Nederlandstalige TEX Gebruikersgroep

Aan : Leden Nederlandstalige TEX Gebruikersgroep,
: Secretariaten Internationale TEX Gebruikersgroepen.

Betreft : Verslag 7^e NTG bijeenkomst

Locatie : Elsevier Science Publishers, Amsterdam
Datum : 2 mei 1991
Behandeling : bij de volgende bijeenkomst (21 november 1991 te Eindhoven)

Agenda:

Bijlagen:

De NTG vereniging

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De Nederlandstalige TEX Gebruikersgroep (NTG) is een vereniging die tot doel heeft het bevorderen van de kennis en het gebruik van TEX.
De **NTG** tracht dat te bereiken door het uitwisselen van informatie, het organiseren van congressen, symposia en tentoonstellingen m.b.t. TEX en 'TEX-produkten', en door het onderzoeken en vergelijken van TEX met soortgelijke/aanverwante produkten, b.v. SGML.

De **NTG** biedt haar leden ondermeer het volgende:

- Tweemaal per jaar een **NTG**-bijeenkomst.
- Tweemaal per jaar de uitgebreide NTG MAPS (Minutes and APpendiceS).
- Indien mogelijk eenmaal per jaar open '**NTG**-dagen', waar naast lezingen, ook cursussen (speciaal tarief voor leden) worden gegeven.
- De fileserver TEX-NL waarop algemeen te gebruiken 'TEX-produkten' staan. De meeste van deze TEX-produkten zijn, tegen geringe vergoeding, ook op diskette verkrijgbaar. Daaronder valt ook een volledige MS-DOS versie van TEX, LATEX, en een previewer.
- De discussielijst TEX-NL waarop vragen gesteld worden. Ook worden er via deze listserver ervaringen uitgewisseld.
- Aktiviteiten in werkgroepen.
- Korting op (buitenlandse) TEX congressen en cursussen.
- Eenmaal per jaar een ledenlijst met per lid informatie welke software en welke hardware, in relatie met TEX, wordt gebruikt.

Lid worden kan door overmaking aan de penningmeester van het verschuldigde contributie bedrag. Daarnaast dient een informatieformulier te worden ingevuld, welke laatste via het secretariaat te verkrijgen is.

De contributie voor een persoonlijk lidmaatschap bedraagt f 75,–, de contributie voor een instituutslidmaatschap bedraagt f 200,–. Een instituutslidmaatschap geeft het recht om drie personen aan te wijzen die informatie welke aan de leden wordt verstuurd, ontvangen. Van die drie personen dient één persoon te worden aangewezen als rechtsgeldige vertegenwoordiger van het bedrijf/instituut, een ander als vervangend vertegenwoordiger.
Indien meer leden per bedrijf/instituut lid willen worden, geldt als additioneel tarief f 50,– per persoon.
Voor studenten geldt eveneens een tarief van f 50,- (geen stemrecht). Voor afwijkende regelingen dient contact met het bestuur opgenomen te worden.

De statuten van de Nederlandstalige TEX Gebruikersgroep zijn via het secretariaat te verkrijgen.

Nederlandstalige TEX Gebruikersgroep

Aanwezig : A. Al-Dhahir (UT); E. Algera (EGD); A.W.W.M. Biegstraaten (TUD); J. Braams (PTT Neher Laboratorium); C.H.J. van den Brekel (Philips); H. Brouwer (EGD); F. van Ditmarsch (EGD); W. Dol (RUG); E.J. Evers (RUU); E. van Eynde (KU Leuven; België); J. Fischer; E. Frambach (RUG); L. van Geest (CAWCS); M. van Geest (CAWCS); R. van der Horst (CWI); E.W. Iparraguirre (TUD); J.A. Jager (EGD); A.A. de Jong (ACCU); T. de Klerk (Digital); G.D.C. Kuiken (Kuiken B.V.); C.G. van der Laan (RUG); A. de Leeuw van Weenen (RUL); A. Lenstra (RUG); F. van Manen (Klankschap); H. van der Meer (UvA); A.J. de Meijer (RUU); H.P.A. Mulders (KUB); G.J.H. van Nes (ECN); N.A.F.M. Poppelier (Elsevier); C.H. de Ridder (Philips); J.H.G. Rosenbaum (RUU); P. Sader (EGD); W. Smit; A. Soos (UT); G.J. Stemerdink (CWI); P. Tutelaers (TUE); P. Vanoverbeke; E.J. Vens (RUG/ICCE); F. van de Wiel (CWI); J.J. Winnink.

Notulist : G.J.H. van Nes (ECN)

1 Opening

Voorzitter van der Laan opent om 10:10 uur de bijeenkomst en heet iedereen welkom. Hij noemt de verandering in de opzet van de NTG vergadering van 'alleen maar' vergaderen naar een combinatie met thema lezingen. Deze vergadering heeft als thema 'TEX in de praktijk'. Ook de volgende NTG bijeenkomsten zullen duidelijk een thema kennen.
Medegedeeld wordt dat de lunch is aangeboden door de gastheer Elsevier Science Publishers. Het bestuur van de NTG wordt vervolgens voorgesteld.
Drie leden hebben bericht van verhindering gestuurd.

2 Verslag bijeenkomst 20 november 1990

Het verslag van de 6^e NTG bijeenkomst te Utrecht, was reeds eind januari aan alle NTG leden toegestuurd. Opmerkingen zijn zowel via post als via e-mail ontvangen. Op de vergadering worden nog de volgende kanttekeningen gemaakt:

- blz. 7, 1e kolom: 'Van der Meer informeert naar een gelijksoortig onderzoek m.b.t. de Atari Macintosh...' moet worden: '...m.b.t. de Atari-ST...'.
- blz. 7, 1e kolom: de naam 'Matthius Moritz' moet worden: 'Matthias Moritz'.
- blz. 8, 2e kolom: 'De CELEX file is echter beduidend te verkleinen door de vijfjes te verwijderen' moet worden: '...te verkleinen door alle regels waarin een 5 voorkomt te verwijderen'. Op de opmerking van Winnink waar de goed bruikbare Peter Vanroose file op de NTG fileserver is gebleven, wordt geantwoord dat hier later op de vergadering teruggekomen zal worden.

Daarnaast wordt gewezen op enige afbreekfouten in de tekst. Het verslag (met de genoemde wijzigingen) wordt vervolgens goedgekeurd.

Betreffende de bijlagen wordt het volgende opgemerkt/medegedeeld:

- **Bijlage A:** De 8^e NTG bijeenkomst zal op 21 november 1991 gehouden worden bij de TU te Eindhoven met als thema 'Fun with TEX' (TEX-gebruik ten behoeve van schaak, bridge, muziek, kruiswoordpuzzels, etc). De 9^e NTG bijeenkomst zal hoogstwaarschijnlijk plaatsvinden bij het CWI te Amsterdam. Het thema is 'wetenschap en TEX' met het zwaartepunt op wiskunde- en fysica toepassingen. Getracht zal worden om hierbij het CERN te betrekken. Van Manen zou op één van deze bijeenkomsten graag ook een verhaal van een typograaf willen zien. De voorzitter antwoordt hierop dat bij de NTG dagen vorig jaar in Groningen over dit onderwerp reeds een lezing was gegeven. Daarnaast is het onderwerp meer geschikt voor een algemene NTG dag dan voor een NTG bijeenkomst.
- **Bijlage B:** De lijst van werkgroepleden is niet meer up-to-date. Personen zijn vermeld die geen NTG lid zijn. Een verbeterde lijst zal in de volgende MAPS opgenomen worden. Gevraagd wordt aan de coördinatoren of zij correcties willen doorgeven aan het secretariaat. Interessant nieuws is dat Malcolm Clark zich aangemeld heeft als NTG lid en daarnaast ook zitting neemt in werkgroep 1.

This report has been generated by LATEX software on SUN platform, using times.sty and multicol.sty (Frank Mittelbach), and a 300 dpi PostScript outputdevice. Editor of this report is G.J.H. van Nes.

Het verslag van de NTG bijeenkomst op 2 mei 1991 is (in concept) eind juni 1991 via e-mail dan wel via de post reeds toegestuurd naar alle NTG leden.

3 Ingekomen stukken en Mededelingen

De volgende stukken zijn ingekomen:

- DANTE TeXnische Komödie,
- Gutenberg Cahiers,
- Informatie Europese LUG's (Local User Groeps; van Malcolm Clark),
- SGML-bulletin en uitnodiging vergadering,
- Afrekening SGML/TEX conferentie '90,
- Informatie Europese TEX bijeenkomst te Parijs,
- Programma 5e Nederlandse SGML conferentie,
- Brief samenwerking CWI-NTG (afkomstig van CWI),
- Verzoek van Winnink voor kostenbijdrage evaluatie VTEX,
- Verslag kascontrole commissie.

De tijdschriften lagen op de leestafel ter inzage.

De volgende mededelingen worden gedaan (soms ontaardend in een levendige discussie):

- **Wederzijds lidmaatschap NTG/TUG**
  De mogelijkheid van een wederzijds lidmaatschap is al een lange tijd geleden aan TUG voorgelegd. De voorzitter wil bij zijn komende bezoek aan de BOD/TUG-bijeenkomst in Dedham, USA, hierover een duidelijke uitspraak verkrijgen. Hij verzoek de vergadering een standpunt in deze in te nemen.
  Een zeer lichte verlaging van de totale contributie zou bij een gezamenlijk lidmaatschap mogelijk kunnen zijn. Belangrijker is echter dat het voor de leden eenvoudiger wordt om éénmaal per jaar een bedrag over te maken dan nu twee keer. Vanzelfsprekend is het niet verplicht om van beide verenigingen lid te worden. Eventuele koersschommelingen zouden voor rekening van TUG moeten zijn.
  Dat er toch een drempel onder de NTG leden aanwezig is om TUG lid te worden bleek tijdens de vergadering duidelijk: van de veertig aanwezigen zouden 24 graag een koppeling van lidmaatschap TUG-NTG gerealiseerd willen zien. Van hen zijn slechts 12 nu werkelijk lid van TUG.
  Op de vraag of het NTG bestuur automatisch een exemplaar van TUGboat ontvangt, wordt ontkennend geantwoord.
- **TUG newsletter**
  De voorzitter vertelt over de nieuwe opzet van nieuwsvoorziening vanuit TUG zoals deze op de speciale BOD bijeenkomst (maart 1991) naar voren was gekomen. Naast de TUGboat verschijnt zeer binnenkort de eerste uitgave van een aparte newsletter. Deze zal electronisch worden verspreid naar de besturen van de LUG's. De LUG's kunnen delen uit deze newsletter halen ter opneming in hun eigen periodieken. Deze opzet maakt ook het invoeren van een Europese newsletter minder noodzakelijk.
  De prototype van de TUG newsletter is echter hoofdzakelijk een Amerikaanse aangelegenheid: de locale Europese LUG's hebben nauwelijks inspraak gekregen bij de opzet en samenstelling.
- **NTG ledenaantal**
  Sinds de vorige vergadering is het NTG ledenaantal weer toegenomen en wel met 25 nieuwe leden, inclusief 5 extra instituutsleden. De NTG telt nu in totaal 137 leden (waaronder 24 instituutsleden).
- **Distributie Europese LUG tijdschriften**
  N.a.v. vragen van leden wordt medegedeeld dat de door het NTG bestuur ontvangen tijdschriften van locale gebruikersgroepen, behalve op de leestafel, ook op aanvraag rondgestuurd kunnen worden.
  ↪ *Op voorstel van een aantal aanwezigen zullen de inhoudsopgaven, inclusief die van TUGboat, voortaan als bijlagen in de MAPS worden opgenomen.*
- **EuroTEX '91**
  Van de Europese TEX bijeenkomst komende september in Parijs is het programma reeds bekend. Braams, Jurriens, en van der Laan zullen er een verhaal houden (Jurriens over zijn TEX werk in de USSR).
- **LATEX 3.0 project**
  N.a.v. een vraag van van der Meer betreffende de Nederlandse medewerking aan het LATEX 3.0 project, wordt door Poppelier medegedeeld dat hijzelf en Braams de twee Nederlandse leden van deze Frank Mittelbach groep zijn. Er zijn geen zaken die nu al het vermelden waard zijn. Gewerkt wordt op dit moment aan de syntax keuze, de kernel van LATEX, en een nieuwe tabular omgeving. Het fontselectieschema maakt zeker deel uit van LATEX 3.0. Er is reeds veel werk gedaan. Begin 1991 vond in de UK een bijeenkomst over dit onderwerp plaats. Op welke termijn een en ander actueel wordt is echter niet met zekerheid te zeggen. Het project heeft duidelijk wel toekomst.
  Verzocht wordt aan de leden om suggesties m.b.t. LATEX 3.0 aan de Nederlandse projectleden door te geven. Getracht zal worden om op de volgende bijeenkomst meer informatie te verstrekken over de gang van zaken en de status.
  Van der Meer zou graag de al dan niet gereed zijnde modulen van LATEX 3.0 via de fileserver willen betrekken met daarbij informatie over de status van de afzonderlijke stukken software.
- **Typografie NTG materiaal**
  Van Manen vraagt waarom de NTG zelf geen eigen stijlfile heeft. Hij heeft ernstige kritiek op de typografie van ondermeer de MAPS en de NTG folder. Er is nauwelijks enige eenheid. De NTG dient nauwkeuring te zijn bij het materiaal wat zij publiceert. Hij ziet graag de MAPS en de folder aan een typograaf uitbesteed.
  Poppelier heeft ook eerder opmerkingen over de folder aan het bestuur toegestuurd. Hij vindt het daarnaast jammer dat de NTG stijlen van werkgroep 13 niet gebruikt worden voor de MAPS.
  Van der Meer vindt dat voor de MAPS en de andere publicaties van de NTG, feitelijk een aparte en

goede stijl ontwikkeld zou moeten worden; zeker moet gelet worden op eenzelfde stijl voor alle bijdragen.
Geantwoord wordt door Braams dat ondanks het feit dat werkgroep 13 reeds 3 verschillende (eenvoudige) stijlen heeft ontwikkeld (waarvan één (artikel2) minder serieus), de NTG als een eerste taak heeft voorlichting te geven van wat je met TEX zoal kan doen. Informatievoorziening is belangrijker dan het uiterlijk ervan.
Schriftelijke opmerkingen over de folder zijn door het bestuur echter niet ontvangen. Gevraagd wordt aan Poppelier om deze opnieuw toe te sturen.
De voorzitter antwoordt dat de informatiestroom via de MAPS sneller is gegroeid dan ooit is voorzien. De vraag is of men moet denken aan een tijdschrift of aan een informeel verslag met bijlagen. Hoofddoel blijft de informatieverstrekking aan de leden, niet de typografie. Daarnaast is het geheel toch niet bepaald slecht te noemen. Extra typografisch werk zou ook een vergroting van de werkzaamheden betekenen. Rekening moet worden gehouden dat een en ander afhankelijk is van een relatief kleine groep van vrijwilligers. De voorzitter erkent enkele tekortkomingen op typografische gebied van het NTG materiaal. Hij denkt zelf sterk aan het overnemen van de TUGboat stijl inclusief de richtlijnen voor de auteurs en dat eventueel te modificeren naar eigen behoefte.
Braams noemt een mogelijkheid om artikel1 als stijl te gebruiken en `tugboat.sty` als optie. Auteurs zouden zelf geen eigen vorm aspecten mogen toevoegen.
Van der Meer noemt de mogelijkheid van het gebruik van twee stijlen. Voor technische artikelen de TUGboat stijl en voor bijvoorbeeld het jaarverslag een eigen stijl.
↪ *De voorzitter besluit de discussie met de opmerking dat het bestuur in ieder geval nota zal nemen van de genoemde kritieken en suggesties.*

