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Quantum Topology

Erratum to: "A categorification of quantum sl(n)"

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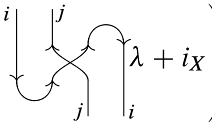
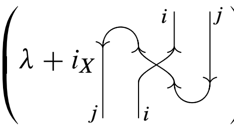
We thank Marco Mackaay, Marko Stošić and Pedro Vaz for pointing out a sign error in Lemma 6.4. It should read as follows:

Lemma 6.4. *For $i, j \in I$ with $i \neq j$*

$\Gamma\Big($  $\Big)$

$$= \begin{cases} H_{\underline{k}^{+j}} \otimes_{H_{\underline{k}}} H_{\underline{k}^{+i}} \to H_{{}_{+i+j}\underline{k}^{+i}} \otimes_{H_{+i+j}\underline{k}} H_{{}_{+i}\underline{k}^{+j}}, \\ \xi_j^{\alpha_1} \otimes \xi_i^{\alpha_2} \mapsto \xi_i^{\alpha_2} \otimes \xi_j^{\alpha_1}, \end{cases}$$

$\Gamma\Big($  $\Big)$

$$= \begin{cases} H_{+j+i+i\underline{k}} \otimes_{H_{+j+i\underline{k}}} H_{{}_{+j}\underline{k}^{+i}} \to H_{\underline{k}^{+i}} \otimes_{H_{\underline{k}}} H_{\underline{k}^{+j}}, \\ \xi_j^{\alpha_1} \otimes \xi_i^{\alpha_2} \mapsto \begin{cases} -\xi_i^{\alpha_2} \otimes \xi_j^{\alpha_1} & \text{if } \overset{j}{\circ}\!\longrightarrow\!\overset{i}{\circ}, \\ \xi_i^{\alpha_2} \otimes \xi_j^{\alpha_1} & \text{otherwise.} \end{cases} \end{cases}$$

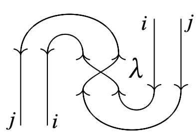
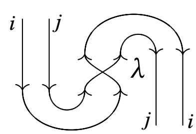
These bimodule maps have degree zero for all $i, j \in I$ and all weights λ.

In the proof of Lemma 6.4 the sentence "The case when $i = j$ appears in [21] so we will omit this case here" should be removed.

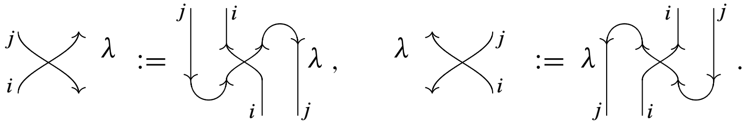
Definition 4.1 in Section 4.2, p. 58–59, should be changed to:

Definition 4.1. $\mathcal{U}_{\to}(\mathfrak{sl}_n)$ is a additive $\Bbbk$-linear 2-category with translation. The 2-category $\mathcal{U}_{\to}(\mathfrak{sl}_n)$ has objects, morphisms, and generating 2-morphisms as described in Definition 3.1, but some of the relations on 2-morphisms are modified.

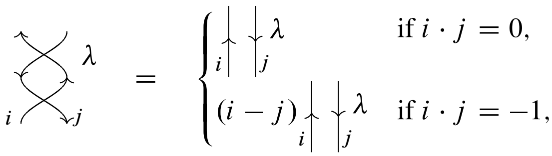
- The $\mathfrak{sl}_2$ relations and the shift isomorphism relations are the same as before, see equations (3.1)–(3.9).
- Generating 2-morphisms are cyclic with respect to the biadjoint structure, see (3.3) and (3.10), except when $i \cdot j = -1$ we have

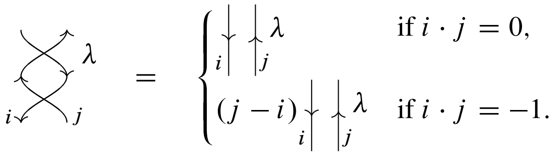
 $= -$  .

