Columns and Grids
Overall Appearance
Embedded Graphics
Layers in Text

**Do we need NTS?**

First of all we want our columns
to be perfectly balanced.
This is trivial for pure text,
but imagine lots of white
space, like display math.

Columns and Grids

We want floats to be moved to the best available location. Of course we want floats to span more than one column, and even spanning one and a halve column with a text flowing around the figure should be possible.

Columns and Grids

In double sided output, we want lines to align on the opposing pages (spread). When we hold the paper towards a bright source of light, we want the lines to align too.

Columns and Grids

We definitely don't want to end up with a few lines or words on the last page. Why not apply a small percentage of glyph scaling in such a way that we get full pages? Of course we will need more than paragraph and page optimization for this: we are dealing with the document as a whole.

Columns and Grids
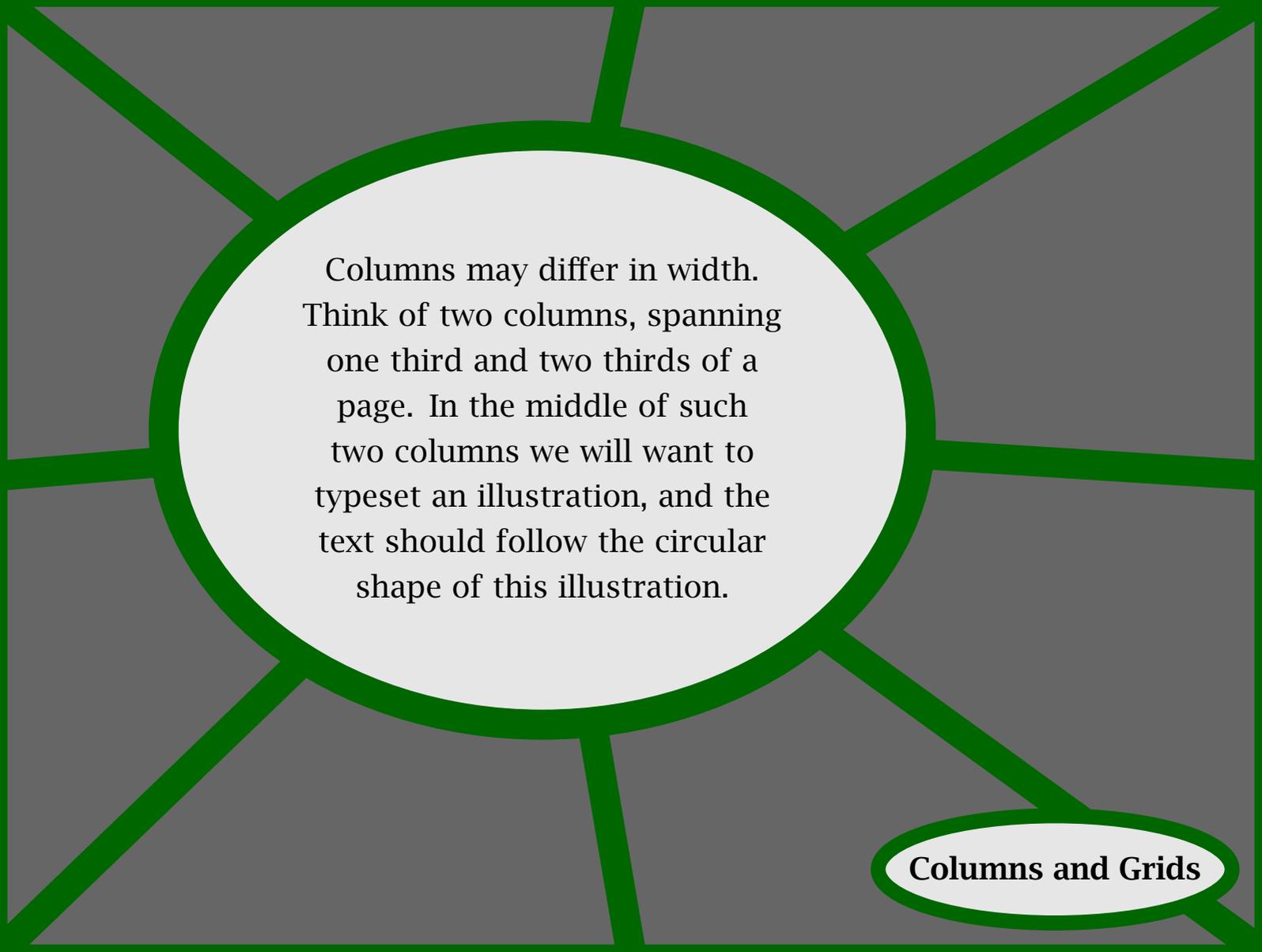
Columns may differ in width. Think of two columns, spanning one third and two thirds of a page. In the middle of such two columns we will want to typeset an illustration, and the text should follow the circular shape of this illustration.