- **Server gebeuren**
  Er blijkt belangstelling te bestaan bij niet netwerkgebruikers om via een modem toch van de TEX-NL list- en fileserver gebruik te maken. Mogelijkheden blijken wel aanwezig te zijn. Aangeraden wordt om hiervoor contact op te nemen met het dichtstbijzijnde Universitaire Rekencentrum.
- **NTG Info-pakket**
  Mulders deelt mede dat het samen te stellen pakket in een gevorderd stadium verkeerd. Er zijn reeds A4-tjes over de onderwerpen wiskunde, 'wat is TEX', bridge, en schaken. Verder komt er nog iets over muziek (Taupin versie; actie mede door Evers en van Manen), en chemische structuurformules (actie mede door Winnink).
  Genoemd wordt dat Eijkhout een tiental slides heeft van een demo voordracht over wat je ondermeer met TEX kan doen. Mulders zou contact hierover met hem opnemen.
  Mulders zou tevens graag zijn info-pakket door een typograaf willen laten doornemen. Poppelier biedt aan om te trachten dit door zijn eigen collega's te laten verzorgen. Enige discussie vindt plaats over de graad van perfectie. Algemene gedachte is dat het uiteindelijke resultaat niet 100% hoeft te zijn. Het is daarentegen belangrijker dat er wat beschikbaar is.
  De voorzitter noemt nog de hierna komende werkzaamheden aan het welkom-pakket. Dit pakket zou ondermeer de belangrijkste bijdragen moeten bevatten uit de eerder verschenen MAPS en mogelijk de emTEX implementatie. Het info-pakket daarentegen is veel kleiner van inhoud en bevat hoofdzakelijk algemene informatie.

Verder wordt medegedeeld dat de Devnāgrī fonts van Velthuis sinds kort Public Domain zijn geworden. Belangstellenden kunnen contact opnemen met het rekencentrum van de RUG.

4 NTG jaarvergadering

- **Jaarverslag Secretaris**
  Het jaarverslag 1990 was als bijlage C in de MAPS 91.1 opgenomen. Een korte toelichting wordt gegeven. Genoemd wordt het nog steeds stijgende ledenaantal en de activiteiten van de RUU-server t.b.v. de TEX gemeenschap.
- **Jaarverslag Penningmeester**
  Het financieel verslag 1990 was als bijlage D in de MAPS 91.1 opgenomen. Zonder verdere opmerkingen wordt ook dit verslag goedgekeurd.
- **Verslag kascontrole commissie**
  Na een korte discussie over de volgorde van behandeling van de agendapunten 'kascontrole commissie' en 'begroting 1991', wordt besloten eerst de kascontrole commissie aan het woord te laten. Een goedkeuring van de commissie Biegstraaten/Evers is als ingekomen stuk ontvangen en wordt voorgelezen. Beide commissieleden worden bedankt voor hun werkzaamheden.
- **Vaststelling nieuwe kascontrole commissie**
  Biegstraaten blijft als lid aan. Daarnaast meldt de Leeuw van Weenen zich als tweede lid aan.
- **Concept begroting 1991**
  Verwezen wordt naar bijlage E van de MAPS 91.1. In het overzicht van de inkomsten/uitgaven wordt het totale bedrag van $f.$ 10700,10 veranderd in $f.$ 10700,-. In discussie komt de post 'Saldo NTG-dagen '91 ten bedrage van $f.$ 1200,-. Op het moment dat de begroting werd gemaakt was het nog niet bekend dat de NTG dagen in 1991 geen doorgang zouden vinden. Vandaar dat deze post wel was opgenomen. Poppelier ziet graag de begroting dan ook aangepast aan de huidige situatie.
  De voorzitter licht toe dat de belangrijkste bron van inkomsten, de contributie, voor het grootste gedeelte wordt gebruikt voor de informatievoorzie-

ning aan de leden. De post reisbijdragen is hoger t.o.v. 1990 i.v.m. een komend bezoek aan de TUG bijeenkomst in Dedham. De bestuurskosten worden minimaal gehouden. Ondanks het feit dat de NTG TEX cursussen direct kan aanbieden, is het niet zeker of dit in 1991 ook werkelijk tot inkomsten zal kunnen leiden.
De penningmeester besluit uiteindelijk, met goedkeuring van de vergadering, de $f.$ 1200,- op te vangen door het verminderen van de reisbijdragen met een bedrag van $f.$ 500,- en de resterende $f.$ 700,- uit de reserve te halen. Een gecorrigeerde begroting zal bij het conceptverslag rondgestuurd worden.

- **Bestuursverkiezingen**
  Aftredend reglementair zijn Kees van der Laan (voorzitter) en Theo de Klerk (bestuurslid). Laatstgenoemde stelt zich, vanwege drukke locale werkzaamheden, niet herkiesbaar.
  Bij de uitnodigingen van deze vergadering zijn door het bestuur twee kandidaten voorgedragen, t.w. Jos Winnink en Kees van der Laan. Daar er geen tegenkandidaten voor bestuursfuncties zijn aangemeld, worden de bestuursverkiezingen als voorgesteld, bij acclamatie uitgevoerd.
  Poppelier ziet ondanks het gestelde toch een schriftelijke stemming noodzakelijk om daarbij het bindend karakter van de voordracht te toetsen. Na enige discussie wordt, horende de vergadering en rekening houdend met hetgeen in de statuten is vermeld, uiteindelijk besloten toch niet in te gaan op het voorstel van een schriftelijke stemming. Overigens zal wel bij de volgende bestuursverkiezing over de dan te volgen procedure nogmaals worden nagedacht.
  Theo de Klerk wordt bedankt voor de bewezen diensten. De nieuwe bestuursleden worden welkom geheten en succes toegewenst met hun taken.
- **Wat verder ter tafel komt**
  Ook de commissie 'NTG dagen 1990' zou nog officieel moeten aftreden. Daar er nog een onduidelijkheid was m.b.t. de afhandeling van een openstaande post op de in december j.l. van Koen Mulders (SGML Users Group Holland) ontvangen eindafrekening, wordt besloten dit onderwerp pas op de volgende vergadering af te handelen.
  De penningmeester zal nadere actie in deze ondernemen.

5 Verslag/discussie werkgroepen

Verslag wordt gedaan van de activiteiten binnen een aantal NTG werkgroepen. De voorzitter meldt dat in eerste instantie het woord zal worden gegeven aan werkgroepen die van hun activiteiten melding hebben gemaakt in de MAPS.

Werkgroep 1: Educatie

De voorzitter verwijst naar de bijlage in de laatste MAPS. Deze bijlage moet gezien worden als een aanzet voor discussie bij TUG.
Een belangrijk item hierin zijn de docenten. Van hen zou een bepaald niveau verwacht moeten worden zowel op het gebied van kennis als van didactiek. Over de vorm en implicaties daarvan wordt gediscussieerd.

Op de vraag over de interesse van TEX cursussen wordt geantwoord dat de PTT te Groningen erom heeft gevraagd. Een duidelijke behoefte was er ongeveer een jaar geleden bij Elsevier. Daarnaast worden TEX cursussen op universiteiten i.v.m. de kosten, door eigen medewerkers gegeven.
Gesuggereerd wordt om ook typografen bij hun opleiding kennis te laten maken met de mogelijkheden van TEX.
↪ *In de taken van de werkgroep zoals deze in de bijlage van de MAPS waren beschreven konden de aanwezigen zich vinden.*

Werkgroep 4: Fonts

Op dit moment zijn Vens en Winnink binnen deze werkgroep actief. Genoemd wordt het feit dat de uitgebreide lijst van namen van werkgroepleden niet betekent dat iedereen ook actief is. Eerder kan gezegd worden dat de meesten van hun alleen in het onderwerp geïnteresseerd zijn. Afgesproken wordt dat Vens & Winnink de lijst zullen doornemen op niet actieve leden. Vens zal als coördinator optreden.

Vens noemt één van de mogelijke activiteiten van de werkgroep het maken van een Nederlands font. Stemerdink vermeldt dat Tetterode een grote set fonts bezit en mogelijk een mooi font voor TEX wil omzetten.

Algemeen kan gezegd worden dat er duidelijk interesse is voor de verrichtingen van deze werkgroep. Gevraagd wordt aan de werkgroep om een overzicht te geven van wat werkt, met betrekking tot wat, inclusief de bijbehorende valkuilen. Daarnaast is er een duidelijke behoefte aan een algemeen verhaal over virtuele fonts, zowel voor wat betreft de werking, de implementatie als de relatie met het LATEX fontselectie schema.

Werkgroep 6: Lijst en link met fotozetters

Gevraagd wordt aan de NTG leden voor aanvullingen en correcties m.b.t. de lijst van fotozetters zoals deze in de laatste MAPS was opgenomen. Bij ECN te Petten blijkt ook fotozetter service geleverd te kunnen worden (2540 dpi en $f.$ 15,- per A4). Bij CWI schijnen ook mogelijkheden aanwezig te zijn.
Poppelier deelt mede dat hij goede ervaringen heeft met Transcripta (snel en goedkoop).

Werkgroep 7: PC-zaken

Winnink meldt dat naast hetgeen in de laatste MAPS is geschreven, er niet veel meer te vertellen is m.b.t. de TEX implementatie op de DOS systemen. Hij heeft wel SbTEX34 opgehaald inclusief METAFONT 2.7 om deze te vergelijken met emTEX (versie 3.0). Het bleek dat de Sb METAFONT ongeveer 20% sneller was die van emTEX.
De verwerkingssnelheid van de Sb LATEX versie blijkt daarentegen duidelijk afhankelijk te zijn van zowel beschikbare RAM geheugen als van de tekst zelf (varieerend van 15% sneller tot 10% langzamer). Conclusie is dat emTEX op dit moment de meest stabiele TEX-DOS implementatie m.b.t. de verwerkingssnelheid is én daarbij het minst last heeft van RAM geheugen beperkingen.

Het was niet duidelijk of versie 3.1 van emTEX al beschikbaar is. Versie 3.0 bleek van de Stuttgart server verdwenen te zijn. Een NTG lid meldt echter dat de directory structuur van deze server enige tijd geleden veranderd is.

Dat emTEX in Nederland algemeen gebruikt wordt, blijkt uit het feit dat de helft van het aantal aanwezige NTG leden (40) deze implementatie reeds in bezit heeft en er mee werkt. De distributie activiteiten van de werkgroep blijken zeer gewaardeerd te worden.

Op de vraag of de emTEX distributie kompleet is, wordt positief gereageerd. Er zijn binnen de distributie ondermeer speciale versies voor de 8086, OS2 en de 80286. Niet voor de 80386.
De voorzitter stelt daarom ook voor om nieuwe NTG leden in de gelegenheid te stellen juist deze implementatie op een eenvoudige wijze te verkrijgen.

Een verzoek is door het bestuur ontvangen van Winnink om VTEX aan te schaffen i.v.m. een evaluatie. Uit een review in de 'Notices of the American Mathematical Society' blijkt dat de VTEX fonts zeer weinig geheugen in beslag nemen (< 1 Mbyte). De software kost echter $ 299.
Kuiken deelt mede dat hij VTEX wel eens aan iemand geleverd heeft. De software blijkt echter traag te zijn, naast het feit dat het feitelijk in het geheel geen TEX is. Zo wordt er bijvoorbeeld geen `.dvi` file aangemaakt. De betreffende (ESTEC) persoon is daarom ook weer op TEX overgegaan.

Op de vraag van Lenstra over Atari implementatie ervaring, wordt door Vens positief gereageerd. Benodigde geheugen is echter meer dan 1 Mbyte.

Werkgroep 8: Nederlandstalige TEX gebruikersdag

De voorzitter deelt mede dat na de aanvankelijke goede vooruitzichten m.b.t. het organiseren van de NTG dagen in samenwerking met het locale KUB project 'geïntegreerde document systemen' in Tilburg, onlangs de situatie sterk veranderd is. Coördinator van het gebeuren, Joop van Gent, is van baan veranderd en heeft dientengevolge weinig contacten meer met het gebeuren. Daarnaast zien de huidige organisatoren de dagen hoofdzakelijk als een Tilburgse aangelegenheid. Bereidheid tot samenwerking is niet aanwezig.
Het NTG bestuur heeft daarom ook besloten de geplande NTG dagen in Tilburg voor 1991 niet door te laten gaan.

Poppelier noemt het belang van de NTG dagen i.v.m. de daaraan gekoppelde cursussen. Daarbij zou ook gedacht kunnen worden aan een bescheiden opzet van het gebeuren zoals bij de allereerste NTG dagen die in 1989 te Utrecht zijn gehouden.
De voorzitter antwoordt dat cursussen altijd beschikbaar zijn. Materiaal is aanwezig en docenten zijn bekend. De organisatie van de NTG dagen staat of valt met de beschikbaarheid van mankracht (= vrijwilligers). De plaats van de bijeenkomst is secundair en hoeft in eerste instantie niet Utrecht te zijn. Wel heeft een keuze van een bepaalde plaats wel voordelen voor het betreffende organiserende bedrijf/universiteit.