- Sideways crossings are defined by the equations

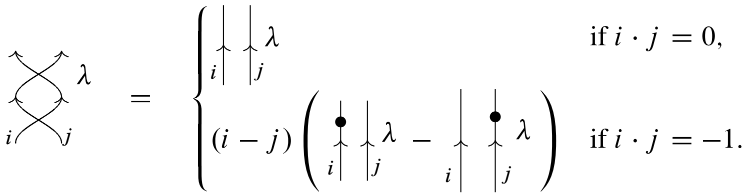


Then the relations (3.13) for $i \neq j$ become

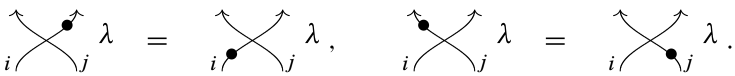




- The signed $R(\nu)$ relations are:
  (a) For $i \neq j$, the relations

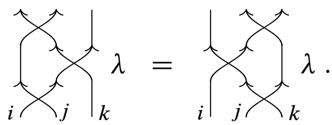


  (b) For $i \neq j$, the relations

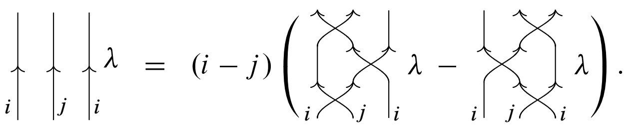


  for all λ.

  (c) Unless $i = k$ and $j = i \pm 1$



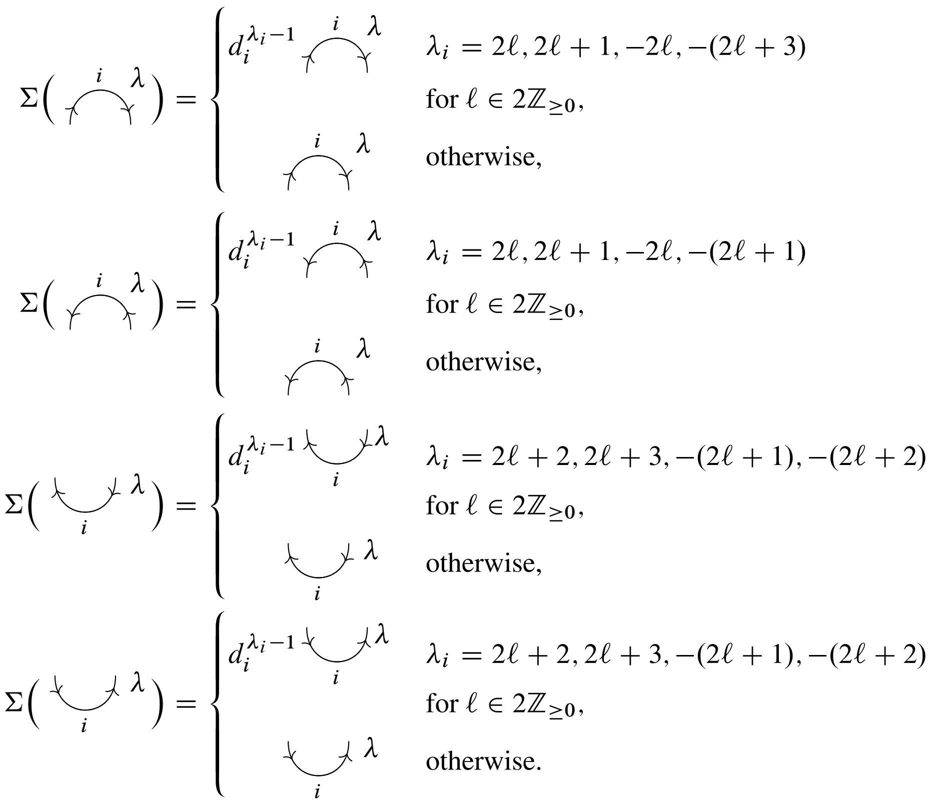
  For $j = i \pm 1$



The rightmost term in the statement of Proposition 6.5 should have a minus sign when $i \cdot j = -1$. In the statement of Proposition 6.6 when $i \cdot j = -1$ the first equality should have the sign $(i - j)$ and the second equality should have the sign $(j - i)$.

The 2-category $\mathcal{U}_{\rightarrow}(\mathfrak{sl}_n)$ described above with modified relations is isomorphic to the 2-category $\mathcal{U}(\mathfrak{sl}_n)$. The only part of the isomorphism $\Sigma\colon \mathcal{U} \to \mathcal{U}_{\rightarrow}$ that needs to be modified is the image of caps and cups. The rescaling of these caps and cups also appears in a work in progress of the second author with Sabin Cautis.

Let $d_i = (-1)^i$. Then Σ is defined as before except that caps and cups are given as follows:



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