starmath

A nice equations editor ...
Juste pour voir :

\[(\rho_k^{(3a)})^2 = \sum_{\alpha, \beta, \gamma = 0}^2 \left( \sum_{j \neq k} \rho^{(3a)}(|r_{kj}|) S_{\beta j} r_{kj}^\alpha r_{kj}^\beta r_{kj}^\gamma \right)^2 - \frac{3}{5} \sum_{\alpha = 0}^2 \left( \sum_{j \neq k} \rho^{(3b)}(|r_{kj}|) S_{\beta j} r_{kj}^\alpha \right)^2 \]

\[= (\rho^{(3a)}(|r_{kj}|))^2 - (\rho^{(3b)}(|r_{kj}|))^2 \]

\[\frac{\partial (\rho_k^{(3a)})^2}{\partial r_k^\alpha} = \sum_{\alpha, \beta, \gamma = 0}^2 \left( \sum_{j \neq k} \rho^{(3a)}(|r_{kj}|) S_{\beta j} r_{kj}^\alpha r_{kj}^\beta r_{kj}^\gamma \right)^2 \times 2.0x \]

\[\sum_{j \neq k} \left( \rho^{(3a)}(|r_{kj}|) S_{\beta j} \frac{\partial r_{kj}^\alpha}{\partial r_k^\alpha} + \rho^{(3a)}(|r_{kj}|) S_{\beta j} r_{kj}^\alpha \frac{\partial r_{kj}^\beta}{\partial r_k^\beta} \right) + \frac{\partial S_{\beta j}}{\partial r_k^\alpha} \rho^{(3a)}(|r_{kj}|) r_{kj}^\alpha r_{kj}^\beta r_{kj}^\gamma \]

\[= \sum_{j \neq k} \left( \sum_{j \neq k} \rho^{(3a)}(|r_{kj}|) S_{\beta j} r_{kj}^\alpha r_{kj}^\beta r_{kj}^\gamma \right)^2 \times 2.0x \]

\[= \sum_{j \neq k} \left( \sum_{j \neq k} \rho^{(3a)}(|r_{kj}|) S_{\beta j} r_{kj}^\alpha r_{kj}^\beta r_{kj}^\gamma \right)^2 \times 2.0x \]

\[\frac{\partial (\rho_k^{(3b)})^2}{\partial r_k^\alpha} = \sum_{\alpha, \beta, \gamma = 0}^2 \left( \sum_{j \neq k} \rho^{(3b)}(|r_{kj}|) S_{\beta j} r_{kj}^\alpha \right)^2 \times 2.0x \]

\[\frac{\partial S_{\beta j}}{\partial r_k^\alpha} \rho^{(3b)}(|r_{kj}|) r_{kj}^\alpha r_{kj}^\beta r_{kj}^\gamma \]

\[\frac{\partial (\rho_k^{(3b)})^2}{\partial r_k^\alpha} = \sum_{\alpha, \beta, \gamma = 0}^2 \left( \sum_{j \neq k} \rho^{(3b)}(|r_{kj}|) S_{\beta j} r_{kj}^\alpha \right)^2 \times 2.0x \]

\[\frac{\partial (\rho_k^{(3b)})^2}{\partial r_k^\alpha} = \sum_{\alpha, \beta, \gamma = 0}^2 \left( \sum_{j \neq k} \rho^{(3a)}(|r_{kj}|) S_{\beta j} r_{kj}^\alpha \right) \times 2.0x \]

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\[\frac{\partial (\rho_k^{(3b)})^2}{\partial r_k^\alpha} = \sum_{\alpha, \beta, \gamma = 0}^2 \left( \sum_{j \neq k} \rho^{(3b)}(|r_{kj}|) S_{\beta j} r_{kj}^\alpha \right) \times 2.0x \]

\[\frac{\partial \rho_k^{(3b)}}{\partial r_k^\alpha} = \sum_{\alpha, \beta, \gamma = 0}^2 \left( \sum_{j \neq k} \rho^{(3b)}(|r_{kj}|) S_{\beta j} r_{kj}^\alpha \right) \times 2.0x \]

\[\frac{\partial S_{\beta j}}{\partial r_k^\alpha} \rho^{(3b)}(|r_{kj}|) r_{kj}^\alpha r_{kj}^\beta r_{kj}^\gamma \]
• Works finely in most cases
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• Easy to use it
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• Nice syntax
• Works finely in most cases
• Easy to use it
• Nice syntax
• Only a few known issues ( |--> e.g. )
Just a little problem ...
See:

http://eric.bachard.free.fr/Education/february2008/starmath/issue972/issue972_possible_cases.ods
difficult for the end user
The context

- Issue 972: created in 2001
- this is the third attempt to fix it

( lack of resources, not lack of competences)

-> Application was proposed for Google Summer of Code 2008, but OpenOffice.org was not retained :-/
Me ...

- Just volunteer
- not a coder professional
- pedagogical purpose first: the essential is in the method and the documentation
Idea:

- Why not use Education resources to solve some simple issues like this one?
- Want to do things once only
An answer: the Education Project Effort

Links:

http://wiki.services.openoffice.org/wiki/Education_Project#Education_Project_Effort

-> search for Math_baseline_alignment
What an Equation is.....
For example:

\[ \Phi_E = \iiint E(\mathbf{r}) \cdot \mathbf{n} \, dS = \epsilon_0 \oint \frac{Q_{\text{int}}}{\epsilon_0} \]
The starmath tree
The starmath tree

• Content and logical
The starmath tree

- Content and logical
- Dependencies (buildtime)
The starmath tree

- Content and logical
- Dependencies (buildtime)
- Existing documentation:

The heart of starmaths

- node.hxx / node.cxx
- parse.hxx / parse.cxx
- rect.hxx / rect.cxx
Back to the problem

- What exactly happens?
  -> afaik, there is a missing parameter, giving the "Baseline of the Baseline"

- Add the new parameter in the interface would need to modify .odf spec.

- There is another possibility, but needs more investigations
  -> Work In Progress
Scheduled

Analyze completely the issue

Link with writer (same issue mentioned by Caolan McNamara, with inserted images)

Propose a fix

Implement

-> summer 2008
Thanks to …

• Novell for the welcome, and everything who made this conf a pleasure

• Thomas Lange and Mathias Bauer from Sun MicroSystems for the help they provided me

• All attendees for the quality of the presentations

Note: the presentation and the associated documents can be downloaded at

http://eric.bachard.free.fr/Education/GoOOoCon2008