Gedacht moet nu worden aan het organiseren van de NTG dagen pas in 1992 i.p.v. het nu overijld nog plaats laten vinden dit jaar. De uiteindelijke frequentie van dit soort dagen behoeft ook niet zo hoog te zijn als vroeger daar er nu tevens Europese TEX dagen worden georganiseerd. Het grootste probleem bij het organiseren van dit soort dagen blijft hoofdzakelijk het vinden van goede sprekers.
Een wat andere formule voor de NTG dagen zou ook bekeken kunnen worden. Zo zouden bijvoorbeeld de dagen in 1992 gekoppeld kunnen worden aan de NTG bijeenkomst bij het CWI. Daarnaast wordt voorgesteld om de Europese TEX bijeenkomst een keer in Nederland te laten plaatsvinden.

De voorzitter besluit de discussie met een dringende oproep aan de leden om contact op te nemen met het bestuur indien mogelijkheden tot organisatie voorhanden zijn.

Werkgroep 10: SGML-TeX relatie

Gewezen wordt op de bijlage in de laatste MAPS. Het artikel bleek in het buitenland goed ontvangen te zijn.

Werkgroep 13: Nederlandstalige TEX

Braams deelt mede dat de werkgroep zich nu in een wat rustig vaarwater bevindt. De NTG stijlen moeten alleen nog van documentatie worden voorzien en op een aantal punten is er nog een update te verwachten. Het babel gebeuren is technisch gereed, afgezien van de documentatie. Daarnaast moet nog gebogen worden over de Nederlandse afbrekingen inclusief uitzonderingenlijsten.

Gediscussieerd wordt over de Nederlandse afbreekfiles.

Kuiken vermeldt dat de CELEX file wel alle technische afbreekingen volgens het 'groene boekje' bevat, doch dat dit zeker niet de beste zijn. Wederom komt naar voren dat hierbij persoonlijke controle altijd noodzakelijk blijft.

Winnink vraagt zich af waarom de zeer kleine afbreekfile van Peter Vanroose van de TEX-NL server is verdwenen. Ondanks de zeer kleine omvang van deze file is het resultaat zeer goed. Braams antwoordt hierop dat hij meende dat dit een besluit van de vorige vergadering was.
↪ *De file zal door hem weer worden teruggeplaatst.*

Werkgroep 14: Communicatie

Evers meldt dat er binnen de werkgroep nu een taakverdeling bestaat m.b.t. het server gebeuren. Braams en Eijkhout houden zich bezig met het fileserver beheer in Nijmegen, terwijl Evers de fouten en problemen voor wat betreft de discussielijst zal opvangen.
N.a.v. een vraag over de minimale documentatie eisen voor files die op de server worden geplaatst, wordt geantwoord dat in een eerdere MAPS een bijlage was opgenomen over dit onderwerp.

De voorzitter informeert naar de mogelijkheid van registratie van het gebruik van de server. Het blijkt op dit moment nog niet te gebeuren. Mogelijkheden zouden wel aanwezig zijn. Voor het geval er voor de fileserver service betaald zou moeten gaan worden, is het belangrijk dit soort informatie reeds te hebben. De voorzitter vraagt tevens aan de werkgroep om ook gebruiksgegevens van de RUU-TEX server op te vragen.

6 Rondvraag

- **Winnink** deelt mede dat van de eerder toegezegde MAPS bijdrage m.b.t. afbreekpatronen nog niets is gekomen. Overwogen wordt om het door te sluizen naar werkgroep 13. Onduidelijkheid is er ook over wat er precies gedaan moet worden. Gevraagd wordt naar de kenmerken van de diverse afbreekpatronen files.
- **De Ridder** gebruikt TEXCAD bij zijn emTEX implementatie. Hij zoekt ook een versie voor de VAX. Verwezen wordt naar een fileserver. Aangeraden wordt tevens om contact op te nemen met de auteur van TEXCAD.
- **Stemerdink** ziet graag een centraal beschikbare samenvatting van de vele informatie die via de TEX-NL listserver wordt gedistribueerd. Een mogelijkheid is om de archieffunctie van de discussielijst aan te zetten. Evers wil echter proberen een overzicht van de belangrijkste e-mails te maken en deze vervolgens verder uitwerken. Ook de rubriek 'Frequently Asked Questions' (zie bijlage T van de laatste MAPS) is hiervoor geschikt. Voor nieuwe leden zou dit soort samengestelde informatie nuttig kunnen zijn.
- **Lenstra** vraagt, in vervolg hierop, naar de beschikbaarheid van een geselecteerd overzicht van hetgeen op buitenlandse discussielijsten aan de orde komt. Probleem is echter hierbij de uitgebreidheid en het daaraan gekoppelde vele werk. Ook dit werk is weer afhankelijk van vrijwilligers.
- **Van Manen** vraagt om een `.dvi` naar fax conversie. Volgens Lenstra bestaat er wel reeds een `.ps` naar fax conversieprogramma. Het HiJAAK-PS programma is hier wel voor nodig.
  Op de vraag of grote tabellen via LATEX verwerkt kunnen worden, wordt verwezen naar de supertabular style file welke via de TEX-NL server beschikbaar is.
- **Fisher** heeft problemen met het genereren van tfm-files vanuit zijn nieuwe METAFONT. Suggesties worden gegeven. Tevens wordt hij geholpen aan de IPA-fonts.

7 NTG presentaties: 'TEX in de praktijk'

Twee presentaties worden deze dag gegeven t.w.:
- 'Gebruik van TEX binnen het EGD' door Jager en Sader (Energiebedrijf voor Groningen en Drente),
- 'Gebruik van TEX en LATEX op het CAWCS' door het echtpaar van Geest (Centrum voor Automatisering van Wapen en Commando Systemen der Koninklijke Marine).

De inhoud van beide lezingen zijn opgenomen in de MAPS 91.1. Het verhaal van de EGD toont ondermeer dat het promoten van hun nieuwe macro set ter vervanging van TEX, het grootste probleem is: het gebruik ervan blijkt momenteel nog minimaal te zijn, dit ondanks de eenvoud!
Bij het CAWCS ligt dat probleem minder: een dertigtal medewerkers gebruiken de besproken macro's. Voor de macro's t.b.v. het genereren van Nassi-Schneidermann diagrammen en Flow charts blijkt ook bij de NTG leden grote belangstelling te bestaan. Getracht zal worden om de betreffende software via de TEX-NL server beschikbaar te stellen.

8 Sluiting

De volgende vergadering is op:

donderdag 21 november 1991

bij de Technische Universiteit Eindhoven; gastheer Piet Tutelaers.

Elsevier Science Publishers en met name Poppelier worden bedankt voor de geboden gastvrijheid en diensten, waarbij de wandellunch, weliswaar uit nood geboren, een prima functie vervulde. De aanwezigen worden bedankt voor hun bijdragen in de discussie.

De vergadering wordt om 17:00 uur gesloten.

Getekend:
Voorzitter: Secretaris:

TEX kalender 1992

24–27	mrt	DANTE'92	Duitsland
	jun	NTG (9^e)	CWI, Amsterdam
	jun	**NTG-TEX course**	CWI, Amsterdam
27–30	jul	TUG'92	Portland, Oregon, USA
	sep	EuroTEX	Tsjecho Slowakije

Glossary

AMS	:	American Mathematical Society
BOD	:	Board Of Directors
TUG	:	TEX Users Group
LUG	:	Local Users Group
CSTUG	:	LUG Tsjecho Slowakije
CyrTUG	:	LUG USSR
DANTE	:	LUG Duitsland
GUTenberg	:	LUG Frankrijk
ITALIC	:	LUG Ierland
Nordic	:	LUG Scandinavië, Denemarken, en IJsland
NTG	:	LUG Nederland en Belgie
UKTUG	:	LUG Engeland
YUNUS	:	LUG Turkije
TTN	:	TEX and TUG News
TUGboat	:	Magazine TUG
MAPS	:	Minutes and APpendiceS

Werkgroepen
Nederlandstalige TEX Gebruikersgroep

1. **Educatie**
   A.W.W.M. Biegstraaten (TUD)
   M. Clark
   C.G. van der Laan (coördinator)
   P. Tutelaers (TUE)

2. (werkgroep is vervallen)

3. **Evaluatie produkten (Ned. LATEX incl sty. files en afbreekregels; andere macrocollecties AMSTEX; converters K-talk; TEX naar ASCII; index programmatuur; dBase-TEX koppeling; adreslabels; verkrijgbaarheid etcetc.)**
   J.L. Braams (PTT Research Neher Lab) (coördinator)
   M.A.J.H. Broeren (Océ Nederland B.V.)
   J.R. Luyten (RUG)
   H.P.A. Mulders (KUB)

4. **Fonts (gebruik van Metafont)**
   H. Brouwer (EGD)
   A.J. de Meyer (RUU; Wiskunde)
   P. Tutelaers (TUE)
   F.J. Velthuis (RUG; Rekencentrum)
   J.C. de Moor (Theol. Univ.)
   E.J. Vens (RUG) (coördinator)
   J.J. Winnink

5. **Drivers, previewers, printers, postscript**
   J.L. Braams (PTT Research Neher Lab)
   H. Brouwer (EGD)
   P. Tutelaers (TUE)

6. **Lijst en link met fotozetters**
   G. Haayer (Styx Publications)
   T.A. Jurriens (RUG; Sterrenkunde)
   F.J. Velthuis (RUG; Rekencentrum) (coördinator)

7. **PC-perikelen; campuslicentie etc.**
   E. Algera (EGD; Amiga)
   G.J. Braas (EGD; Archimedes)
   H. Brouwer (EGD)
   P. Tutelaers (TUE)
   E.J. Vens (RUG; DOS)
   J.J. Winnink (-; DOS)
   E.B.J. van der Zalm (RUU; Atari)
   R. Veldhuyzen van Zanten (SARA; McIntosh)

8. **Nederlandse TEX gebruikersdag (1992)**
   C.G. van der Laan
   T.A. Jurriens (RUG)

9. **Integratie beelden en TEX**
   H. Brouwer (EGD)
   T.A. Jurriens (RUG; Sterrenkunde) (coördinator)

10. **SGML-TEX relatie**
    A.W.W.M. Biegstraaten (TUD)
    D.C. Coleman (Elsevier Science Publishers)
    C.G. van der Laan
    J. Grootenhuis (CIRCE)
    N.A.F.M. Poppelier (Elsevier Science Publishers)

11. (werkgroep is vervallen)

12. **Beheerders handleiding/documentatie**
    J.L. Braams (PTT Research Neher Lab)
    E.J. Evers (RUU; Geneeskunde) (coördinator)

13. **Nederlandstalige TEX**
    J.L. Braams (PTT Research Neher Lab)
    V. Eijkhout (Univ. of Illinois)
    D. van Leeuwen (RUL)
    N.A.F.M. Poppelier (Elsevier Science Publishers)

14. **Communicatie**
    J.L. Braams (PTT Research Neher Lab) (coördinator)
    V. Eijkhout (KUN)
    E.J. Evers (RUU; Geneeskunde)
    P. van Oostrum (RUU)

15. **TEX 3.0 (The Future of TEX)**
    H.P.A. Mulders (KUB)
    P. van Oostrum (RUU) (coördinator)
    E.J. Vens (RUG)

Gewijzigde [1] begroting van de Nederlandstalige TEX Gebruikersgroep

voor het jaar 1991

Hieronder vindt U de begroting voor 1991 van de Nederlandstalig TEX gebruikersgroep zoals die is vastgesteld op de algemene ledenvergadering gehouden op 2 mei 1991 te Amsterdam. Voor een toelichting wordt verwezen naar bijlage E van MAPS 91.1.

Inkomsten		Uitgaven	
Contributie	ƒ 9.100,00	Administratie	ƒ 600,00
Sponsoring		Kamer van Koophandel	ƒ 61,00
Interen kapitaal	ƒ 700,00	Bijeenkomsten	
Rente	ƒ 400,00	Bestuurskosten	ƒ 600,00
		Computerfaciliteiten	PM
		Nieuwsbrief/Verslagen	ƒ 6.000,00
		Reis bijdragen	ƒ 2.500,00
		Representatie	ƒ 300,00
		Onvoorzien	ƒ 139,00
	ƒ 10.200,00		ƒ 10.200,00

[1] Zie agendapunt 'NTG jaarverslag' van de NTG bijeenkomst van 2 mei 1991.

Concept begroting van de Nederlandstalige TEX Gebruikersgroep

voor het jaar 1992

Hieronder vindt U de voorlopige begroting voor 1992 van de Nederlandstalige TEX gebruikersgroep. Een toelichting volgt na de tabel.

Inkomsten		Uitgaven	
Contributie	f 10.775,00	Administratie	f 600,00
Sponsoring		Kamer van Koophandel	f 61,00
Saldo NTG-dagen '92	f 1200,00	Bijeenkomsten	
Rente	f 425,00	Bestuurskosten	f 600,00
		Computerfaciliteiten	PM
		Nieuwsbrief/Verslagen	f 7.200,00
		Reis bijdragen	f 3.000,00
		Representatie	f 300,00
		Onvoorzien	f 139,00
		Saldo	f 500,00
	f 12.400,00		f 12.400,00

1 Toelichting

- **Inkomsten**:
  1. Contributie
     De post contributie is gebaseerd op het aantal leden in oktober 1991. Dat bedroeg:

26	instituten	26	$\times f\,200,00$	$f\,5200,00$
2	studenten	2	$\times f\,50,00$	$f\,100,00$
46	personen	46	$\times f\,75,00$	$f\,3450,00$
30	personen	30	$\times f\,67,50$	$f\,2025,00$
				$f\,10.775,00$

     Hierbij is ervan uitgegaan dat de overeenkomst met TUG over het wederzijds lidmaatschap door de vergadering wordt geaccepteerd.
  2. Sponsoring
     Er wordt geen sponsoring verwacht.
  3. Saldo NTG-dagen
     Voor zover bekend ten tijde van het maken van deze begroting zullen in 1992 weer NTG"-dagen georganiseerd worden. Een bescheiden positief saldo begroten hiervoor lijkt re"eel.
  4. Rente
     De vereniging heeft in 1990 een behoorlijk kapitaal opgebouwd. Als dit niet nodig is om een tegenvaller op te vangen moet het mogelijk zijn behoorlijk wat rente te krijgen.