Columns and Grids

Talking of illustrations, instead of being something with fixed dimensions, the scale may be adapted, of course consistently, to suit the overall document appearance (grid, spread, and more).

Columns and Grids

Are you still thinking from left to right? Text can go in all directions, and will be mixed too. The width of columns may change in the meantime. Anyone who has seen traditional jewish religion documents, will see the challenge in nested columns with (foot)notes flowing around partial columns.

Columns and Grids

A case study of columns.

Columns and Grids

Typesetting is more than manipulating metrics. Don't we need a typesetting system that looks at the glyphs themselves, the small graphics?

Overall Appearance

People tend to disagree on what looks best, but experts often agree on what looks worse. Why not build in expert knowledge, or even better, build a system that learns from the user's rating?

Overall Appearance

How is greyness calculated? Does NTS act upon the internal lists of glyphs, or does it first build a bitmap? At least then it knows how the pages comes out. Is the validation a function of an output device? Will the shape of glyphs depends on the rating? Will TeX and METAFONT become one?

Overall Appearance

Is, in validating the appearance, a model of the page needed, in terms of meaningful areas? If so, how is such a model defined? Do we need pattern recognition?

Overall Appearance

NTS needs a graphics engine, or maybe even several. Models for exchange of information between processes dealing with pure typesetting and drawing shapes need to be developed. Such mechanisms should cooperate naturally with the paragraph and page breaking as well.

**Embedded Graphics**

Typesetting along curves,
turning shapes into outlines,
and applying arbitrary filling
and shading, it all makes sense.

