

This Way

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A Few Dangerous Features
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Remark

The features discussed here have a so called global character, i.e. all settings are global by nature. Future releases may introduce (and by default change to) local behaviour. So, don't make your documents depending on local/global behaviour. In most cases you will probably not notice the difference.

Being negative

The `CONTEX` page imposition machinery provides negation because sometimes raster image processors need that feature. In that case negation is applied to the whole page. Within the document stream inverted colors are normally (and best) realized with defining an appropriate color. For special purposes we also provide negation

```
\startcolor[red]\ignorespaces
  \input ward
  \startnegative\ignorespaces
    \input ward
    \startpositive\ignorespaces
      \input ward
      \removeunwantedspaces\stoppositive
    \input ward
  \removeunwantedspaces\stopnegative
  \input ward
\removeunwantedspaces\stopcolor
```

The Earth, as a habitat for animal life, is in old age and has a fatal illness. Several, in fact. It would be happening whether humans had ever evolved or not. But our presence is like the effect of an old-age patient who smokes many packs of cigarettes per day — and we humans are the cigarettes. The Earth, as a habitat for animal life, is in old age and has a fatal illness. Several, in fact. It would be happening whether humans had ever evolved or not. But our presence is like the effect of an old-age patient who smokes many packs of cigarettes per day — and we humans are the cigarettes. The Earth, as a habitat for animal life, is in old age and has a fatal illness. Several, in fact. It would be happening whether humans had ever evolved or not. But our presence is like the effect of an old-age patient who smokes many packs of cigarettes per day — and we humans are the cigarettes. The Earth, as a habitat for animal life, is in old age and has a fatal illness. Several, in fact. It would be happening whether humans had ever evolved or not. But our presence is like the effect of an old-age patient who smokes many packs of cigarettes per day — and we humans are the cigarettes.

We can also apply negation to graphic, but the result may not be what we expect. While writing this document figure 1 negates well when view in GHOSTSCRIPT but ACROBAT 6 shows a strange vertical line pattern.

```
\startcombination
  {\startpositive
    \externalfigure[hacker.jpg] [width=4cm]%
    \stoppositive}
  {normal}
  {\startnegative
    \externalfigure[hacker.jpg] [width=4cm]%
    \stopnegative}
  {negative}
\stopcombination
```



normal

negative

Figure 1 Negation of graphics.

Font effects

Another bag of tricks concerns font effects. As with negation and the to be discussed overprint these are implemented using the `CONTEXT` (still experimental) feature handler, but this time we don't provide direct commands. Instead we use arguments to control the effects.

In this paragraph we have `\starteffect[hidden]hidden` a piece of text `\stopeffect`. How useful this feature is depends on the kind of documents you make. An alternative is to put the text in a viewer layer (`\starteffect[hidden]as` as provided by `\PDF\stopeffect`) that is hidden, but since that feature is not widely available the effects approach is safer.

In this paragraph we have `\starteffect[outer]outer`. How useful this feature is depends on the kind of documents you make. An alternative is to put the text in a viewer layer (`\starteffect[outer]as`) that is hidden, but since that feature is not widely available the effects approach is safer.

More interesting is changing the way a font is rendered. An outline version is rendered with the outer effect.

```
\bf \starteffect[outer]\input ward \stopeffect \par
```

The Earth, as a habitat for animal life, is in old age and has a fatal illness. Several, in fact. It would be happening whether humans had ever evolved or not. But our presence is like the effect of an old-age patient who smokes many packs of cigarettes per day — and we humans are the cigarettes.

The inner effect is the normal one so there is no reason to show it here. The both option combines the two resulting in an extra bold version.

```
\bf \starteffect[both]\input ward \stopeffect \par
```

The Earth, as a habitat for animal life, is in old age and has a fatal illness. Several, in fact. It would be happening whether humans had ever evolved or not. But our presence is like the effect of an old-age patient who smokes many packs of cigarettes per day — and we humans are the cigarettes.