- **Uitgaven**:
  1. Administratie
     Dit is bedoeld voor materiaal voor de secretaris en penningmeester. De hoogte is bepaald aan de hand van de hoogte van de uitkomst over 1990 en de realisatie in 1991 tot nu toe.
  2. Kamer van Koophandel
     Dit is een jaarlijks terugkerende inschrijving van $f\,61,00$.
  3. Bestuurskosten
     Hieronder vallen kosten als telefonische vergaderingen, vergoeding reiskosten voor een eventuele physieke bijeenkomst etc.
  4. Computerfaciliteiten
     We maken gebruik van fileserver faciliteiten. Die worden op dit moment niet in rekening gebracht, maar dit kan in de toekomst wel eens veranderen. Vandaar dat dit als PM-post wordt opgevoerd.
  5. Nieuwsbrief/Verslagen
     Het copiëren en verspreiden van de verslagen van de bijeenkomsten. De kosten bedragen ongeveer $f\,20,00$ per exemplaar.
  6. Reisbijdragen
     Het is de bedoeling dat de vereniging bijdraagt in de kosten van het bijwonen van buitenlandse bijeenkomsten die met TEX te maken hebben. Dit kan zowel zijn een afvaardiging van het bestuur als ook een gewoon lid dat graag eens zo'n bijeenkomst wil bijwonen.
     Als tegenprestatie wordt een verslag van de bijeenkomst verwacht, ter publicatie binnen de vereniging.
  7. Representatie
     Als bestuursleden van zusterverenigingen bij onze bijeenkomst uitgenodigd worden wordt een tegemoetkoming in de kosten gegeven.
  8. Onvoorzien
     Spreekt voor zich.

TeX-NL subscription

6 october 1991

TeX-NL is de Nederlandstalige TEX-informatie distributielijst (ook wel discussielijst genoemd). Het adres is:

`TEX-NL@HEARN`

Men kan zich op deze TeX-NL discussielijst abonneren (TEX-NL mails ontvangen en versturen) via de volgende VAX/VMS commando's (of analoge commando's voor andere computer systemen):

```
$
$ SEND LISTSERV@HEARN           (of listserv@nic.surfnet.nl)
  > SUBSCRIBE TEX-NL  your_name
$
```

Een lijst van deelnemers is te verkrijgen via de commando's:

```
$
$ SEND LISTSERV@HEARN           (of listserv@nic.surfnet.nl)
  > REVIEW TEX-NL
$
```

Met als resultaat:

```
*
*  TEX-NL
*
*  Review=       Public
*  Subscription= Open
*  Send=         Public
*  Notify=       Yes
*  Reply-to=     List,Ignore
*  Files=        Yes
*  Validate=     Store only
*  Errors-To=    Owners
*  X-Tags=       Comment
*  Stats=        None,Private
*  Confidential= No
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*  owner=  Quiet:,BRAAMS@HLSDNL5    (Johannes Braams)
*  owner=  EVERS@HUTRUU53           (Evert Jan Evers)
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SYLVIA@HNYMPI51	"Sylvia Aal"
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erikjan@ICCE.RUG.NL	Erik-Jan Vens
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BARKEY@ITI.TNO.NL	Chuck Barkey
SURF114@KUB.NL	Frank Poppe
BORDEWIJK@KVI.NL	JOHAN BORDEWIJK
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```
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rein@RUG4.CS.RUG.NL                     Rein Smedinga
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BILT@RUUMTC.TCU.RUU.NL                  "A. van der Bilt"
nspit@RUUNSA.FYS.RUU.NL                 "Werenfried Spit"
spit@RUUNSA.FYS.RUU.NL                  "Werenfried Spit"
ELBERS@SARA.NL                          Chris Elbers
petervc@SCI.KUN.NL                      Peter van Campen
NETNEWS@TREARN                          NETNEWS SERVER
STELP@TUDGV1.TUDELFT.NL                 David Stelpstra
HUISMAN@TUDW03.TUDELFT.NL               H. Huisman
TH788310@TWNCTU01                       TSAI, YING-TEH
eleipb@URC.TUE.NL                       Phons Bloemen
rcpt@URC.TUE.NL                         Piet Tutelaers
KALPAKLI@UWAV1.U.WASHINGTON.EDU         Mehmet Kalpakli   Kalpakli@uwav1.u.wash
KNAPPEN@VKPMZD.KPH.UNI-MAINZ.DE         Joerg Knappen Uni-Mainz
KNAPPEN@VKPMZD.PHYSIK.UNI-MAINZ.DE      J"ORG KNAPPEN
best@ZEUS.RIJNH.NL                      Robert W. Best
*
* Total number of "concealed" subscribers:         2
* Total number of users subscribed to the list:  151  (non-"concealed" only)
* Total number of local node users on the list:    0  (non-"concealed" only)
*
```

Opmerkingen:

- Verzocht wordt om de TEX-NL listserver niet te gebruiken voor het versturen van grote bestanden (programma's) indien van het alternatief: **de TEX-NL fileserver** (*zie bijlage E*), gebruik gemaakt kan worden.
- Daar ook enkele buitenlanders meeluisteren, wordt men verzocht de 'subject' van de mail in het Engels op te geven.
- De TEX-NL listserver is bij uitstek geschikt voor een verzoek voor ondersteuning bij een TEX/LATEX/driver probleem, voor vragen over beschikbaarheid van bepaalde software modulen, voor aankondigingen van bijeenkomsten en/of cursussen, voor het attenderen op bepaalde publicaties, voor het attenderen op bepaalde produkten, voor een mededeling die ook voor een grotere groep interessant is, etcetc..

NTG fileserver faciliteiten

6 october 1991

Sinds mei 1989 heeft NTG de TEX-NL fileserver. Voor leden interessante files worden daarbij centraal beschikbaar gesteld.
Men kan files van deze fileserver betrekken via de volgende VAX/VMS commando's (of analoge commando's voor andere computer systemen):

```
$
$ SEND LISTSERV@HEARN                (of: listserv@nic.surfnet.nl)
  > GET filename filetype
$
```

Waarbij de mogelijke *filenames* en *filetypes* in de hieronder getoonde listing zijn opgenomen.

De lijst van alle aanwezige files is te verkrijgen via de commando's:

```
$
$ SEND LISTSERV@HEARN                (of: listserv@nic.surfnet.nl)
  > GET TEX-NL FILELIST
$
```