Embedded Graphics
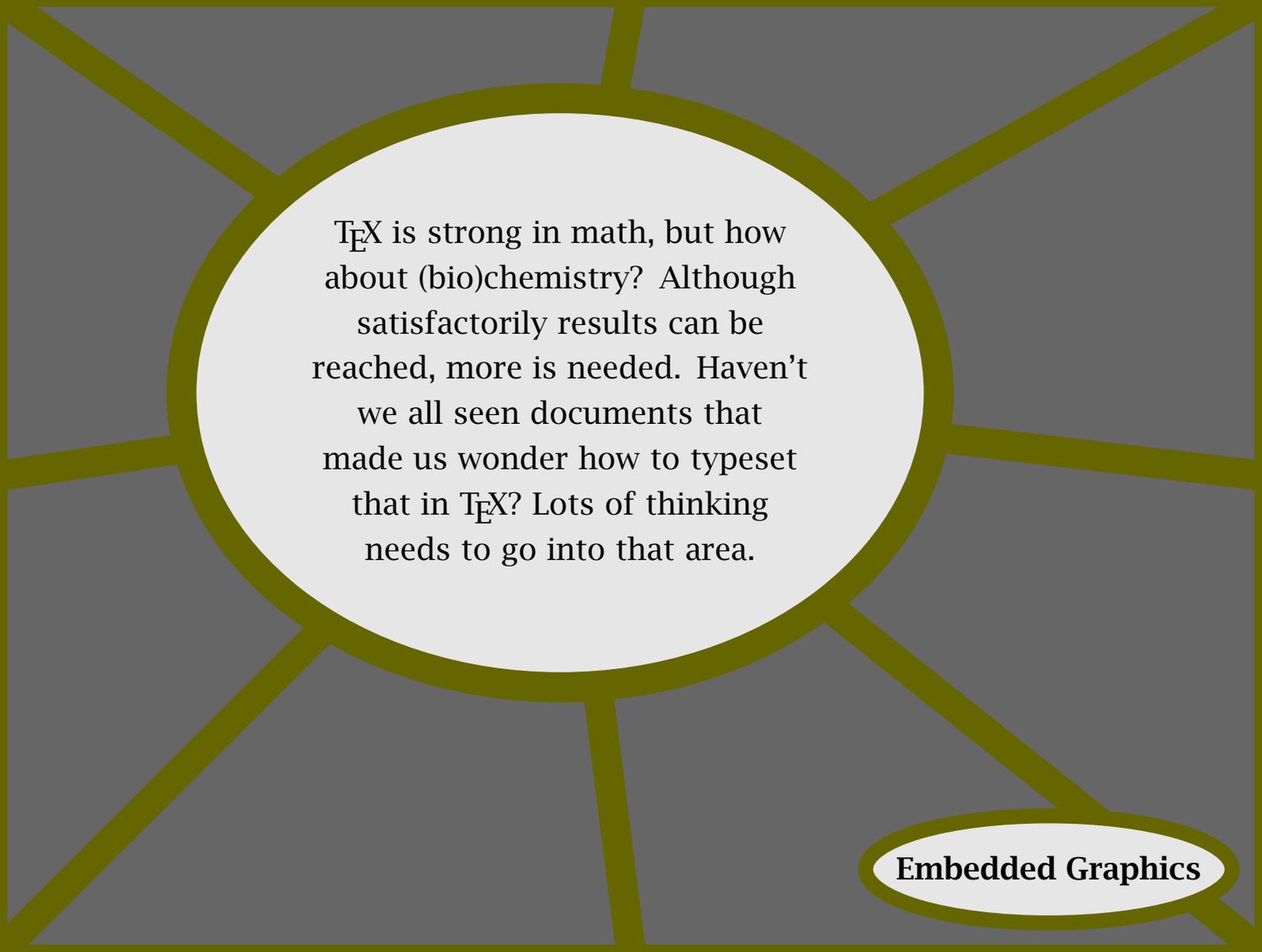
T<sub>E</sub>X is strong in math, but how about (bio)chemistry? Although satisfactorily results can be reached, more is needed. Haven't we all seen documents that made us wonder how to typeset that in T<sub>E</sub>X? Lots of thinking needs to go into that area.

**Embedded Graphics**

For some languages pasting together glyphs is not enough. Actually drawing glyphs, or even better: words or sentences can be an alternative. Even emotions can make it into typeset text. Strong handwriting oriented graphics has to meet expressive coding.

Embedded Graphics

Some examples of
embedding graphics.

Embedded Graphics

First of all, the new system needs some more understanding about the typeset text. Support for UNICODE, unified glyph names is mandate.

Layers in Text

When searching through a document, some knowlegde on what in language the text we're dealing with makes sense. Not only the (many) language(s) of a text, but the direction also plays a role. Complicated ligatures should be recognized properly.

