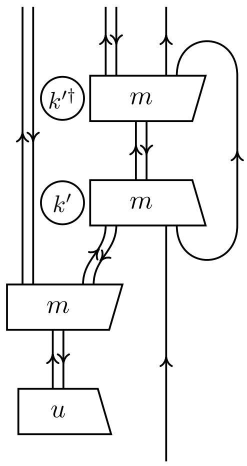
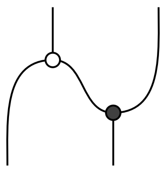
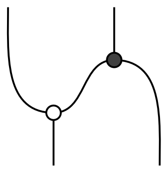
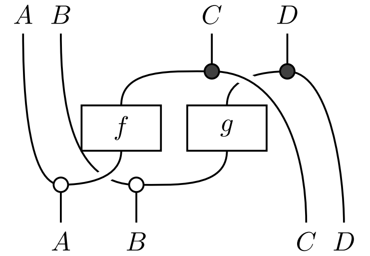
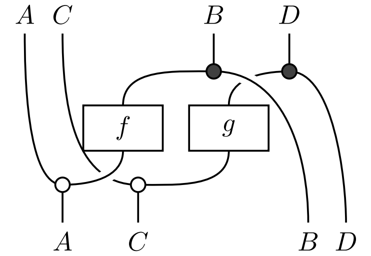
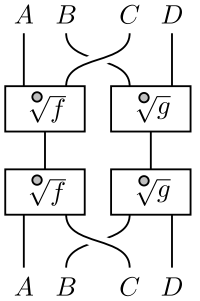
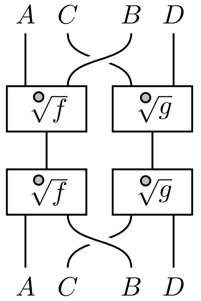
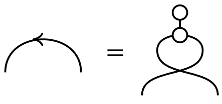
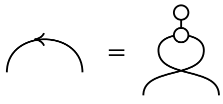
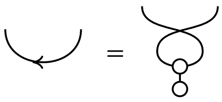
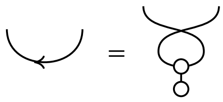
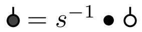
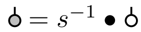
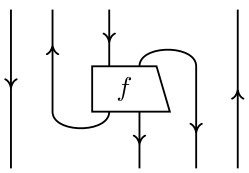
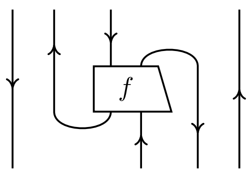
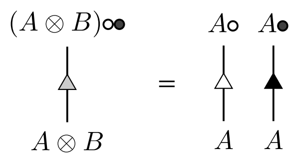
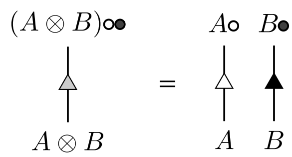
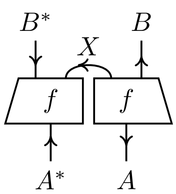
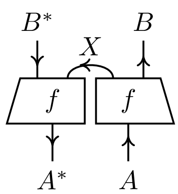
Thanks to Haruyuki Kawabe, Robin Kaarsgaard, Bert Lindenhovius, Joshua Meyers, Ann Nagatsuki, Matthias Steiner, Willoughby Seago, and Simon Burton for finding the errata below! If you find any more, please let us know.