Met als resultaat:

```
*  TeX-NL Filelist
*
*  Contains
*      -- general TeX stuff (implementations for micros, graphical
*         shells, printer drivers)
*      -- specifically Dutch stuff (styles and options, hyphenation
*         patterns)
*      -- Dutch TeX Users Group (NTG) stuff
*
*  ****************************************************************
*
*  This file lists the programs that are stored on LISTSERV and can be
*  retrieved by network users.
*
*  If an entry shows nrecs=0 the file is not available.
*
*  This filelist may be sorted in columns 47 to 63 to get a list of
*  files in the order of their updates. Sorting in descending order
*  shows the most recently updated files at the top.
*
* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
*
*  The GET/PUT authorization codes shown with each file entry describe
*  who is authorized to GET or PUT the file:
*
*     ALL = Everybody
*     N/A = Not Applicable
*     LCL = Local users, as defined at installation time
*     PRV = Private, ie list members
*     OWN = List owners
*     NAD = Node Administrators, ie official BITNET/EARN contacts
*     CTL = LISTEARN Controllers (Also called "Postmasters")
*
*:    NTG = 'BRAAMS@HLSDNL5',   /*  Johannes Braams                  */
*:          'BRAAMS@HLSDNL50',  /* Johannes Braams                   */
*:          'BRAAMS@HLSDNL51',  /* Johannes Braams                   */
*:          'BRAAMS@HLSDNL52',  /* Johannes Braams                   */
*:          'U641000@HNYKUN11', /* Victor Eijkhout                   */
*:          'U641001@HNYKUN11', /* Victor Eijkhout                   */
*:          'EVERS@HUTRUU53'    /* Evert Jan Evers                   */
*
* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::

**********************************************************************
*
*  Dutch hyphenation patterns
*
*  Hyphen1 TeX : shortened Celex-list, all lines with a 5 in them removed,
*                in order to be able to load it when you can't stretch
*                the 'triesize'
*  Hyphen2 TeX : long and powerful (author: Celex, Nijmegen)
*                Note that this requires stretching the 'triesize'
*                of both TeX and IniTeX!
*  Hyphen3 TeX : The (very short) patterns for Dutch created by Peter Vanroose
*  UShyphen ADD: extra patterns to handle the Tugboat exception log
*                (author: Gerard Kuiken)
```

```
*
*************************************************************************
*                             rec               last - change
* filename filetype   GET PUT -fm lrecl nrecs   date     time   File description
* -------- --------   --- --- --- ----- ----- -------- -------- ----------------
  HYPHEN1  TEX        ALL NTG V      80  6122 91/05/03 20:00:23
  HYPHEN2  TEX        ALL NTG V      80  7945 91/05/04 10:07:40
  HYPHEN3  TEX        ALL NTG V      80   338 91/05/03 19:56:55
  USHYPHEN ADD        ALL NTG V      73   378 90/05/14 13:20:11

*************************************************************************
*
*  Options for Dutch
*
*  A4 STY    : A4-paper width and height
*              by Nico Poppelier and Johannes Braams (historical order)
*              Note that this is not the A4 option of John Pavel.
*  A4 TeX and A4 DOC: Accompanying documentation for A4.STY
*  Dutch old : Redefines captions and does other useful things for
*              all standard document styles. (author: Johannes Braams)
*              This is really an international option.
*              This file has been superseded by the dutch.sty in the
*              BABEL system (See further on)
*  German STY: The style on which 'Dutch' was based. The two are
*              compatible. (author: Hubert Partl)
*  Sober STY : Reduces section headings and white spaces a bit;
*              this is only repair for the standard styles. The official
*              NTG styles (below) can do without. (author: Nico Poppelier)

*************************************************************************
*                             rec               last - change
* filename filetype   GET PUT -fm lrecl nrecs   date     time   File description
* -------- --------   --- --- --- ----- ----- -------- -------- ----------------
  A4       STY        ALL NTG V      80   135 91/02/13 10:50:05
  A4       DOC        ALL NTG V      80   511 91/02/13 13:58:32
  A4       TEX        ALL NTG V      80    39 91/02/13 10:49:00
  DUTCH    OLD        ALL NTG V      80   397 90/12/20 18:45:23
  GERMAN   STY        ALL NTG V      80   445 91/06/12 09:20:26
  SOBER    STY        ALL NTG V      77   147 89/06/24 16:06:16

*************************************************************************
*
*  The BABEL system
*
*      This is the BABEL system as it is described in TUGboat.
*
*      See the file BABEL README for further instructions
*      The file BABEL BUG lists bugreports and comments since 8/7/91
*      The file BABEL ZOOUUE contains all files
*
*************************************************************************
  BABEL    README     ALL NTG V      80   129 91/07/05 02:02:44
  BABEL    BUG        ALL NTG V      80   120 91/08/21 23:36:33
  BABEL    ZOOUUE     ALL NTG V      80  4768 91/08/21 23:46:54
  BABEL    TEX        ALL NTG V      80    52 91/08/21 14:53:22
  BABEL    DOC        ALL NTG V      80   755 91/08/21 14:55:02
  BABEL    COM        ALL NTG V      80   229 91/08/21 14:55:16
  BABEL    STY        ALL NTG .       .     0 ........ ........
  HYPHEN   DOC        ALL NTG V      80   325 91/08/21 23:08:08
  BABEL    HYPHEN     ALL NTG V      80   105 91/08/21 23:06:54
  BABEL    SWITCH     ALL NTG V      80    80 91/08/21 23:07:07
  BABEL22  SWITCH     ALL NTG V      80    88 91/08/21 23:07:21
  BABEL32  SWITCH     ALL NTG V      80    87 91/08/21 23:07:56
  LANGUAGE DAT        ALL NTG V      80     6 91/05/22 01:52:28
  LATEXHAX DOC        ALL NTG V      80   102 91/08/21 14:55:29
  LATEXHAX COM        ALL NTG V      80    58 91/08/21 14:55:41
  LATEXHAX STY        ALL NTG .       .     0 ........ ........
  ESPERANT DOC        ALL NTG V      80   213 91/08/21 14:58:02
  ESPERANT STY        ALL NTG V      80    99 91/08/21 14:58:22
  DUTCH    DOC        ALL NTG V      80   517 91/08/21 14:58:51
  DUTCH    STY        ALL NTG V      80   158 91/08/21 14:59:13
  ENGLISH  DOC        ALL NTG V      80   260 91/08/21 15:00:33
  ENGLISH  STY        ALL NTG V      80   115 91/08/21 15:01:30
  GERMANB  DOC        ALL NTG V      80   707 91/08/21 15:01:59
  GERMANB  STY        ALL NTG V      80   259 91/08/21 15:02:55
  FRANCAIS DOC        ALL NTG V      80   616 91/09/21 23:06:17
  FRANCAIS STY        ALL NTG V      80   262 91/09/21 23:05:37
  ITALIAN  DOC        ALL NTG V      80   226 91/08/21 15:03:42
  ITALIAN  STY        ALL NTG V      80    99 91/08/21 15:03:57
  PORTUGES DOC        ALL NTG V      80   236 91/08/21 15:04:16
  PORTUGES STY        ALL NTG V      80   108 91/08/21 15:04:31
  SPANISH  DOC        ALL NTG V      80   279 91/08/21 15:04:59
  SPANISH  STY        ALL NTG V      80   124 91/08/21 15:05:14
  DANISH   DOC        ALL NTG V      80   211 91/08/21 15:05:29
  DANISH   STY        ALL NTG V      80    99 91/08/21 15:05:49
  NORSK    DOC        ALL NTG V      80   256 91/08/21 15:06:02
  NORSK    STY        ALL NTG V      80   121 91/08/21 15:06:19
  SWEDISH  DOC        ALL NTG V      80   216 91/08/21 15:06:35
  SWEDISH  STY        ALL NTG V      80    99 91/08/21 15:06:54
  FINNISH  DOC        ALL NTG V      80   214 91/08/21 15:07:17
  FINNISH  STY        ALL NTG V      80   100 91/08/21 15:07:36
  MAGYAR   DOC        ALL NTG V      80   232 91/08/21 15:08:00
  MAGYAR   STY        ALL NTG V      80   108 91/08/21 15:08:13
  CROATIAN DOC        ALL NTG V      80   213 91/08/21 15:08:35
  CROATIAN STY        ALL NTG V      80   100 91/08/21 15:08:48
  CZECH    DOC        ALL NTG V      80   235 91/08/21 15:09:10
  CZECH    STY        ALL NTG V      80   108 91/08/21 15:09:24
  POLISH   DOC        ALL NTG .       .     0 ........ ........
  POLISH   STY        ALL NTG .       .     0 ........ ........
  ROMANIAN DOC        ALL NTG V      80   211 91/08/21 15:09:38
  ROMANIAN STY        ALL NTG V      80    99 91/08/21 15:10:00
```

```
  SLOVENE  DOC        ALL NTG V      80   214 91/08/21 15:10:14
  SLOVENE  STY        ALL NTG V      80    99 91/08/21 15:10:30
  RUSSIAN  DOC        ALL NTG V      80   443 91/08/21 15:10:42
  RUSSIAN  STY        ALL NTG V      80   166 91/08/21 15:11:04
  CYRILLIC DOC        ALL NTG V      80   298 91/08/21 15:11:45
  CYRILLIC STY        ALL NTG V      80   137 91/08/21 15:12:07
**************************************************************************
*
*  Dutch styles (author: Victor Eijkhout)
*
*  Completely compatible to 'article' and 'report', but improved layout;
*  these styles have as default language English,
*  for Dutch or German add corresponding style options
*
*  Artikel1 doc : Article-compatible, tight look, documented (somewhat)
*  Artikel1 sty : without documentation
*  Artikel2 doc : Article-compatible, heavily indented; quite something else
*  Artikel2 sty : without documentation
*  Artikel3 doc : Article-compatible; zero parindent, positive parskip;
*                 otherwise similar to Artikel1
*  Artikel3 sty : without documentation
*  Rapport1 doc : Report-compatible; looks like Artikel1
*  Rapport1 sty : without documentation
*  Rapport2 doc : will probably not come into being.
*  Rapport2 sty : without documentation
*  Rapport3 doc : Report-compatible; looks like Artikel3
*  Rapport3 sty : without documentation
*  Boek doc     : Book-compatible; artikel1 layout
*  Boek sty     : without documentation
*
*  Options for the Dutch styles
*
*  Ntg10 doc    : 10point option for all styles
*  Ntg10 sty    : without documentation
*  Ntg11 doc    : 11point option for all styles
*  Ntg11 sty    : without documentation
*  Ntg12 doc    : 12point option for all styles
*  Ntg12 sty    : without documentation
*  Voorwerk doc : Replaces Titlepage.STY for report styles
*  Voorwerk sty : without documentation
*
*  NTGstyle UUE : All in one buy; UUencoded ZOO archive (see below
*                 for ZOO)
**************************************************************************
*                             rec               last - change
* filename filetype   GET PUT -fm lrecl nrecs   date     time   File description
* -------- --------   --- --- --- ----- -----  -------- -------- ----------------
  ARTIKEL1 DOC        ALL NTG V      80  1204 91/02/26 21:26:37
  ARTIKEL1 STY        ALL NTG V      80   618 91/02/26 21:28:09
  ARTIKEL2 DOC        ALL NTG .       .     0 ........ ........
  ARTIKEL2 STY        ALL NTG V      80   570 90/12/20 12:15:30
  ARTIKEL3 DOC        ALL NTG .       .     0 ........ ........
  ARTIKEL3 STY        ALL NTG V      80   648 91/03/22 19:01:04
  RAPPORT1 DOC        ALL NTG .       .     0 ........ ........
  RAPPORT1 STY        ALL NTG V      80   654 91/03/22 19:03:50
  RAPPORT2 DOC        ALL NTG .       .     0 ........ ........
  RAPPORT3 DOC        ALL NTG V      80  1536 91/05/17 00:35:29
  RAPPORT3 STY        ALL NTG V      80   775 91/05/17 00:46:49
  BOEK     DOC        ALL NTG .       .     0 ........ ........
  BOEK     STY        ALL NTG V      80   682 91/02/21 11:24:43
  NTG10    DOC        ALL NTG V      80   193 91/02/26 12:12:44
  NTG10    STY        ALL NTG V      80   165 91/02/26 21:13:36
  NTG11    DOC        ALL NTG V      80   197 91/02/26 12:14:29
  NTG11    STY        ALL NTG V      80   168 91/02/26 21:14:13
  NTG12    DOC        ALL NTG V      80   196 91/04/25 09:53:50
  NTG12    STY        ALL NTG V      80   169 91/04/25 09:54:26
  VOORWERK DOC        ALL NTG .       .     0 ........ ........
  VOORWERK STY        ALL NTG V      80    61 91/05/22 03:13:47
  NTGSTYLE UUE        ALL NTG V      80  4549 91/05/30 23:30:30

**************************************************************************
*
*  The letter style according to Dutch NEN norms (by Victor Eijkhout)
*
*  BRIEF STY    : The style file
*  BRIEF TeX    : An example letter
*  BRIEFDOC TeX : Explanation of the options of the letter style
*
**************************************************************************
*                             rec               last - change
* filename filetype   GET PUT -fm lrecl nrecs   date     time   File description
* -------- --------   --- --- --- ----- -----  -------- -------- ----------------
  BRIEF    STY        ALL NTG V      80   683 91/10/05 18:44:55
  BRIEF    TEX        ALL NTG V      72   198 89/10/24 16:48:49
  BRIEFDOC TEX        ALL NTG V      80   283 90/11/02 14:02:00

**************************************************************************
*
*  The latest in TeXnology
*
*  LATEXSRC UUE : (nearly) Latest versions of all LaTeX materials;
*                 UUencoded ZOO archive
*  ASCII TeX    : ASCII table (author: Victor Eijkhout)
*  TUGBOAT COM  : Common commands for Tugboat styles
*  TUGBOAT STY  : Plain TeX style for Tugboat article
*  LTUGBOAT STY : LaTeX style for Tugboat articles
*
*  BTXMAC.TEX   : BibTeX 0.99c macros for use with plain TeX.
*                 The file specifies that is meant for TeX 3.0 or later
*
*  MULTICOL     : The multicolumn package written by Frank Mittelbach and
```

```
*                Rainer Schoepf, as published in TUGboat.
*                The packacge includes DOC.STY. The package consists of three
*                files, MULTICOL README, MULTICOL ZOOUUE01, MULTICOL ZOOUUE02.
*                These files must be distributed together.
*
*  CHANGEBARS   : Michael Fine's changebar.sty, modified for use with plain
*                 TeX as well as with LaTeX. Also modified to support DVItoPS
*                 \specials as well as DVI2LN3 \specials
*
*  SUPERTAB     : Theo Jurriens' supertabular.sty for creating tables longer
*                 than one page. Modified by Gabriele Kruljac and Johannes
*                 Braams. Now also supports different tablehead on first page
*                 and different tabletail on last page of the table.
*                 Note: supertabular.doc is *NOT* meant for FMi's doc option
*
*  CMRULE       : "The TeX Ruler" by Victor Eykhout using cm-fonts
*  PSRULE       : "The TeX Ruler" by Victor Eykhout using PostScript fonts
*                 Both files contain uuencoded dvi-files
*
*  NASSFLOW UUE : A uuencoded ZOO archive containing style options for
*                 nassi-schneidermann diagrams or flow-diagrams.
*                 Man-pages are included in the archive.
*                 The file NASSFLOW README lists what is available.
*
**************************************************************************
*                            rec               last - change
* filename filetype   GET PUT -fm lrecl nrecs   date     time   File description
* -------- --------   --- --- --- ----- ----- -------- -------- ----------------
  LATEXSRC UUE        ALL NTG V      80 10763 91/02/20 13:51:06
  ASCII    TEX        ALL NTG V      80   190 91/06/26 22:43:05
  TUGBOAT  COM        ALL NTG V      80   844 91/07/30 23:40:36
  TUGBOAT  STY        ALL NTG V      80  2304 91/07/30 23:42:10
  LTUGBOAT STY        ALL NTG V      80   509 91/07/30 23:43:06
  BTXMAC   TEX        ALL NTG V      80   624 90/08/15 16:59:21
  MULTICOL README     ALL NTG V      80   175 91/05/02 00:44:00
  MULTICOL ZOOUUE01   ALL NTG V      80  1000 91/05/02 00:47:03
  MULTICOL ZOOUUE02   ALL NTG V      80   771 91/05/02 00:45:06
  CHNGBARS STY        ALL NTG V      80   881 91/06/16 16:02:05
  SUPERTAB DOC        ALL NTG V      80   459 91/08/01 17:35:28
  SUPERTAB STY        ALL NTG V      80   241 91/08/01 17:36:54
  SUPERTAB TEX        ALL NTG V      80   234 91/04/25 17:37:27
  CMRULE   UUE        ALL NTG V      80  1008 91/07/15 17:17:01
  PSRULE   UUE        ALL NTG V      80  1019 91/07/15 18:07:46
  NASSFLOW README     ALL NTG V      80    37 91/06/21 14:37:16
  NASSFLOW UUE        ALL NTG V      80   600 91/07/05 10:22:33

**************************************************************************
*
*  Pleasant reading material about TeX and its uses
*
*  NTGstyle TeX : Manual for the Dutch LaTeX styles
*  Layout TeX   : Article about documentstyle development in LaTeX
*                 Intended as supplement to chapter 5 LaTeX book
*  Layout2 TeX  : Goes with previous; in German (Hubert Partl)
*  Refman STY   : Needed for previous two
*  Bridge TeX   : About setting bridge games in LaTeX (Kees van der Laan)
*  Artdoc TeX   : The history of the 'Artikel' styles; almost a
*                 manual for document style development; in Dutch
*  Rapdoc TeX   : The same for the 'Rapport' styles (Victor Eijkhout)
*  Gentle TeX   : A Gentle Introduction to TeX (Michael Doob)
*
*  TTN00    TEX : Het eerste nummer van 'TeX and TUG News'' a prototype issue'
*  TUGNEWS  STY : De bijbehorende style file
*
**************************************************************************
*                            rec               last - change
* filename filetype   GET PUT -fm lrecl nrecs   date     time   File description
* -------- --------   --- --- --- ----- ----- -------- -------- ----------------
  NTGSTYLE TEX        ALL NTG V      72   122 89/09/04 12:20:21
  LAYOUT   TEX        ALL NTG V      79  1090 89/06/26 12:12:34
  LAYOUT2  TEX        ALL NTG V      80  1011 89/06/26 12:03:15
  REFMAN   STY        ALL NTG V      79   492 90/03/26 18:12:17
  BRIDGE   TEX        ALL NTG V      75   415 89/06/26 11:54:36
  ARTDOC   TEX        ALL NTG V      71   708 89/09/04 12:21:36
  RAPDOC   TEX        ALL NTG V      75   735 89/09/04 12:22:13
  GENTLE   TEX        ALL NTG V      79  5341 90/01/09 13:56:01
  TTN00    TEX        ALL NTG V      80  2047 91/06/04 16:54:07
  TUGNEWS  STY        ALL NTG V      80    61 91/06/04 16:50:33

**************************************************************************
*
*  Nederlandstalige TeX Gebruikersgroep (Dutch TeX Users Group)
*
*  Notuul1 TeX  : Vergadering 23 juni 1988
*  Notuul2 TeX  : Vergadering 24 november 1988
*  Notuul3 TeX  : Vergadering 11 mei 1989 (3 bestanden: notuul3a,b,c)
*  TeXdag89 TeX : Verslag eerste Nederlandse TeXdagen 29/30 juni 1989
*
*  Statuten TeX : De statuten van de vereniging NTG
*  Statuten sty : bijbehorende document stijl-optie
*
**************************************************************************
*                            rec               last - change
* filename filetype   GET PUT -fm lrecl nrecs   date     time   File description
* -------- --------   --- --- --- ----- ----- -------- -------- ----------------
  NOTUUL1  TEX        ALL NTG V      80  1043 89/06/26 11:50:54
  NOTUUL2  TEX        ALL NTG V      80  1457 89/06/26 11:52:06
  NOTUUL3A TEX        ALL NTG V      80   108 89/10/30 10:12:47
  NOTUUL3B TEX        ALL NTG V      80  1941 89/10/30 10:13:27
  NOTUUL3C TEX        ALL NTG V      80  2634 89/10/30 10:14:05
  TEXDAG89 TEX        ALL NTG V      73   274 89/12/08 13:04:52
```

```
  STATUTEN TEX        ALL NTG V      80   532 91/03/04 20:55:17
  STATUTEN STY        ALL NTG V      80    94 91/03/04 14:14:21

************************************************************************
*
*  TeX for micros
*
*  STZOO UUE    : UUencoded ARC archive with ZOO for the Atari ST
*  MSZOO UUE    : zoo.exe for MS-DOS, UUencoded
*  MSFIZ UUE    : fiz.exe for MS-DOS, UUencoded
*  MSSUP201 UUE : MS-DOS support for zoo, ZOO archive, UUencoded
*  Z201SRC1 UUE : Sources of zoo, part 1, ZOO archive, UUencoded
*  Z201SRC2 UUE : Sources of zoo, part 2, ZOO archive, UUencoded
*  TEXSHELL UUE : TeX environment for the Atari ST, ZOOed
*  WP2LATEX UUE : WordPerfect to LaTeX translator, ZOOed
*
************************************************************************
*                            rec               last - change
* filename filetype   GET PUT -fm lrecl nrecs   date     time   File description
* -------- --------   --- --- --- ----- ----- -------- -------- ----------------
  STZOO    UUE        ALL NTG F      61  2181 89/12/14 12:33:31
  MSZOO    UUE        ALL NTG V      61   946 90/03/18 20:53:06
  MSFIZ    UUE        ALL NTG V      61   297 90/03/18 20:54:11
  MSSUP201 UUE        ALL NTG V      61   621 90/03/18 20:55:29
  Z201SRC1 UUE        ALL NTG V      61  1975 90/03/18 20:58:36
  Z201SRC2 UUE        ALL NTG V      61  2046 90/03/18 20:59:21
  TEXSHELL UUE        ALL NTG V      62   594 90/01/03 16:12:11
  WP2LATEX UUE        ALL NTG V      80  1229 90/03/12 15:58:03

************************************************************************
*
*    METAFONT sources
*
*    AMSREAD.ME   : A few notes about the contents of AMSFONTS.UUE
*    AMSFONTS.UUE : The AMS font collection UUencoded ZOO archive
*                   split in ten pieces of app. 100kByte
*
************************************************************************
*                            rec               last - change
* filename filetype   GET PUT -fm lrecl nrecs   date     time   File description
* -------- --------   --- --- --- ----- ----- -------- -------- ----------------
  AMSREAD  ME         ALL NTG V      74    45 90/08/02 14:18:33
  AMSFONTS UU1        ALL NTG F      80  1644 90/08/02 15:50:09
  AMSFONTS UU2        ALL NTG F      80  1643 90/08/02 15:58:11
  AMSFONTS UU3        ALL NTG F      80  1643 90/08/02 16:07:46
  AMSFONTS UU4        ALL NTG F      80  1643 90/08/02 16:41:15
  AMSFONTS UU5        ALL NTG F      80  1643 90/08/02 16:44:37
  AMSFONTS UU6        ALL NTG F      80  1643 90/08/02 16:47:16
  AMSFONTS UU7        ALL NTG F      80  1643 90/08/02 16:49:31
  AMSFONTS UU8        ALL NTG F      80  1643 90/08/02 16:51:56
  AMSFONTS UU9        ALL NTG F      80  1643 90/08/02 16:53:58
  AMSFONTS UUA        ALL NTG F      80  1659 90/08/02 16:55:44
```

Het adres van de Duitse fileserver (Heidelberg) is:
LISTSERV@DHDURZ1

Voor NTG leden die niet op een netwerk zijn aangesloten, kunnen de meeste files via diskettes verkregen worden. Nadere informatie hierover bij Gerard van Nes.