You can influence the linewidth as is demonstrated in the following example:

```
\setupeffect[outer][rulethickness=.8pt]
\bfd \starteffect[outer]Bigger is Beautiful\stopeffect
```

Bigger is Beautiful

Speaking of 2004, in `CONTEXT` (read: `TEX`) intercharacter spacing can only be achieved by macro processing. The next method works well, but you need to manipulate the `\hsize` yourself, since the typesetting engine is unaware of this backend manipulation.

```
\setupeffect[both][stretch=2]
\setupalign[right]
\dontleavehmode \hsize=.6\hsize
\bf \starteffect[both]\input ward \stopeffect \par
```

The Earth, as a habitat for animal life, is in old age and has a fatal illness. Several, in fact. It would be happening whether humans had ever evolved or not. But our presence is like the effect of an old-age patient who smokes many packs of cigarettes per day — and we humans are the cigarettes.

The normal (or inner) alternative looks as follows:

```
\setupeffect[normal][stretch=2]
\setupalign[right]
\dontleavehmode \hsize=.6\hsize
\bf \starteffect[normal]\input ward \stopeffect \par
```

The Earth, as a habitat for animal life, is in old age and has a fatal illness. Several, in fact. It

would be happening whether humans had ever evolved or not. But our presence is like the effect of an old-age patient who smokes many packs of cigarettes per day — and we humans are the cigarettes.

Overprint and knockout

Another feature that should be used with care is overprint. Normally a raster image processor will knock out colored areas under colored text or areas on top. This works well when the printing engine (or press) is able to precisely align the color plates. If not, you will get artifacts that show up as follows (often such effects occur in newspapers and cheap magazines):



On the one hand we get white spots and depending on how well the ink covers, we can get darker spots as well. In such cases it's best to overprint the background, which of course only works as expected when the top color is a well covering black. Otherwise we probably may have to compensate the color, which in turn depends on the kind of paper used.

At the document level, you can set the overprint with:

```
\setupcolors[overprint=yes]
```

We show a few examples of local usage: a simple application first (figure 2):

```
\framed
[background=color,backgroundcolor=ocyan,
 frame=off,offset=.25cm,strut=no]
{\bfb\setstrut
 \startoverprint
 \framed
 [background=color,backgroundcolor=omagenta,
 foregroundcolor=oyellow,align={lohi,middle},
 frame=off,width=2.5cm,height=2cm]
 {overprint\\\startknockout knockout \stopknockout}%
 \stopoverprint
```

```

\framed
  [background=color,backgroundcolor=omagenta,
   foregroundcolor=oyellow,align={lohi,middle},
   frame=off,width=2.5cm,height=2cm]
  {knockout\\\startoverprint overprint\stopoverprint}}%

```

We can nest overprint and turn it off as well (figure 2):

```

\startoverprint
\framed
  [background=color,backgroundcolor=ocyan,
   frame=off,offset=.25cm,strut=no]
  {\bfb\setstrut
   \framed
     [background=color,backgroundcolor=omagenta,
      foregroundcolor=oyellow,align={lohi,middle},
      frame=off,width=2.5cm,height=2cm]
     {overprint\\\startknockout knockout\stopknockout}}%
  \startknockout
  \framed
    [background=color,backgroundcolor=omagenta,
     foregroundcolor=oyellow,align={lohi,middle},
     frame=off,width=2.5cm,height=2cm]
    {knockout\\\startoverprint overprint\stopoverprint}}%
  \stopknockout}%
\stopoverprint

```

Sometimes the overprint preview in ACROBAT works better when we apply a gray background (figure 2). We use rather ugly pure CMYK colors, otherwise the effect is not visible in overprint preview mode.

```

\framed
  [background=color,backgroundcolor=ogray,backgroundoffset=.25em,
   frame=off,offset=overlay]
  {\getbuffer[a]}

```

and (figure 2):

```

\framed
  [background=color,backgroundcolor=ogray,backgroundoffset=.25em,
   frame=off,offset=overlay]
  {\getbuffer[b]}

```

If we look at examples b and d of figure 2) in ACROBAT overprint preview mode, we will see that the effect depends on where we apply the overprint settings. As said, these are tricky features and should be used with care and understanding.