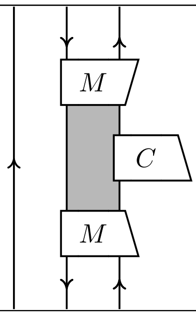
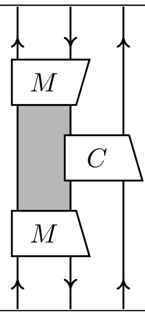
page	line	read	should be
ix	20	between sets relations between sets,	between sets, relations between sets,
10	29	id_D	$\mathrm{id}_{\mathbf{D}}$
16	5	$\langle a\|a\rangle = 0 \implies v = 0$	$\langle a\|a\rangle = 0 \implies a = 0$
17	-7	$\\|u\\|_U = \\|u\\|_H$	$\\|u\\|_U = \\|u\\|_V$
25	-4	mixed state has become	mixed state has become expressed as
39	15	the monoidal dagger category	the monoidal category
42	6	$\begin{pmatrix} \mathrm{id}_{H\otimes L} & 0 \\ 0 & -\mathrm{id}_{K\otimes M} \end{pmatrix}$	$\begin{pmatrix} \sigma_{H\otimes L} & 0 \\ 0 & -\sigma_{K\otimes M} \end{pmatrix}$
42	6	$\begin{pmatrix} \mathrm{id}_{H\otimes M} & 0 \\ 0 & \mathrm{id}_{K\otimes L} \end{pmatrix}$	$\begin{pmatrix} 0 & \sigma_{K\otimes L} \\ \sigma_{H\otimes M} & 0 \end{pmatrix}$
47	(1.31)	γ	σ
48	-13	not every monoidal is monoidally	not every monoidal category is monoidally
65	17	$0_{C,A}$	$0_{C,B}$
71	6	$\equiv \begin{pmatrix} f_{11} & f_{21} & \cdots & f_{M1} \\ f_{12} & f_{22} & \cdots & f_{M1} \\ \vdots & \vdots & \ddots & \vdots \\ f_{1N} & f_{2N} & \cdots & f_{MN} \end{pmatrix}$	$\equiv \begin{pmatrix} f_{11} & f_{21} & \cdots & f_{M1} \\ f_{12} & f_{22} & \cdots & f_{M2} \\ \vdots & \vdots & \ddots & \vdots \\ f_{1N} & f_{2N} & \cdots & f_{MN} \end{pmatrix}$
71	4	where $A_1, \ldots A_M$ and	where $A_1, \ldots, A_M$ and
84	5	$= \begin{pmatrix} \mathrm{id}_I & 0_{I,I} & \cdots & 0_{I,I}nn \\ 0_{I,I} & \mathrm{id}_I & \cdots & 0_{I,I} \\ \vdots & \vdots & \ddots & \vdots \\ 0_{I,I} & 0_{I,I} & \cdots & \mathrm{id}_I \end{pmatrix}$	$= \begin{pmatrix} \mathrm{id}_I & 0_{I,I} & \cdots & 0_{I,I} \\ 0_{I,I} & \mathrm{id}_I & \cdots & 0_{I,I} \\ \vdots & \vdots & \ddots & \vdots \\ 0_{I,I} & 0_{I,I} & \cdots & \mathrm{id}_I \end{pmatrix}$
84	-3	a complete disjoint set effects	a complete disjoint set of effects
85	6	*a finite complete set of effects*	*a finite complete disjoint set of effects*
90	4	we draw an object L	we draw a left-dual L

page	line	read	should be
91	13	definitions of η and ε given previously are no good, as they do not	definition of ε given previously is no good, as it does not
99	(3.11)	(It might be called the *snail equation*.)	
102	7	$\cup 2 \times 2$	$\subseteq 2 \times 2$
103	2	$\overset{(3.14)}{=}$	$=$
103	12	by Lemma 3.193.19.	by Lemma 3.19(b).
108	3	second $\overset{(3.9)}{=}$	by naturality of π.
114–121	(9 times)	dagger pivotal category	pivotal dagger category
120	1	for a Hilbert space H	for a Hilbert space A
121	-1	*in a braided pivotal category.*	.
124	-3	dagger compact category	compact dagger category
125	9	monoidal dagger category	braided monoidal dagger category
125	10	$\dim(L)^\dagger = \dim(R)$.	$\dim(L)^\dagger = \dim(R)$, defined as in Exercise 3.7.
125	-11	Show that the scalars are the Boolean semiring.	Show that this is a well-defined monoidal category under tensor product of vector spaces, and that the scalars are the Boolean semiring.
125	-10, -6	dagger compact category	compact dagger category
125	-4	the square of the	the
126	-5	Kaufmann	Kauffman
128	6	if should not matter	it should not matter
129	10	$g \sim (k, k^{-1}g)$	$g \sim (k^{-1}g, k)$
132	-2	correspond bijectively to states$I \xrightarrow{\ulcorner f \urcorner} A^* \otimes A$.	correspond bijectively to states $I \xrightarrow{\ulcorner f \urcorner} A^* \otimes A$.
132	-1	operators transfers tostates	operators transfers to states
134	8	$\overset{(4.13)}{=}$ 	$\overset{(4.13)}{=}$ 
137	-9	$d_1(\bullet) = (\bullet, \bullet) = \rho_1(\bullet)$	$d_I(\bullet) = (\bullet, \bullet) = \rho_I^{-1}(\bullet)$
138	11	Associativity (4.4) and commutativity (4.6)	Coassociativity (4.2) and cocommutativity (4.1)