Van de Voorzitter

Oktober 1991

1 NTG

De beleidsintenties, zoals vermeld in de vorige aflevering, zijn in gang gezet. Aan de continuïteit is aandacht besteed: periodieke bestuursverkiezingen zijn een feit, aan het info- en welkomstpakket wordt gewerkt, een redactieteam voor de MAPS is gevormd, 'TEX voor de wetenschappers te beginnen met de wiskundigen,' is onderwerp van gesprek tussen CWI, Het Wiskundig Genootschap en NTG, met de planning van de voor- en najaarsbijeenkomsten wordt 1 à 2 bijeenkomsten vooruit gelopen. De NTG dagen hangen in de mottenkast. Daarnaast wordt de discussielijst, TEX–NL, effectief gebruikt. De fileserver TEX–NL is fraai geordend.[1] Een floppy service wordt onderhouden door de Gerard van Nes en anderen. EMTEX gaat rond via een 'ketting floppy,' bewaakt door de WG PC's De MAPS-en bevatten overdrukken van het goede werk van elders, met ruim 100p/nummer en een oplage van 175.

2 Activiteiten

Het blijkt steeds weer dat het TEX-werk voor het merendeel der leden een vrije-tijdsaangelegenheid is, met als gevolg dat aan voorgenomen zaken niet toegekomen wordt, helaas. Continuïteit in de NTG-dagen is er niet (Gelukkig niet zo erg nu er EuroTEX bijeenkomsten zijn.) Het Babel project is min of meer afgerond. Educatie geniet de nodige aandacht: aan een 'Insights in TEX' cursus voor het voorjaar 92 wordt gewerkt,[2] de internationale discussie over educatie wordt opgerakeld.

3 NTG–TUG

Met TUG is de mogelijkheid van het wederzijdse lidmaatschap overeengekomen. Dit geldt nog slechts voor persoonlijke leden. Diverse NTG leden dragen hun steentje aan TUG bij: Victor Eijkhout is editor van de macro column in TUGboat, Nico Poppelier is lid van de Knuth scholarship commissie, en ondergetekende is ambsthalve lid van de BoD en daaruit voortvloeiend van de 'Long Range Planning' committee en de Publications committee.

4 TUG

TUG zit nog in de financiële problemen. De contributie gaat omhoog, $60,–/jaar.

TUGboat wordt op 800p/jaar gehouden, 4 nummers, naast de extra uitgave van de proceedings van de jaarlijkse TUG bijeenkomsten. Extra verschenen is de Resource Guide. Barbara Beeton wordt nu bijgestaan door Julie Wilzcek van de AMS.

TTN zal periodiek verschijnen, met Christina Thiele en Chris Carruthers als het Canadese productieteam. Hoezo International TUG?

De artikelen van blijvende waarde verschijnen in TUGboat; het meer tijdelijke, het nieuws, verschijnt in TTN. TEXnisch gesproken wordt met TUGboat typografische kwaliteit nagestreefd. Met TTN wordt gemikt op snelheid (geen oud nieuws) en portabiliteit (ook distributie via electronische netten).

Algemene verkiezingen voor de BoD worden dit jaar opgestart. Voor 1992 zijn als interim 'executives' (dagelijks bestuur) aangesteld: Malcolm Clark, voorzitter, Christina Thiele, vice-voorzitster en secretaresse, en Allen Dyer, penningmeester. TUG International? Nog twijfels? Voor meer besluiten zie het verslag van de BoD bijeenkomst te Dedham.

5 TEX in Europe

Er is geen Europese coördinator meer. Er zijn een 10-tal Europese gebruikersgroepen. Een Europese TEX Organisatie (ETO) is niet opgestart. DANTE en GUTenberg zijn zeer actief aan het ene eind van het spectrum, met Polen aan de andere kant dat niet tot organisatie kan komen. De overigen zweven er zo'n beetje tussenin. Informatie uitwisseling vindt plaats; er is geen overlegstructuur: 'We kennen elkaar, en houden elkaar op de hoogte.' Zie ook verslag EuroTEX91.

En de NTG, hij ploegde voort . . .

[1] De fileserver cs.ruu.nl voldoet in een behoefte. Dank voor deze faciliteit is verschuldigd aan de RUU.

[2] Zie bijlage $\mathcal{L}$ voor aankondiging.

NTG's continuation: The Third Year

Kees van der Laan

September, 1991

An NTG year of activity parallels the Dutch academic year: September to September. The membership has been increased by roughly 40% to circa 140 members of which 25 or so are institutional members. Due to the intermediate TEX course some financial reserve has been built up.

NTG's third year can be characterized by 'continuation,' and the embarkation upon a multi-year project.

1 Continued activities

1.1 Meetings

Two meetings were organized: the fall 1990 meeting was hosted by Digital Equipment Cooperation and the spring 1991 meeting was hosted by Elsevier Science Publishers. At the first meeting Van der Laan presented his SGML(TEX,...) paper; at the latter meeting accounts were given from sites where TEX is in production:

- EGD (Energiebedrijf Groningen en Drente) and
- CAWS (Centrum voor Automatisering van Wapen en Commando Systemen der Koninklijke marine).

On both meetings much exchange of know-how took place and organizational details were discussed. Each meeting attracted about 40 members. Prior to each meeting 'MAPS' (Minutes & APpendiceS) were distributed to the members, and to the secretaries of TUG and the LUGs.

1.2 Publications

Noteworthy are the number of TEX articles, by NTG members, published in TUGboat, the presentations given at the EuroTEX90 conference by Johannes Braams, Victor Eijkhout, Kees van der Laan, and Nico Poppelier. Also noteworthy are Nico's contribution as invited speaker to the Dedham conference and Kees' Math into BLUes part I contribution. Johannes reported about his Babel project at the EuroTEX91 meeting at Paris, while Kees continued with his Math into BLUes, part II.

1.3 BoD work

For the NTG president it was hard to participate in the Board of Directors meetings and to contribute to the publications and long-range planning committees of TUG. The handling of the e-mail emerging from BoD (and committees) discussions and votings, and the various user group lists are time-consuming.

1.4 Working Groups

Very much appreciated are the activities of NTG's WGs —Education, PCs, Communication, SGML-TEX, TEX3.14..., and 'Neerlandica,' with reports of their activities published in the MAPS. Furthermore, Nico and Johannes are active in the international LATEX3 project. It was felt that the work on Journal Guidelines was mainly the concern of publishing houses, and therefore the WG on the matter was removed.

1.5 Contact T(L)UGs

Contacts with TUG and other LUGs were cherished: participation in the GUTenberg and Euro-Summit meetings, where cooperation and the internationalization of TUG were discussed.

1.6 Listserver and fileservers

Steady use was made of the listserver `tex-nl@hearn` —questions & answer, and info exchange— and the fileservers: `tex-nl@hearn`, and `mail-server@cs.ruu.nl`. (For the latter also anonymus FTP is possible.) No data on the frequency of access of the fileservers are available.

1.7 NTG days

It is a pity that no open meeting —so-called NTG-days— has been organized, because of lack of volunteers to do so. On the other hand, with the EuroTEX meetings each year one could ask wether there is still a need for it. No courses were offered by NTG.

1.8 Floppy service

Gerard maintained a floppy service for archive material aimed at those deprived from email access.

2 New activities

2.1 Board election

The renewal process of the NTG board has started. The aim is to have active members on the board, raised to their position by election. Kees van der Laan was (re)elected as president and Jos Winnink was elected as member.

2.2 Membership services

An emTeX distribution service has been set-up. An Info-package and a welcome-package, for candidate respectively new members, has been initiated. The reciprocal membership TUG-NTG is near to be agreed upon.[1]
EMTEX is distributed via a 'floppy-chain,' guarded by the PC Working Group.

2.3 Multi-year plans

Furthermore, we embarked the multi-year project:

> 'TEX for the scientists, why not begin with the mathematicians?'

In order to get this off the ground, the Dutch (Math) scientific community has been asked for its support in facilitating the use of TEX. With respect to the mathematicians 'Het Wiskundig Genootschap' (Dutch equivalent of AMS) and 'Het Centrum voor Wiskunde en Informatica (CWI),' have been approached.[2]

3 Projected meetings

- NTG's 91 fall meeting, 21 November at Eindhoven, is themed: Fun with TEX.
- NTG's 92 spring meeting is themed: Scientific publishing and TEX.
- NTG's 92 fall meeting: 'Typography,' to be worked out.

4 TUG issues

Last but not least, much attention has been given to create an International TUG, and to reorganize TUGboat into a more scholarly journal, along with a separate newsletter TEXand TUG news, TTN. Both will certainly influence and strengthen our MAPS.
BoD positions are open for elections.

[1] Actually agreed up in October 1991 for ordinary members.

[2] The October meeting yielded a cooperative attitude with 'Het Wiskundig Genootschap' offering some pages in their 'Mededelingen' for announcements, and what NTG is up to. It was also suggested to participate in the spring Dutch Math meeting and tell about TEXing math. We will certainly do so.

Working Group 1: Education

Contribution to TUG LRP report[1]

Reactions from: Malcolm Clark, and Don Hosek

Kees van der Laan

1 Educational issues

The starting point for the future is

- professionalism and
- selfcontainedness (selfsupporting).

The latter means that education should not have the function of a money-making nor money-costing activity. Because of the importance of education it is desirable to create a TUG education committee to guard, stimulate and organize events. With respect to education the following issues are relevant

1. courses (and courseware)
2. workshops
3. self-teaching materials.

Furthermore, it must be kept in mind that, like TEX, educational issues can profit from a worldwide approach.

1.1 Courses

With respect to courses we have to deal with

1. pricing policy
2. pool of teachers of sufficient quality
3. description of course modules and the interrelations
4. courseware to assist teachers
5. organizational aspects

1.1.1 Pricing policy

It is practical to have a uniform pricing policy: let us say a day of a course will cost $200,-, based upon 7 students, labwork, courseware, teacher's salary, hiring room and equipment, and refreshments. The price implies that with less than 7 sign-ups a course will be cancelled unless it serves a strategic goal. The education committee has to decide upon the course to be held, explicitly and in due time, such that potential coursetakers can be notified of cancellation. For non-T/LUG members the fee is to be augmented with 25%. The costs can go down if the course is arranged locally, where for example no rent of equipment is necesarry or teachers are available at low or no costs. Further strategic discounts can be given at the discretion of the educational committee in agreement with the treasurer.

1.1.2 Teacher's pool

Teachers themselves have to pass some examinations to proof their TEXnical knowledge and educational skills. This issue has to be dealt with the educational committee. Of course experienced teachers are freed from this process at discretion of the educational committee. One category is formed by those who as part of their education, are already qualified teachers; it remains however that TEXnical knowledge has to be ascertained. For the intermediate term a list of experienced TUG teachers have to be maintained.

1.1.3 Course descriptions

A sufficient subset from (past) TUG teachers (Malcolm Clark, Lincoln Durst, Victor Eijkhout, Doug Henderson, Amy Hendrickson, Don Hosek, Nico Poppelier, Chris Rowley, David Salomon, Joachim Schrod, Philip Taylor, ...), has to be asked to complete the work of Bart Childs: Teaching TEX, TUGboat 10#2, 156-163, and some reactions to that. That is to say: provide description of course modules and their relation, especially for

P Publishing (???)

T1 beginning TEX (demand driven, 3 days),

T2 intermediate TEX (TEXnical driven, 3 days),

T3 advanced TEX (TEXnical driven, 5 days),

L1 using LATEX (demand driven, 3 days)

L2 modifying LATEX styles(TEXnical driven, 1 day),

M1 logo design (demand driven, 3 days),

M2 font design (TEXnical driven, 5 days),

W1 WEB programming (TEXnical driven, 3 days).

[1] The start of a discussion on the Education issues. No conclusions of yet. No reaction of Doug Henderson has been received nor a message that he has received the material.

Apart from the above standard courses, special courses like SGML, typography or TEX capita, for example TEXing math for typists, can be considered. Most important of all is to get the basics straight. Get it international. Good announcements with descriptions, prerequisites, teacher name and what has been —or will be— learned items. The problem of inhomogeneous classes is not solved but hopefully lessened because of better description of prerequisites and interrelations with other modules.

1.1.4 Courseware

Courseware should be made available in the TEXniques series. By the way this series should have a uniform appearance. The TEXniques editorial team should look for copy, have it refereed, processed etc. Apart from these hand-outs, transparencies are needed. Materials to create and maintain the transparencies are needed as well. A seal, a logo, should be on all materials. By the way the appearance of the material should be such that it is easy recognizable as well.