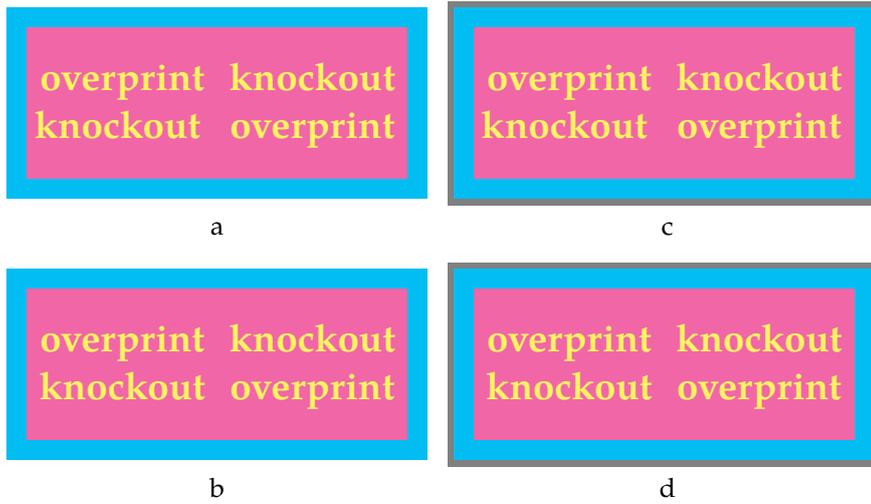


Figure 2 Preview overprint and knockout.

source code of this document

```

% language=uk

% author      : Hans Hagen
% copyright   : PRAGMA ADE & ConTeXt Development Team
% license     : Creative Commons Attribution ShareAlike 4.0 International
% reference   : pragma-ade.nl | contextgarden.net | texlive (related) distributions
% origin      : the ConTeXt distribution
%
% comment     : Because this manual is distributed with TeX distributions it comes with a rather
%              liberal license. We try to adapt these documents to upgrades in the (sub)systems
%              that they describe. Using parts of the content otherwise can therefore conflict
%              with existing functionality and we cannot be held responsible for that. Many of
%              the manuals contain characteristic graphics and personal notes or examples that
%              make no sense when used out-of-context.

\usemodule[mag-01,abr-02]

\setupcolors[rgb=no,cmyk=yes]

\definecolor[red]      [c=.25,m=.75,y=.75,k=.25]
\definecolor[green]   [c=.75,m=.25,y=.75,k=.25]
\definecolor[blue]    [c=.75,m=.75,y=.25,k=.25]

\definecolor[tred]    [c=.25,m=.75,y=.75,k=.25,t=.5,a=1]
\definecolor[tgreen]  [c=.75,m=.25,y=.75,k=.25,t=.5,a=1]
\definecolor[tblue]   [c=.75,m=.75,y=.25,k=.25,t=.5,a=1]
\definecolor[tblack]  [s=0,t=.75,a=1]

\definecolor[ocyan]   [c=.75]
\definecolor[omagenta][m=.75]
\definecolor[oyellow] [y=.75]
\definecolor[ogray]   [s=.5]

\startbuffer[abstract]
  Occasionally we experiment a bit with (\PDF) features that are useful but at
  the same time dangerous when applied uncontrolled. In the process of cleaning
  up some files in my source tree and triggered by a discussion about overprint
  I decided to move some of that code into the kernel. You are warned!
\stopbuffer

\startdocument
  [title={A Few Dangerous Features},
  author=Hans Hagen,
  affiliation=PRAGMA ADE,
  date=June 2004,
  number=6 \MKIV]

\subject{Remark}

The features discussed here have a so called global character, i.e. all settings
are global by nature. Future releases may introduce (and by default change to)
local behaviour. So, don't make your documents depending on local/global
behaviour. In most cases you will probably not notice the difference.

\subject{Being negative}

The \CONTEXT\ page imposition machinery provides negation because sometimes
raster image processors need that feature. In that case negation is applied to
the whole page. Within the document stream inverted colors are normally (and
best) realized with defining an appropriate color. For special purposes we also
provide negation