page	line	read	should be
140	11, 15		
143	4	Exercise 4.4	Should move to Chapter 3
152	6	has a canonical involutive structure. The opposite monoid arises from the opposite groupoid	has a canonical involutive structure if we additionally define the opposite monoid to have multiplication $m_* \circ \sigma$. Modulo this change, the opposite monoid arises from the opposite groupoid.
154	-2	comultiplication associativity	comultiplication, associativity of the multiplication
155	-1	 (5.14)	 (5.14)
156	1	Proof. Straightforward graphical manipulation. □	(no proposition/theorem/lemma to be proved.)
162–188	(6 times)	dagger pivotal category	pivotal dagger category
163	-15	with $\lvert ij\rangle \in (A \otimes B)^*$.	with $\langle ij\rvert \in (A \otimes B)^*$.
168	-11	$A \simeq \sum_i B(\mathbb{C}, k_i)$	$A \simeq \bigoplus_i B(\mathbb{C}, k_i)$
170	-17	is special and.	is special and,
170	-2	classical structure	Frobenius structure
173	13	dagger speciality condition (5.5)	speciality condition (5.5)
176	-3	 =	 =
184	6	Thes conditions	These conditions

page	line	read	should be
184	12	if $a \sim b$ and $a \sim b'$ then	if $(g, a) \sim b$ and $(g, a) \sim b'$ then
184	13	if $a \sim b$ and $a' \sim b$ then	if $(g, a) \sim b$ and $(g, a') \sim b$ then
184	13	to $a \sim b$ and $a \sim b'$ to get	to $(g, a) \sim b$ and $(g, a) \sim b'$ to get
186	-3	dagger monoidal category	monoidal dagger category
188	-11	expression (5.53)	expression (5.52)
188	-10	for some invertible scalar k	for some invertible scalar k'
188	-4	we see that (5.53) is unitary	we see that (5.52) is unitary
188	-3	makes (5.53) unitary	makes (5.52) unitary
188	-2	scalar factor k.	scalar factor k'.
188	-2	as the adjoint of (5.53),	as the adjoint of (5.52),
189	-1	$\stackrel{(5.43)}{=} \; k'^{-1}$ 	$\stackrel{(5.43)}{=} \; k'^{-1}$ 
190	2	the fact that (5.53) is unitary.	the fact that (5.52) is unitary.
198	1	 (6.8)	 (6.8)
199	-2	the set of A morphisms of $\mathbf{G}$	the set A of morphisms of $\mathbf{G}$
200	4	then $a = \varphi'_g(h)$ for	then $a = \varphi_{g'}(h)$ for
205	5	classical structures **FHilb** are	classical structures in **FHilb** are
219	10	without ado	without further ado
232	-3	dagger ribbon category	ribbon dagger category

page	line	read	should be
236	-8		
236	-8		
237	-9	Putting a cap on the top left and a cup on the bottom right, we see that this is equivalent to	Unfolding Theorem 7.18, we see that this is equivalent to
240	-4	 $: L \otimes R \to I$	 $: R \otimes L \to I$
240	-4	 $: R \otimes L \to I$	 $: I \to L \otimes R$
245	5		
247	1		
248	3	epimorhic	monomorphic
250	-1		
255	4	*in* **C** *in* **C** *are*	*in* **C** *are*
261	-11		

page	line	read	should be
267	-7	id_B in the last displayed equation	id_A
270	1	$Q(\mathbf{C})$	$T(\mathbf{C})$
277	9	$\pi_{B,A} \circ \mathrm{id}_{\sigma_{A \boxtimes B}} = \mathrm{id}_{\sigma_{B \boxtimes A}} \circ \pi_{A,B}$	$\pi_{B,A} \circ \mathrm{id}_{\sigma_{A,B}} = \mathrm{id}_{\sigma_{B,A}} \circ \pi_{A,B}$
286	-10	Equivalent to $\mathbf{FHilb}^n$	Equivalent to $\mathbf{FHilb}^{[n]}$
288	-15	$T_j \simeq S_{\tau(j)}$	$T_i \simeq S_{\tau(j)}$
288	-4	full subcategory category	full subcategory
289	16	$f_t(t') = 0$	$S_t(t') = 0$
290	8	$\mathbf{FHilb}^n$	$\mathbf{FHilb}^{[n]}$
299	-18	oriented duality on $\mathbf{2FHilb}^{[n]}$ in	oriented duality on $\mathbf{FHilb}^{[n]}$ in
299	-15	of an orthonormal basis for	of an orthogonal basis for
299	-1	dagger duality on $\mathbf{2FHilb}$ induces	dagger duality on $\mathbf{FHilb}^{[n]}$ induces
304	-13	if the fifth	is the fifth
305	(8.42)		
310	2	H	$\mathbf{H}$
313	[14], [15]	duplicated	
317	[89], [90]	Kaufmann	Kauffman