Layers in Text
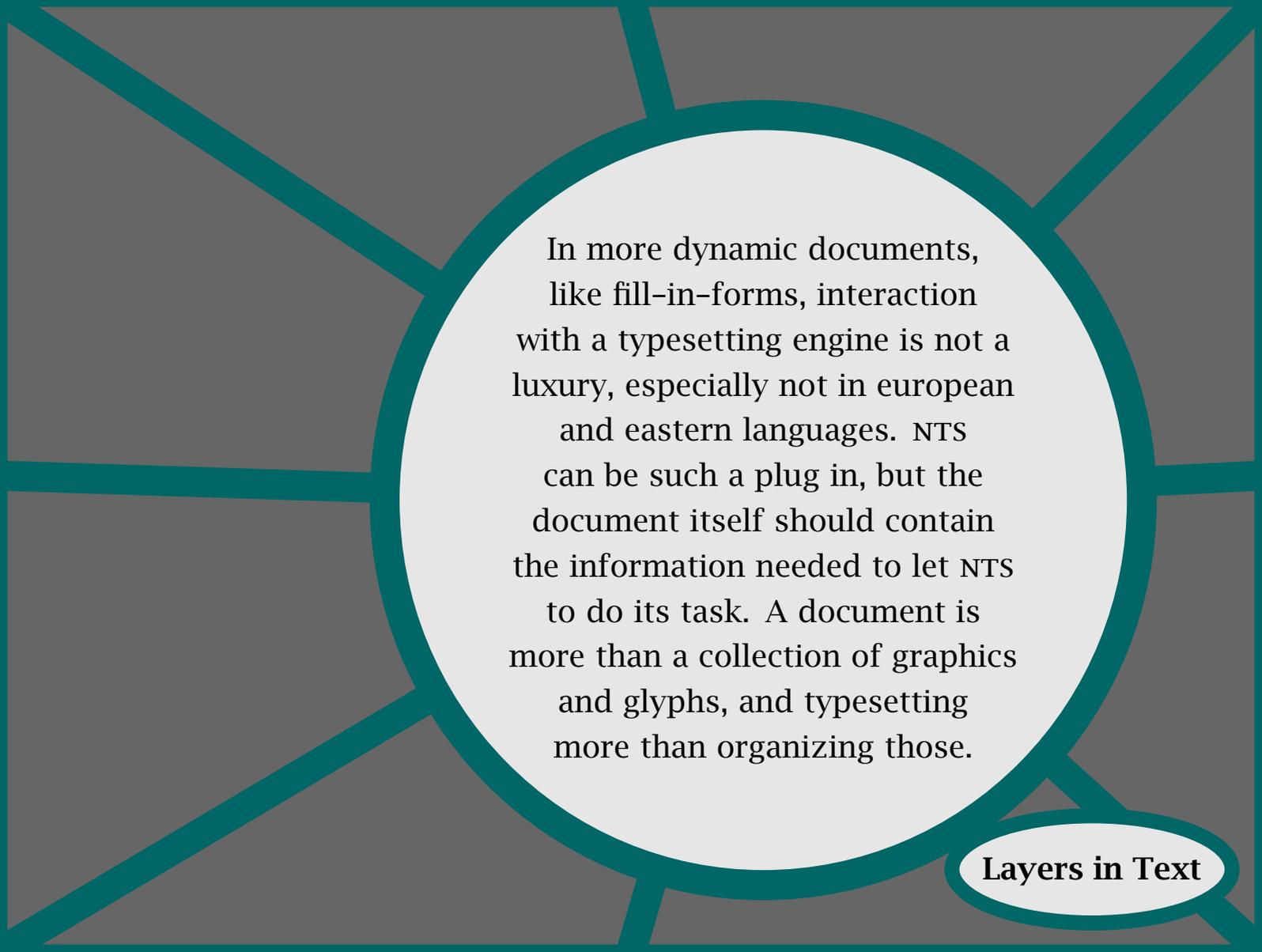
In more dynamic documents, like fill-in-forms, interaction with a typesetting engine is not a luxury, especially not in european and eastern languages. NTS can be such a plug in, but the document itself should contain the information needed to let NTS to do its task. A document is more than a collection of graphics and glyphs, and typesetting more than organizing those.

Layers in Text
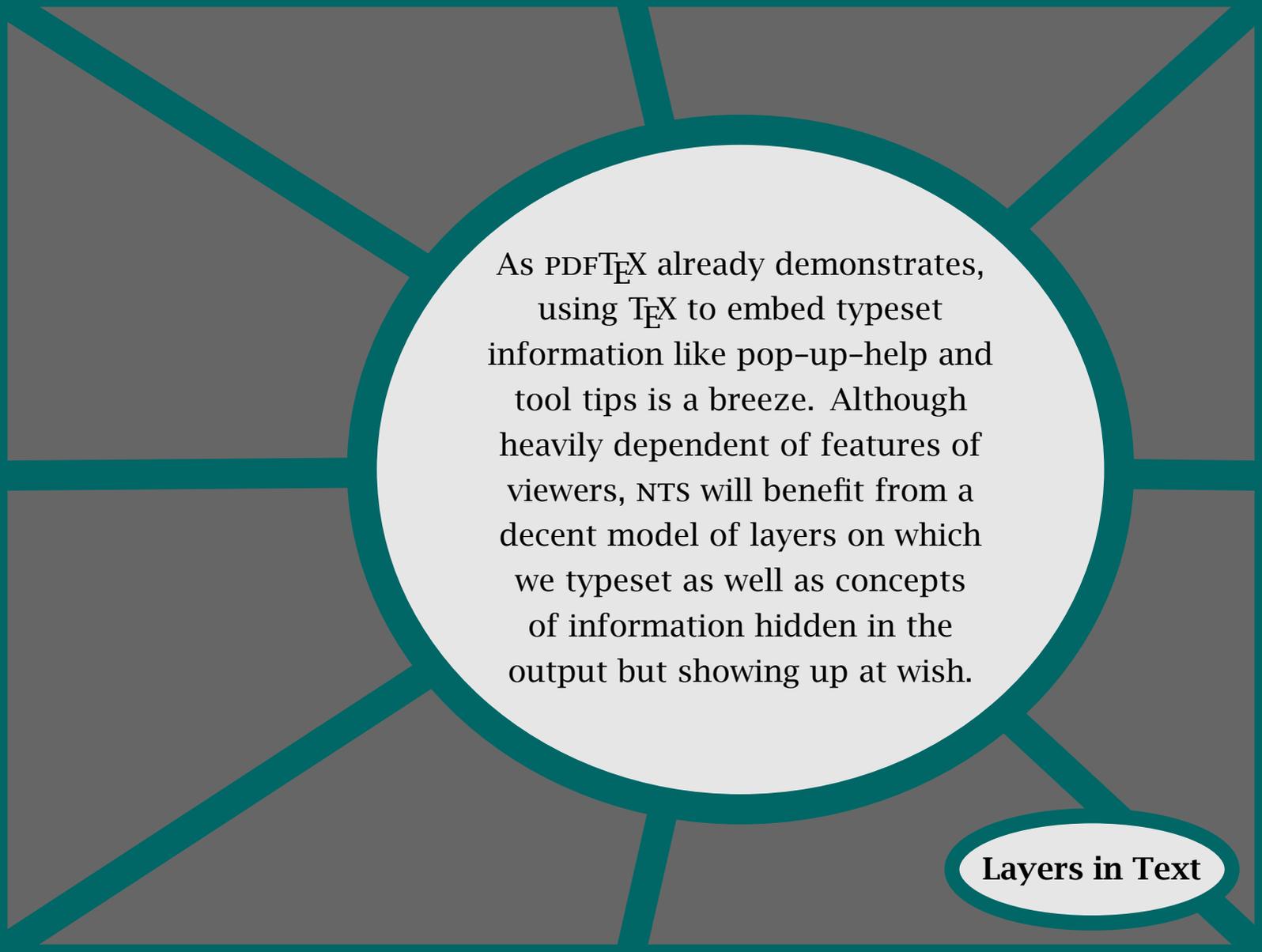
As PDFTEX already demonstrates, using TEX to embed typeset information like pop-up-help and tool tips is a breeze. Although heavily dependent of features of viewers, NTS will benefit from a decent model of layers on which we typeset as well as concepts of information hidden in the output but showing up at wish.

Layers in Text