1.1.5 Organization

For TUG courses an educational committee has to be formed. The task of this committee is to plan the courses, do the advertising, organize the courses, and finish it all up. The TUG office should assist the committee by handling all logistics, do the registration, send out confirmations, prepare certifications, and take care of financial matters.

1.2 Workshops

This very useful educational form is cheap and suitable for exchanging knowledge and experience. It supports the decentralization and is suited for LUGs.[1] TUG tradionally organized workshops along the annual TUG meetings. ukTEXug has a workshop schedule for each year. It should be stimulated! It is a small-scale cost-effective educational form.

1.3 Self-teaching materials

The educational committee should watch out for suitable tutorials, and stimulate authors to develop some. The suitability of the TUG video tapes is unclear, and has to be addressed, again by the education committee.

2 Some comments on 'Educational issues' (Malcolm Clark)

2.1 Preamble

Unfortunately I was not able to be present at the meetings of the education committee.[2] Although it seems rather reactionary, I would like to go through some of Kees' points as presented in his version 0 report of August 1991.

2.2 Starting Point

I can have no issue with the need for professionalism. But we have to come to terms with the notion that we are a vocational group, not a professional one. We may comprise many professionals, but no-one requires membership of the group as a prerequisite for professional advancement.

I am however unclear how the selfcontainedness/ selfsupporting aspect can be handled. At present a significant portion of TUG's income is generated through courses. Agreed, courses may only be one part of a generalised educational programme. I do not believe that the education committee should make this decision, which has clear implications to the organisation as a whole. To effect a balance between money-making and money-costing is not likely to be easy, unless we are talking over a time period of years. I personally see no reason to expect courses to fail to generate some income for TUG. There is clearly no need for courses to appear to be exploitive but we should not strive officiously to break even, and we should expect some return. Individual courses may have to be run in order to create a progressive structure of education, regardless of whether they are initially 'profitable'. I think we can acknowledge that 'profit' is not simply financial, nor immediate. At the present however, we cannot afford to run courses which do not at the minimum break even.

2.3 Pricing

The pricing policy is very dependent on the overheads. Note that no allowance is made here for the office overhead, or of the costs of advertising in TUGboat (I'm talking of the real costs rather than costs to an advertiser). Similarly any mailing costs incurred by TUG must be included. I am relieved to note that there is a strategic consideration included. Within the general outline though, it is unlikely that courses are run by fiat of the education committee. Courses are run in part because there are local organisers who are willing to do the legwork. The location of such organisers is likely to be rather random.

[1] Any gathering of TEXies can accomplish this! At Dedham Oregon 'workshops' were rumoured.

[2] Note Kees. What committee? As far as I know NTG's education committee never met.

2.4 Fees

Course fees have to be at a level which is plausible. If courses are cheap they may not be taken seriously. A 'normal' cost for courses in the UK is around £175–250 per day (perhaps reducing for 5 days). Provided the 'professionalism' mentioned before is attained, this is a reasonable sum. Criticism comes when we do not provide good computing equipment, or an obviously prepared course. Even if we reduce course fees because we are unsure about these items, we will still get a bad press. The most important cost to the students is time. Wasting a week of someone's time will get a very bad press. Much worse than apparently costing £250 per day.

Whether non-T/LUG members have an augmented fee, or T/TUG members have a reduced fee is unimportant. The important item is that there is a differential. Thus some aspects of education are again a benefit of membership.

2.5 Pool

I am uneasy at the 'teacher's pool'. While accepting the need for profesionalism, I am very unclear how this would be set up. I think my unease stems principally from the fear that this kind of structure may become self perpetuating and may generate a set of rather unexciting teachers. Maybe I am pessimistic. In some respects I would be happier to have potential teachers work as teaching assistants and assessed in this way. Even then I am unsure.

2.6 Course descriptions

Are these the right categories? It seems to me that an important component of most of the early courses is the availability of hand's on experience. We can follow courses intellectually but may find it difficult to apply in a practical situation. Are there different courses for different groups? I find an 'inhomegeneous' group very demanding, but not intolerable. If there is a choice between an inhomogeneous group and two more homogeneous groups which are sufficiently small that the courses do not run. . . I confess that I do not favour the course descriptions outlined in 10#2. I find them constraining and limiting. Nor do they develop in what I regard as a logical and structured manner.

How should courses relate to one another? I do not believe they must dovetail into one another. We should not encourage students to take successive courses except in very exceptional circumstances. Time taken between courses, where the student has the opportunity to use the information, is essential. This blurs the subjects which are to be taught at each 'level'. In using TEX the student learns some new things, uses the book, hacks other people's code, and so on. The next level course may need to cover some earlier material, but equally must be sufficiently flexible to encompass some of the specialised demands of the students (but not entirely – there are some core things which may have to be taught). Maybe that's what I'm getting to eventually: rather than a detailed course outline, a core syllabus.

2.7 Courseware

Courseware may make us too inflexible. While it may be useful to have some prepared courseware I have always found that it is better to prepare my own course notes. At least it ensures I know what is there and how to use it. More important, it ensures I know the whole structure of my course. I have no argument with producing specialised material in the TEXniques series. But at best it can only be supplementary. It may be provided for a course, but should not be used for a course (except by whoever wrote it).

2.8 Organization

Yes, but this is fine for the US (possibly), but it needs to be backed up in other ways if it is to provide a model for non-US courses. The delays introduced may make the course unworkable.

2.9 Workshops

The ukTEXug runs workshops, and in general we have found them to be useful, since they enable the participants to bring up issues which are of importance to them. Whoever leads a workshop really does have to be on top of their material. But the reason we run workshops rather than courses is because they can be scheduled for a single day, and therefore place less burden on us in organisational terms; and they can be targetted for more people – therefore being of use to a larger proportion of our membership. We are conscious that longer, more traditional courses are probably required.

2.10 Self-teaching

Any material will be useful here. Let's be honest, most TEXies and LATEXies are self taught. And will continue to be.

2.11 Postamble

This is intended more to provide a basis for a contrary view, rather than a direct criticism of Kees' proposals. It is always far easier to pick on structured proposals than to create one's own.

3 Clarifications to Malcolm's reactions (Kees van der Laan)

Firts of all. Thanks Malcolm for contributing to the discussion. This might be the start for educational issues getting more attention.

3.1 Professionalism vs. vocationalism

Malcolm first makes the distinction between a professional and vocational group, with TUG being the latter. Whether this is true or not does not matter. Whatever group we are, we should conduct business professionally —with organizing and teaching courses as one of the activities.

3.2 Selfsupporting and selfcontainedness

The next point he addresses is selfcontainedness. He is completely right that in TUG's past and (some?) time to come, profitable courses formed a cornerstone for TUG's budget, at least profit was made on it. My point is: it should not be. It should be a cornerstone of TUG's investment policy in 'people.' The way to do this is strive after 'break-even'-ness, with coursetakers, who benefit most, to pay for all the costs involved. Eventually, courses can be strategically subsidized as part of a long-range plan.

3.3 Education committee, or who is responsible?

Because of the image and money involved it should be clear that the Executive Committee and indirectly the BoD, is responsible and make the decisions.[3] Or it should be delegated to the office with a liason in charge. There are a lot of decisions to be taken:

- What courses? When? Interrelation?
- Budget issues (What is the salary of the teacher? What are the costs? What are the fees?. . .)
- Who are the teachers? (Pedagogical and TeXnical qualifications? Who judges?)
- Courseware?
- Other educational activities? Workshops? TUG-sealed decentralized courses?
- Advertisement policy?
- Which courses should be cancelled under what conditions?
- What does TUG-sealed mean anyways?

My point is that education is a too important issue to be left alone. With realistic budgeting, incalculating all costs, fees can be kept 25% –50% below the plausible level, in my opinion. What I heard at meetings was always about the difficulty to raise money to attend a meeting not to speak about the difficulty in raising the money to attend a course.

> I heard of teachers being able to attend a meeting thanks to the salary earned at teaching.

Much TEX work is not yet respectible, not part of the standard tools in contrast with Wordperfect, THE STANDARD, at least in the Netherlands. Therefore not many employers are willing to pay the (TEX) costs for their employees. This makes attending a meeting a private enterprise, to be combined with holidays or worse sacrificing holidays. The people able to attend courses have the time issues left to talk about; those not able to attend are not asked why, simply because they are not present.

3.4 Teacher's pool

The point I'm trying to make is that there are already teachers around, —so there is a pool already, T/LUG-oriented though— but we need a solid qualification process. Some names.
DANTE: Wolfgang Appelt, Helmut Kopka, Joachim Lamarsch, Joachim Schrod, Norbert Schwarz, . . .
GUTenberg: Yannis Haralambous, Raymond Seroul, . . .
NTG: Victor Eijkhout, Theo Jurriens, Kees van der Laan, Nico Poppelier, Piet Tutelaers, . . .
TUG: Doug Henderson, Amy Hendrickson, Alan Hoenig, Don Hosek, David Salomon, Richard Southall, . . .
ukTEXug: Malcolm Clark, Chris Rowley, Philip Taylor, . . .
etc.[4]
I'm only arguing that it should be a good policy to have official TUG-qualified teachers. We have a bootstrap problem here. Malcolm's process via teaching assistants is too close to 'old-boyism,' or incrowdness, too restrictive and not sufficient. Having served as teaching assistant should be part of the qualification process, however. By the way I did not work out in my note what should be part of the various modules to be taught nor what should comprise the requirements for qualification.

3.5 Course description

Not only an aid for teachers, but more importantly for the aspirant coursetakers: it should be clear what will be taught and to what detailed/advanced level. Of course, hands-on experience should be part of courses, especially the introductory ones. The homogenity of a group is indeed demanding, . . . and tolerable. But, that should be the exception rather than the rule. In my opinion we should have fair descriptions of the standard courses: introduction, intermediate and advanced TEX. Getting

[3] At the moment responsability for TUG course issues is delegated to the TUG office.
[4] I'm not aware of the undoubtedly good teachers in Japan, Russia, Czechoslowakia, Hungary, . . .

started LaTeX, modifying LaTeX style files. And their interrelations. Dovetailing might be too strong, but it must be made clear what is the difference between intermediate and advanced. In order to profit most from the modifying LaTeX styles course, it must be clear for example that intermediate TeX is a pre-requisite. If not the teacher is in trouble. For Metafont something like logo design and font design might be thought of. Next to the above there should be room for capita selecta. The latter can be treated differently from an organizational viewpoint, because of the reputation of the teacher. By the way making the teachers known along with the course announcements is good practice, and might increase the confidence of the subscribers.

3.6 Courseware

I really can't see why we should not strive after high-quality courseware, to be made available in the TeXniques series for example.[5] Note that courseware should contain exercise sets and answer sets as well. It might also help to have sets of transparencies available for the standard courses. (Of course teachers might elaborate on these and add to or improve.) All these to guarantee a minimum quality and continuity of courseware.[6] It makes it much easier to have the exercise sets (and answers) separately available, not spread in between the theoretical material. The guaranteed quality of the courseware might also constitute an issue in the advertisements:

> TUG-sealed, qualified teachers using so and so pedagogical principles, and TUG qualified courseware.

There is nothing against self-teaching, except for the time it takes and the lack of feedback, as well as the difficulty in getting insights in the issues spread all over the TeX, LaTeX, or Metafont book. The availability of high-quality courseware might strengthen the internationality of TeX and related tools.

4 TeX and LaTeX education by T/ LUG(s) (Don Hosek)

Reading the correspondance between Kees and Malcolm which was forwarded to me on 17 September, I have the following notes.

4.1 Pricing policy

As Malcolm points out, the issue is less one of providing fiscally inexpensive courses so much as providing courses that don't take up a great deal of time. The LaTeX courses which I have taught have, with few exceptions, been largely to clerical staff. There are few offices willing to give up their secretary for a full week which presents a practical problem. On the other hand, short term classes where travel is involved can also be difficult to arrange: A one day or two day class is typically only practical in terms of additional costs to the consumer if it is fairly local. This limits the potential locations for a class since it calls for a relatively high local concentration of potential students. To show a profit, the instructor should generally be local as well. This brings us to the second section.

4.1.1 Teacher's pool

There are fewer qualified teachers than may be apparent at a first glance at the listings in Kees' note. Only 6 of 11 are in North America, with two in New England (both plain TeX), one in rural Illinois (I imagine Victor also teaches plain), two in So Cal (one plain, one LaTeX) and one in the Northwest (MF). The distribution of teachers is almost a mirror image of the distribution of classes. TUG has yet to offer an open LaTeX class west of Chicago (there were two in-house classes offered, one in St. Louis and one in Boulder, CO which are the only ones on this side of the Mississipi). If nothing else, this shows dramatically that there could be room for increasing the pool of teachers. Certification of some sort, however, is a must. I personally like the idea of having the potential instructor TA a class before teaching. I personally had never attended a TeX class before teaching my first (and the first and only experience I had seeing another teacher's style was in College Station when I sat in the back of Malcolm's class and listened to the interesting bits of his class on Graphics in TeX between chapters of Moby Dick. This however does not preclude the need for a genuine certification process. Knowing how to get indentation after a section heading of LaTeX does not make one a good LaTeX teacher. (Incidentally, it was rather painful to look at Kees' "LaTeX" code with its insidious `\\`-s which didn't belong to the structure, not to mention the incorrect use of
`\section*` for
`\section + \setcounter{secnumdepth}{0}`.

4.2 Description of course modules

Trust me. Four days is a minimum for teaching basic LaTeX and that's still a bit tough. The first day is devoted largely to familiarizing students to the equipment and ideology of LaTeX. It's a bit of a jump going from a typewriter to structured markup. As for modifying LaTeX styles in a day, it's difficult to imagine how much of use is going to get covered in that day (I filled five

[5] At the Paris91 Education BoF it was mentioned among others to have standardized exercise sets available.

[6] At Stanford89 I taught a one-day SGML class. No hands-on and no exercise sets! Notes did probably not obey the style for notes.

days with little effort and still didn't cover everything that was necessary).

Teaching font design in five days is a dream. Students can learn to use the tools of MF in 2 or 3 days and create pleasant dingbats or logos with that knowledge, but lettering takes considerably more training (once upon a time, I posted an outline of what was necessary to learn lettering: it involved beginning with learning calligraphy and developing a feel for how the pen shaped the letter, studying classical inscriptional lettering styles and understanding their forms, learning to draw characters with pen and paper and THEN they could start playing with MF or Ikarus or somesuch. TUG really is not equipped to teach font design with MF (the only situation that I would feel reasonably confident about teaching such a class would be Richard Southall or Neenie Billawalla teaching the class as an optional component of a curriculum in type design.

I have no idea what demand driven vs. TEXnical driven means.

In Bart's charts, he has students moving directly from Intermediate LATEX to style files. Not a chance. A more reasonable approach would be Advanced TEX + (ideologically correct) LATEX. Without an understanding of and sympathy for the design philosophy of LATEX, any style file is going to be a piece of ____. I have seen many of these.

Incidentally, on the topic of ideologically correct LATEX, the only published LATEX book that I have seen that meets this requirement is Leslie Lamport's although he has many poor choices of examples in the text. David Buerger's book keeps the other books on the shelf from leaning too much and the 'LATEX for Everyone' published by Personal TEX is marginally better but still unsuitable. My LATEX book is still unfinished (although I am willing to send paper copy to people on the condition that they are willing to critique the texts for me).

4.2.1 Courseware

I've taught courses with material I've developed myself and with other people's material. The latter is seldom an aid to teaching. However, a detailed outline is useful and I've prepared one such outline in conjunction with my LATEX classes. It's somewhat dated at the moment, but I intend to make a revision soon. To get some idea of what I feel a good instructor's outline would look like, I include the first unit in the figure.

Any transparency material should include a detailed explanation of the significance of the slide.

```
|I.    Basics of LaTeX
|I.1.  What is LaTeX?
|How does LaTeX differ from visually-oriented systems? Why is it
|better? Explain how in LaTeX one describes what things _are_
|rather than how they _appear._ An overview of the LaTeX process
|(LaTeX, DVI-to-XXX, print).
|
|I.2.  LaTeX input conventions
|The minimum set of commands for a LaTeX document:
|\documentstyle, \begin{document} and \verb+\end{document} How
|LaTeX treats spaces. Paragraphing. Quotes and dashes. Special
|characters ($, %, _, etc.). Case matters!
|
|I.3.  Special spacing considerations
|Explain using ~ to get unbreakable spaces; \ and \@ to fix cases
|where LaTeX puts end-of-sentence space where it shouldn't or
|doesn't where it should.
|
|I.4.  Printing a title
|Simple \title and \author (single-author) commands. Noting the
|fact that arguments to commands go in braces. Don't introduce
|line breaks or \and yet; these are confusing at an early stage.
|Point out that the title is only printed if \maketitle is
|present and that it must come after \begin{document}.
|
|I.5.  Printing section headers
|\section through \subparagraph. Leave out \chapter for now since
|we're only doing articles. Also don't teach *-forms. In fact,
|*-forms are left out of the class since they are not of any
|direct use to the user.
|
|I.6.  Extracts
|Introduce the concept of environments; demonstrate the use of
|the verse, quotation, and quote environments. Examples of quote
|should emphasize the fact that it should be used for short
|quotations (single paragraph, often single line) as opposed to
|quotation which is used for longer quotations where the initial
|paragraph indentation is necessary. Be sure that users understand
```

```
|that a blank line after the \end command indicates that the
|paragraph has ended and will control whether indentation of the
|following paragraph takes place. A similar logical function is
|assigned to the blank line preceding the environment. All
|examples should reflect this (i.e., PUT THEM IN CONTEXT!).
|
|I.7.  Basic math
|Introduce math through the math, displaymath, and equation
|environments. \(...\), $...$ and \[...\] are introduced after
|the corresponding environments since Formulae should be
|restricted to those which can be typed with the characters on
|the keyboard. Note that ' and := do the things that we had hoped
|they would do. Point out to any plain TeX people that $$...$$
|should not be used in LaTeX.
```

Figure 1: Hosek's Example outline

5 Comments (David Salomon)

Kees,

I just received your latest memo on education.

I fully agree with the folowing:

1. Classes should be self supporting and hopefully, but not necessarily, a source of income for TUG. This means that after running a large (introductory) class and making a profit, TUG should be willing to use it to run a small (advanced) class and lose money.
2. Future instructors should demonstrate their TEXknowledge (by passing an exam) and document their teaching ability (by providing a resume or letters of reference). The TUG education committee should be in charge of selecting instructors.
3. Instructors' fees should be flat and not depend on the class or the number of students.
4. Instructors should be encouraged to publish their class notes in TEXniques, or to use somebody else's published notes.

I don't like the idea of 3-day introductory and intermediate classes. I know from long experience that 5 days are minimum.

A general comment: The more advanced a class, the less lab time it needs. Thus the introductory class should be at least 50% lab, but something like output routines can run without a lab at all.

6 Afterthoughts (Kees van der Laan)

The more I come to think of it the more I'm convinced that we definitely need a basic course about publishing independently from the typesetting tool. One could think of teaching the Chicago manual of style. I already adopted this approach when dealing with math; starting from Math Typesetting tradition as detailed in Swanson's book, followed by the mark up of realistic examples taken from math literature. One could also think of a workshop-like approach similar to the one about Mathematical Writing, as reported by D.E. Knuth, Tracy Larrabee, and Paul M. Roberts, MAA Notes 14. During the process of collecting material for

discussion I adapted the original version with respect to: misuse of English, typos, trivially overlooked details, with the consequence that some comments are not quite to the issue. For example while writing this afterthought I decided to include the basic module P about Publishing. The commentors have not been in th position to comment on that. Not correct, but the purpose of getting the discussion off the ground is served by it, and it might facilitate the creation of some sort of report.

Working Group 1: Education
Review: Michael Doob's A Gentle . . .

Kees van der Laan

Compliments

To start with I like it, it is easy reading. We redistribute it! It is at `TeX-nl@hearn` among others, and reprinted in RUG Report 25. As always with introductions the challenge is not to lie too much, when telling the incomplete story. So my review will have the structure of enumerating, with annotations, what is treated in the self-study manual and what I missed. Of course the latter is a matter of taste.
My comments and suggestions are about the September 89 draft. Michael Doob's reactions to that are supplied in footnotes starting with 'MD:'. An easy observation is that *this* manual does not treat TEX version π. Does this mean that the manual is outdated? In my opinion not, but it is certainly incomplete with language specific issues.[1] Furthermore, the manual is restricted to references to pages in the TEXbook; no references to other work has been made. This is understandable from the viewpoint of an introduction.[2]

1 Getting started

Essentially it is told how to get text processed via TEX by the system you are working with.
Strong points at the end of the section are the discussion of weak areas of TEX, although a lot of attention has been paid to those issues since then. (Encapsulated PostScript and Hoenig's work with respect to text with curved baselines.)

1.1 What I missed

I missed the whole concept of Document Preparation Workbench, with among others spelling (style) checker, TEX intelligent editor, and previewing tools.[3]

2 All characters great and small

This is all about inputting the characters and what you can obtain finally in print: the variety of characters and sizes. Also punctuation and how to handle accents is treated. For Latin languages this might be sufficient, for other classes of languages it is not.[4] I would suggest to complicate ex 2.9, the Dutch sentence, into

```
,,M\'{\i}\'{\j}n idee\"en worden niet
  be\"{\i}nvloed'', zei hij.
```

The difficulties here are (lower) opening quotes, which should not influence line distance and should be similar to the closing quotes. About the 'ij', see the contribution of David van Leeuwen, elsewhere in this MAPS91.2. What I typed verbatim is not nice, neither is kerning. A hidden difficulty is that with hyphenation after 'be-' the separator `"` on ïnvloed on the next line has to disappear and the normal `i` has to be used.[5]

2.1 Fonts names

I would like to see the essential groups named and the generally available other sizes mentioned.

2.2 What I missed

The whole concept of hyphenation and the need of hyphenation tables is missing here, although the explicitit use of the hyphenation command is given on p 28.[6]

[1] MD: Actually, there is not much that has been outdated by later versions of TEX. This is because most of the material covered is so elementary that it isn't complicated enough to require the use of TEX 3.xx.

[2] MD: But you do indicate later that a reference to Swanson and/or Cheswick. actually, since your brought it up, it probably would have been better to mention Swanson.

[3] MD: But these are UNIX-type tools. I went to some effort to make the intro machine independent. I could have created the table of contents by generating an aux file, but that code wouldn't have worked on all machines. I think my source code runs on *any* machine.

[4] The accents issue was one of the reasons why virtual fonts were introduced in TEX 3.0.

[5] MD: Of course you are right that TEX has problems with foreign languages, and maybe even at this level this should be pointed out. But do remember The audience at which this document is aimed.

[6] MD: This is also more important with the 3.xx versions of TEX. Multiple languages are possible for one document. Nonetheless, for this audience minimal introduction is probably enough.

3 The shapes of things to come

This is essentially about the page shape and the document structure. How to obtain various paragraph shapes with open space to include other elements is nicely treated. The left-, right- and centerline are also explained. The parameters to control the page apearance are given. They range from the offset to interline distance and the like.

3.1 What I missed

I missed in the *text* how to put elements in the margin.[7] In relation to headlines and footlines I would like to see an example of more than one line in the headline. By use of `\vbox to 0pt`, or `\vtop`, with `\vss`. Perhaps it should be mentioned here as a wish and referred to the section on boxes, where it could be treated as an example.

On the one hand we have the structure entities: chapter, section etc. and on the other hand we have the page elements: headline, text on the page and footline. These issues should have been separated. Page make-up and descriptive mark-up can better be treated separately.

4 {Groups, {Groups, {and More Groups}}}

Here the narrowing of a paragraph is treated as example. Also the problem of matching braces has been paid attention to. The usefulness of the empty group is also mentioned. A bit misplaced seems to me the handling of 'iff' sometimes used in math for if and only if.[8]

A mistake is

> '. . . when a control word like `\centerline` acts on text following it in, that *text is implicitly in a group.*'

Not true![9]

4.1 What I missed

If matching braces is felt difficult to adhere to, it would have served the purpose to mention special tools for verifying that, for example as part of a TEX-intelligent editor, for example Nelson Beebe's tailored EMACS for LATEX.

5 No math anxiety here!

This chapter consists of examples how to mark up various math constructs. Also the spacing in math mode is detailed with.

5.1 What I missed

The concept of formula classes is missing. Not in the least the empty formula of class 0. Also pitfalls such as a relational ':' takes a different command than the interpunctional ':,' are missing. The relational : is also lacking in the table with relations. A reference to the complete tables in the TEXbook should have been made, especially when the tables given are incomplete. How to mark up the various O's in math should have been treated.[10] I also missed the use of `\l(r)angle` for meta-linguistic variables. That displays will yield centered results is fine with me, but it should have been mentioned that it depends upon the format used. In general how to treat long formulas —hyphenation of math— is neglected, as is automatic numbering and symbolic referencing. Agreed symbolic referencing is not part of plain, but needed in practice nevertheless. Furthermore, attention should have been paid to math typesetting tradition, independently of TEX. For example the use of `\quad`s. A reference to Swanson's work is the least that could have been done.

6 All in a row

The typewriter tabbing is dealt with. So are simple tables and lined tables. The centering of the tables is done in a curious way, see p 52; Not by the DEK method of putting a `\vbox` around the table and use this within a math display.

6.1 What I missed

The warning that this treatment is very elementary is needed. Furthermore, the SGML like structuring approach: header rows and contents rows, could have been incorporated.

I would also like to see an example with a cell element restriced to a certain 'hsize', via a `\vbox{\hsize=... etc.}`.

I would welcome an example of a table with a note. These notes can be attached easily to the table as last rows, eventually separated by a (blank) row. I would also like to see how similar tables in subsequent sections can be forced to have the same shape. I mean

[7] MD: This is actually in the macros at the beginning of the source. I wrote that section to help the newer user to see what can be done with relatively simple macros.

[8] The more so when it is not used as such on p 46, where no `\quad` is used either.

[9] With this command it is accidently the case because it contains a box.
MD: You're right, of course. I considered this a little fib, but Anne Brüggemann-Klein convinced me that I had overstepped the bounds of literary license. I changed that section.

[10] See my Math into BLUes paper, for more TEXfalls.

putting hboxes in the template lines. This is useful when reporting financial matters and having a section with income matter treated and another with expenses.

7 Rolling your own

This section deals with elementary macro writing.

8 To err is human

Treated are errors due to: omitting bye, various misspelled command and font names, mismatched math (omitting $'s), mismatched braces.

9 Digging a little deeper

Treated are how to split up large documents, and incorporation of large macro packages as format. Along with the latter LaTeX, and $\mathcal{AMS}$-TeX are mentioned. Then a curious treatment of hrule, vrule and the building of boxes, with the creation of a magic square as an example. Also `\hrulefill` and `\dotfill` are touched upon, in relation to table of contents creation.

10 Control word list

A reference to Cheswick's permuted index for TeX and LaTeX would have been appropriate, prior to the enumeration of the control symbols and commands treated in the syllabus. The formatting in rows is unusual but avoids the balancing of columns problem.

11 I get by with a little help

The answers to most —not all— of the exercises are given. The answers are not numbered, nor are the groups (of section of occurrence) clearly separated.[11] It occurred to me that it was intended to serve as stand-alone examples as well.

11.1 What I missed

The magic square could have been handled more robust by the lined table approach given at p 53; the given solution does not easily extend to magic squares of higher order.

[11] I would consider it good practice to use `\answer` from the the manmac collection. All at hand at the right moment.

Werkgroep 7: PC-zaken

TEX voor MS/PC-DOS PC's en Atari's

Jos Winnink

Oktober 1991

Werkgroep 7 (PC zaken) heeft als werkgroep niet veel activiteiten gepleegd. Toch zijn er enkele vermeldenswaardige zaken te melden.

1 Specifieke implementaties:

- **Atari:**
  Erik Jan Vens heeft twee TEX implementaties aan de tand gevoeld en met de volgende resultaten[1].

product	relatieve snelheid
BR-TEX	1.44
CS-TEX	1.25

  Getest is op een Atari ST met 1 MByte geheugen.
- **MS-DOS:**
  met betrekking tot emTEX is op te merken dat de implementatie van TEX 3.14 zich in een β-test fase bevindt en dat metingen aan deze versies laten zien dat emTEX niet langzamer is geworden. