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Changebars without specialjs

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ABSTRACT

IT IS COMMON PRACTICE TO USE VERTICAL BARS IN THE MARGINS OF A DOCUMENT TO MARK PIECES OF TEXT WHICH HAVE CHANGED SINCE THE LAST VERSION(S) OF THIS DOCUMENT. SUCH VERTICAL BARS ARE USUALLY CALLED CHANGEBARS. IT HAS OFTEN BEEN SAID THAT IT IS IMPOSSIBLE TO PRODUCE CHANGEBARS WITH **TEX** WITHOUT THE USAGE OF `nm` COMMANDS (DRIVER DIRECTIVES), WHICH EXTEND THE PRIMITIVES OF **TEX**. THIS PAPER PRESENTS A **TEX** MACRO FILE WHICH IMPLEMENTS CHANGEBARS WITHOUT SUCH A USAGE. THE MACRO FILE IS WRITTEN FOR THE USAGE WITH PLAIN **TEX** BUT THE IMPLEMENTATION STRATEGY CAN BE USED WITH **LATEX**, TOO WITH MINOR CHANGES.

INTRODUCTION.

CHANGEBARS ARE USED TO MARK MODIFIED PARTS IN EXISTING DOCUMENTS. FOR THE USAGE IN **TEX** DOCUMENTS, THERE EXIST ONLY SOLUTIONS THAT USE DRIVER/PRINTER FEATURES BY THE WAY OF INSERTING `nm` COMMANDS IN THE **TEX** SOURCE, E.G. FOR POSTSCRIPT DRIVERS. THIS RESULTS IN DOCUMENTS THAT ARE NO LONGER AS FREELY INTERCHANGEABLE AS THE **DVI** CONCEPT WOULD ALLOW. `nm` DEPENDENCY IS PROBLEMATIC ESPECIALLY FOR THIS APPLICATION THAT IS USEFUL FOR MULTI-AUTHORING OR STANDARDS DEVELOPMENT.

THIS MACRO PACKAGE OFFERS A PURE **TEX** SOLUTION. NEVERTHELESS, IT HAS ITS RESTRICTIONS, TOO. THE PAGE BREAK WILL NO LONGER BE OPTIMAL, BECAUSE THERE IS NO STRECHABILITY OR SHRINKABILITY OF A PAGE ON TOP OF THE LAST REGION OF CHANGE MARKED. BUT THIS SEEMS TO BE ACCEPTABLE, ESPECIALLY AS THE CHANGE BAR FEATURE OFTEN WILL BE USED FOR PROOF READING AND NOT IN THE FINAL DOCUMENT. THIS RESTRICTION IS THE REASON WHY NO CHANGE MARKS CAN BE USED ON TITLE PAGES OR ON SIMILAR CONSTRUCTIONS. CHANGES IN FLOATING INSERTIONS (FOOTNOTES, FIGURES) ARE NOT HANDLED. MULTI-COLUMN FORMATS SUCH AS A TWO-COLUMN LAYOUT WILL NOT WORK. THERE IS CURRENTLY NO SUPPORT FOR NESTED CHANGES.

THE METHOD FOR WRITING A CHANGE BAR CONSISTS OF THREE PARTS: FIRST, THE OUTPUT ROUTINE IS SIGNALLED WHEN THE BEGINNING OR END OF A CHANGE BAR SETTING COMMAND IS ENCOUNTERED. NEXT, THE POSITION OF THE CHANGED AREA IS FOUND OUT AND FIXED; THE END-OF-CHANGE COMMAND ADDS THE LAST CHANGE BAR POSITION, LENGTH AND WIDTH TO A LIST OF ALL SUCH POSITIONS, LENGTHS AND WIDTHS OF CHANGE BARS THAT IS ACCUMULATED FOR THE CURRENT PAGE. FINALLY, WHEN THE OUTPUT ROUTINE IS TRIGGERED (EITHER ASYNCHRONOUSLY IN TRYING TO SHIP OUT THE PAGE OR SYNCHRONOUSLY WHEN DISCOVERING THAT THE END OF A CHANGE BAR LIES OFF THE PAGE), THIS LIST OF CHANGE BARS INFORMATION IS USED TO CREATE VERTICAL RULES WHICH ARE ADDED TO THE PAGE. IF THE CHANGE BAR IS NOT COMPLETE, A `kvIRTUAL` END CHANGE IS INSERTED, AND A `kvIRTUAL` BEGIN CHANGE IS INSERTED AT THE BEGINNING OF THE NEXT PAGE.

THE DEMONSTRATED SOLUTION WAS ORIGINALLY WRITTEN IN PLAIN **TEX**, BECAUSE IT WAS EASIER AND COULD BE PRESENTED BETTER AT THE EURO **TEX**₈₉ CONFERENCE IN KARLSRUHE. AN ADAPTATION TO **LATEX** HAS BEEN DONE TOO WHICH REQUIRES MINOR MODIFICATIONS TO THE **LATEX**_{js} OUTPUT ROUTINE.

SOME HISTORY. THE ROUTINES WERE INITIALLY WRITTEN BY JOACHIM SCHROD, AROUND JAN. 1992. R. BERNSTEIN ADDED SOME OF THE FEATURES CODED IN `nmCHANGEBARS.STY` TO COMBINE THE BEST FEATURES OF THE TWO (AND ADDED A COUPLE OF HIS OWN). FOR EXAMPLE, THE ABILITY TO SPECIFY CHANGE BAR WIDTHS, PUT THE CHANGE BARS EITHER ON THE RIGHT OR LEFT MARGIN, SPECIFY THE DISTANCE FROM THE MARGIN TO THE CHANGE BAR, AND CHAIN TO ON TOP OF A PRE-EXISTING MODIFIED OUTPUT ROUTINE. INITIALLY, BOTH THE **TEX** AND THE **LATEX** VERSIONS WERE PUT INTO ONE FILE. HOWEVER, DUE PROBLEMS IN DEALING WITH CONDITIONAL DEFINITION OF CODE, IN PARTICULAR PROBLEMS WITH AN EXTRA OR OMITTED `nm` IN DEFINING OR NOT `nm@GGEDBOTTOM`, THE CODE WAS SPLIT INTO TWO.

THE `nmCHANGEBARS.STY` PACKAGE WAS WRITTEN BY MICHAEL FINE AND REVISED BY JOHANNES BRAAMS AND NEIL WINTON. ONE OR TWO IDEAS FROM THOMAS J. REID HAVE BEEN USED.

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USER INTERFACE.
[SORRY. IGNORED `\beginnewsloppy ... \endnewsloppy`]

FINALLY `nm` IS THE AMOUNT OF PLACE BETWEEN THE TEXT MARGIN AND THE CHANGE BARS. THIS VALUE SHOULD NORMALLY BE POSITIVE. FOR CHANGE BARS ON THE RIGHT THIS VALUE IS ADDED TO `nm`, WHILE FOR CHANGE BARS ON THE LEFT THIS VALUE IS SUBTRACTED FROM `nm`.

`=1PT =2CC`
UTILITY ROUTINES AND PROGRAMMING CONVENTIONS.

BEFORE WE GET INTO THE NITTY GRITTY DETAILS, WE GIVE SOME COMMON MACROS.

FIRST, WE DECLARE SOME SHORTHANDS FOR CATEGORY CODES. BY DECLARING THE AT SIGN (`in@n`) AS WELL AS THE UNDERSCORE (`i(m)S(D)O5(n)`) AS LETTERS WE CAN USE THEM IN OUR MACROS. (I AGREE WITH D. KNUTH THAT