```

source code of this document

```
\startbuffer
\startcolor[red]\ignorespaces
  \input ward
  \startnegative\ignorespaces
    \input ward
    \startpositive\ignorespaces
      \input ward
      \removeunwantedspaces\stoppositive
    \input ward
  \removeunwantedspaces\stopnegative
\input ward
\removeunwantedspaces\stopcolor
\stopbuffer
```

```
\typebuffer \getbuffer
```

We can also apply negation to graphic, but the result may not be what we expect. While writing this document `\in {figure} [fig:negated]` negates well when view in `\GHOSTSCRIPT` but `\ACROBAT-6` shows a strange vertical line pattern.

```
\startbuffer
\startcombination
  {\startpositive
   \externalfigure[hacker.jpg][width=4cm]%
  \stoppositive}
{normal}
{\startnegative
 \externalfigure[hacker.jpg][width=4cm]%
 \stopnegative}
{negative}
\stopcombination
\stopbuffer

\typebuffer

\placefigure
[here] [fig:negated]
{Negation of graphics.}
{\getbuffer}

\subject{Font effects}
```

Another bag of tricks concerns font effects. As with negation and the to be discussed overprint these are implemented using the `\CONTEXT` (still experimental) feature handler, but this time we don't provide direct commands. Instead we use arguments to control the effects.

```
\startbuffer
In this paragraph we have \starteffect[hidden]hidden a piece of
text\stopeffect. How useful this feature is depends on the kind
of documents you make. An alternative is to put the text in a
viewer layer (\starteffect[hidden]as provided by \PDF\stopeffect)
that is hidden, but since that feature is not widely available
the effects approach is safer.
\stopbuffer

\typebuffer \getbuffer
```

More interesting is changing the way a font is rendered. An outline version is rendered with the `\type {outer}` effect.

source code of this document

```
\startbuffer
\bf \starteffect[outer]\input ward \stopeffect \par
\stopbuffer

\typebuffer \start \getbuffer \stop
```

The `\type {inner}` effect is the normal one so there is no reason to show it here. The `\type {both}` option combines the two resulting in an extra bold version.

```
\startbuffer
\bf \starteffect[both]\input ward \stopeffect \par
\stopbuffer

\typebuffer \start \getbuffer \stop
```

You can influence the linewidth as is demonstrated in the following example:

```
\startbuffer
\setupeffect[outer][rulethickness=.8pt]
\bfd \starteffect[outer]Bigger is Beautiful\stopeffect
\stopbuffer

\typebuffer \start \getbuffer \stop
```

Speaking of 2004, in `\CONTEXT\` (read: `\TEX`) intercharacter spacing can only be achieved by macro processing. The next method works well, but you need to manipulate the `\type {\hsize}` yourself, since the typesetting engine is unaware of this backend manipulation.

```
\startbuffer
\setupeffect[both][stretch=2]
\setupalign[right]
\dontleavehmode \hsize=.6\hsize
\bf \starteffect[both]\input ward \stopeffect \par
\stopbuffer

\typebuffer \start \getbuffer \stop
```

The `\type {normal}` (or `\type {inner}`) alternative looks as follows:

```
\startbuffer
\setupeffect[normal][stretch=2]
\setupalign[right]
\dontleavehmode \hsize=.6\hsize
\bf \starteffect[normal]\input ward \stopeffect \par
\stopbuffer

\typebuffer \start \getbuffer \stop
```

```
\subject{Overprint and knockout}
```

Another feature that should be used with care is overprint. Normally a raster image processor will knock out colored areas under colored text or areas on top. This works well when the printing engine (or press) is able to precisely align the color plates. If not, you will get artifacts that show up as follows (often such effects occur in newspapers and cheap magazines):

```
\definelayer[fake][width=6cm,height=4cm]

\setlayerframed
[fake]
[preset=lefttop]
```

source code of this document

```
[frame=off,width=8cm,height=4cm,
background=color,backgroundcolor=blue,foregroundcolor=white]
{\definedfont[SerifBold at 6\bodyfontsize]cheap}

\setlayerframed
[fake]
[preset=lefttop,offset=1pt]
[frame=off,width=8cm,height=4cm,
foregroundcolor=tblack]
{\definedfont[SerifBold at 6\bodyfontsize]cheap}

\startbaselinecorrection
\tightlayer[fake]
\stopbaselinecorrection
```

On the one hand we get white spots and depending on how well the ink covers, we can get darker spots as well. In such cases it's best to overprint the background, which of course only works as expected when the top color is a well covering black. Otherwise we probably may have to compensate the color, which in turn depends on the kind of paper used.

