An Asynchronous Call Graph for JavaScript

Dominik Seifert
d01922031@ntu.edu.tw
National Taiwan University
Taiwan, Taipei

Michael Wan
b07201003@ntu.edu.tw
National Taiwan University
Taiwan, Taipei

Jane Hsu
yjhsu@csie.ntu.edu.tw
National Taiwan University
Taiwan, Taipei

Benson Yeh
pcyeh@ntu.edu.tw
National Taiwan University
Taiwan, Taipei

CCS CONCEPTS

• **Software and its engineering → Concurrent programming structures**.

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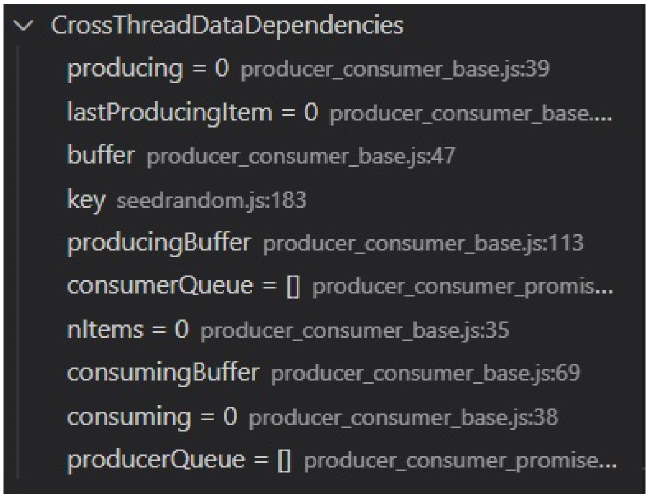
TODO: Move missing sections into the technical report and clean it up a little.

1 CROSS THREAD DATA DEPENDENCIES

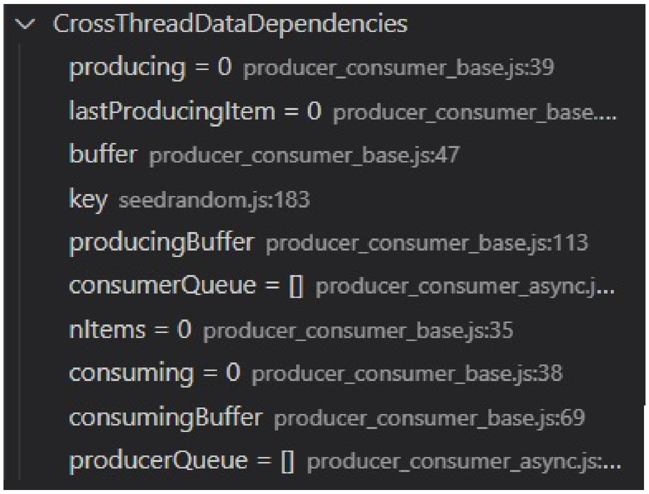
1.1 Promise



```
∨ CrossThreadDataDependencies
    producing = 0  producer_consumer_base.js:39
    lastProducingItem = 0  producer_consumer_base....
    buffer  producer_consumer_base.js:47
    key  seedrandom.js:183
    producingBuffer  producer_consumer_base.js:113
    consumerQueue = []  producer_consumer_promis...
    nItems = 0  producer_consumer_base.js:35
    consumingBuffer  producer_consumer_base.js:69
    consuming = 0  producer_consumer_base.js:38
    producerQueue = []  producer_consumer_promise...
```

Figure 1: Cross Thread Data Dependencies-Promise

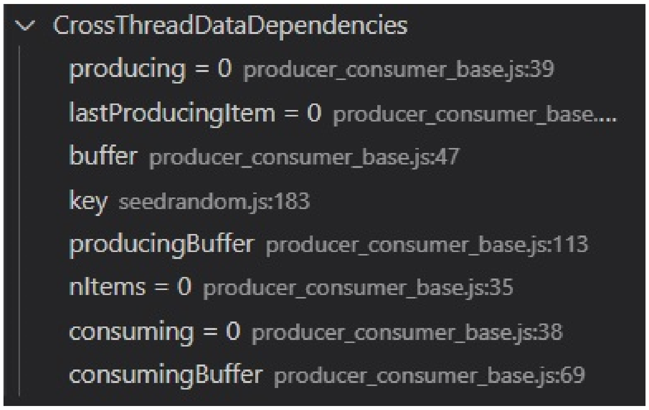
1.2 Async



```
∨ CrossThreadDataDependencies
    producing = 0  producer_consumer_base.js:39
    lastProducingItem = 0  producer_consumer_base....
    buffer  producer_consumer_base.js:47
    key  seedrandom.js:183
    producingBuffer  producer_consumer_base.js:113
    consumerQueue = []  producer_consumer_async.j...
    nItems = 0  producer_consumer_base.js:35
    consuming = 0  producer_consumer_base.js:38
    consumingBuffer  producer_consumer_base.js:69
    producerQueue = []  producer_consumer_async.js:...
```

Figure 2: Cross Thread Data Dependencies-Async

1.3 Callback



```
∨ CrossThreadDataDependencies
    producing = 0  producer_consumer_base.js:39
    lastProducingItem = 0  producer_consumer_base....
    buffer  producer_consumer_base.js:47
    key  seedrandom.js:183
    producingBuffer  producer_consumer_base.js:113
    nItems = 0  producer_consumer_base.js:35
    consuming = 0  producer_consumer_base.js:38
    consumingBuffer  producer_consumer_base.js:69
```

Figure 3: Cross Thread Data Dependencies-Callback

REFERENCES

ICSE SEIP '22, ?, ?

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