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1.1 Showcase of Info Boxes

This file is a little showcase of the information boxes that are available in this template. The colors are defined in the preamble file in the main directory of the repo.


Research Objective
Your thesis objective




Research Tasks Box
I Your first research task.
II And the second task.
III And the well known third task.
IV The often overlooked forth task.
V And the nonsense fifth task nobody cares about.


Small Icon Info Box
With additional infos.


Example Box
With an example


Single Line Info Box: With normal font following.

A paper/publication box:

“*Discovering Mathematical Objects of Interest — A Study of Mathematical Notations*” by **André Greiner-Petter**, Moritz Schubotz, Fabien Müller, Corinna Bretinger, Howard S. Cohl, Akiko Aizawa, and Bela Gipp. **In:** *Proceedings of the Web Conference (WWW)*, 2020.

Chapter 3 — [1]

The paperbox has three arguments:

1. The file name of the image that will be shown to the left (must be in the images folder).

2. The text block to the right.
3. And a reference text to the bottom right of the box. For example to show in which chapter this paper was reused.



Definition 1.1: Definition Box

A nice definition box.

You can also define a caption anchor with an optional argument and reference to the definition. Such as here: 1.1.



Translation Box

Usually you want nice code box inside, see the next box as an example.



Translation Box with Code

```
1 P_n^{(\alpha,\beta)}(z) = \frac{(\alpha+1)_n n!}{(-n, 1+\alpha+\beta+n; \alpha+1; \tfrac{1}{2})(1-z)} {}_2F_1\left
```



Translation Box with Custom Code

```
1 diff( exp(z^2)*erfc(z), [z$(n)] ) = (-1)^(n)*(2)^(n)*factorial(n)*exp
      (z^2)*erfc(n, z)
```

Redundant parentheses removed to improve readability.

You can use two different code boxes:

- `code` for normal code that allows you to specify the language with an optional argument
- `customcode` for code that allows you to specify any additional arguments to `lstset`. For example, the language, `mathescape`, text sizes, etc.

The template pre-defines some additional syntax highlights. The additional languages in this template are:

- `json`: For JSON
- `MathML`: For MathML highlighting
- `isabelle`: For the theorem prover Isabelle.
- `mytex`: An extension of the standard \TeX highlighting.
- `mymathematica`: For the computer algebra system Mathematica.
- `maple`: For the computer algebra system Maple.

Here is a more sophisticated example with custom with custom arguments for the custom code box.



Translation of Bailey's Transformation of Very-Well-Poised ${}_8\phi_7$

```
QHypergeometricPFQ[{a, q*(a)^(Divide[1,2]), -q*(a)^(Divide[1,2]), b, c, d, e, f}, {(a)^(Divide[1,2]), -(a)^(Divide[1,2]), a*q/b, a*q/c, a*q/d, a*q/e, a*q/f}, q,
Divide[(a)^(2)*(q)^(2), b*c*d*e*f]]
== Divide[Product[QPochhammer[Part[{a*q, a*q/(d*e), a*q/(d*f), a*q/(e*f)}, i], q,
Infinity], {i, 1, Length[{a*q, a*q/(d*e), a*q/(d*f), a*q/(e*f)}]}], Product[
QPochhammer[Part[{a*q/d, a*q/e, a*q/f, a*q/(d*e*f)}, i], q, Infinity], {i, 1,
Length[{a*q/d, a*q/e, a*q/f, a*q/(d*e*f)}]}]] * QHypergeometricPFQ[{a*q/(b*c
), d, e, f}, {a*q/b, a*q/c, d*e*f/a}, q, q]
+ Divide[Product[QPochhammer[Part[{a*q, a*q/(b*c), d, e, f, (a)^(2)*(q)^(2)/(b*d*
e*f), (a)^(2)*(q)^(2)/(c*d*e*f)}, i], q, Infinity], {i, 1, Length[{a*q, a*q/(b
*c), d, e, f, (a)^(2)*(q)^(2)/(b*d*e*f), (a)^(2)*(q)^(2)/(c*d*e*f)}]}],
Product[QPochhammer[Part[{a*q/b, a*q/c, a*q/d, a*q/e, a*q/f, (a)^(2)*(q)^(2)/(
b*c*d*e*f), d*e*f/(a*q)}, i], q, Infinity], {i, 1, Length[{a*q/b, a*q/c, a*q/
d, a*q/e, a*q/f, (a)^(2)*(q)^(2)/(b*c*d*e*f), d*e*f/(a*q)}]}]]]
* QHypergeometricPFQ[{a*q/(d*e), a*q/(d*f), a*q/(e*f), (a)^(2)*(q)^(2)/(b*c*d*
e*f)}, {(a)^(2)*(q)^(2)/(b*d*e*f), (a)^(2)*(q)^(2)/(c*d*e*f), a*(q)^(2)/(d
*e*f)}, q, q]
```

Linebreaks are manually added to improve readability.

And there is also a general code box:



A Code Box

```
1 <mrow>
2   <msub>
3     <mi>P</mi>
4     <mi>n</mi>
5   </msub>
6   <mo>
7     <!-- Invisible
8     Funct. Appl.
9     Unicode U+2061 -->
10  </mo>
11  <mrow>
12    <mo></mo>
13    <mi>x</mi>
14    <mo></mo>
15  </mrow>
16 </mrow>
```

This codebox has three optional arguments:

1. A caption text.
2. The caption anchor (label) for references, e.g., here 1.1.
3. The width of the title text. This allows to squeeze codebox next to each other and avoid over/underfull warnings.



A Code Box With Caption

```
1 <mrow></mrow>
```

Listing 1.1: With Caption Text