At the document level, you can set the overprint with:

```
\starttyping
\setupcolors[overprint=yes]
\stotyping
```

We show a few examples of local usage: a simple application first (`\in {figure} {a} [fig:overprint]`):

```
\startbuffer[a]
\framed
[background=color,backgroundcolor=ocyan,
frame=off,offset=.25cm,strut=no]
{\bfb\setstrut
\startoverprint
\framed
[background=color,backgroundcolor=omagenta,
foregroundcolor=oyellow,align={lohi,middle},
frame=off,width=2.5cm,height=2cm]
{overprint\\startknockout knockout \stopknockout}%
\stopoverprint
\framed
[background=color,backgroundcolor=omagenta,
foregroundcolor=oyellow,align={lohi,middle},
frame=off,width=2.5cm,height=2cm]
{knockout\\startoverprint overprint\stopoverprint}}%
\stopbuffer

\typebuffer[a]
```

We can nest overprint and turn it off as well (`\in {figure} {b} [fig:overprint]`):

```
\startbuffer[b]
\startoverprint
\framed
[background=color,backgroundcolor=ocyan,
frame=off,offset=.25cm,strut=no]
{\bfb\setstrut
\framed
```

source code of this document

```
[background=color,backgroundcolor=omagenta,
 foregroundcolor=oyellow,align={lohi,middle},
 frame=off,width=2.5cm,height=2cm]
{overprint\\startknockout knockout\stopknockout}%
\startknockout
\framed
[background=color,backgroundcolor=omagenta,
 foregroundcolor=oyellow,align={lohi,middle},
 frame=off,width=2.5cm,height=2cm]
{knockout\\startoverprint overprint\stopoverprint}%
\stopknockout}%
\stopoverprint
\stopbuffer

\typebuffer[b]
```

Sometimes the overprint preview in `\ACROBAT\` works better when we apply a gray background (`\in {figure} {c} [fig:overprint]`). We use rather ugly pure `\CMYK\` colors, otherwise the effect is not visible in overprint preview mode.

```
\startbuffer[c]
\framed
[background=color,backgroundcolor=ogray,backgroundoffset=.25em,
 frame=off,offset=overlay]
{\getbuffer[a]}
\stopbuffer
```

```
\typebuffer[c]
```

and (`\in {figure} {d} [fig:overprint]`):

```
\startbuffer[d]
\framed
[background=color,backgroundcolor=ogray,backgroundoffset=.25em,
 frame=off,offset=overlay]
{\getbuffer[b]}
\stopbuffer
```

```
\typebuffer[d]
```

```
\startbuffer
\startcombination[2*2]
{\getbuffer[a]} {a}
{\getbuffer[c]} {c}
{\getbuffer[b]} {b}
{\getbuffer[d]} {d}
\stopcombination
```

```
\stopbuffer
```

```
\placefigure
[here] [fig:overprint]
{Preview overprint and knockout.}
{\getbuffer}
```

If we look at examples-b and-d of `\in {figure} [fig:overprint]` in `\ACROBAT\` overprint preview mode, we will see that the effect depends on where we apply the overprint settings. As said, these are tricky features and should be used with care and understanding.

```
\stopdocument
```

source code of this document

the 1990s, the number of people with a university degree has increased from 10% to 20%.

There are two reasons why the number of people with a university degree has increased. First, the number of people who have completed a university degree has increased. Second, the number of people who have completed a university degree but who have not used it has increased.

The number of people who have completed a university degree but who have not used it has increased because of the increasing number of people who have completed a university degree but who have not used it.

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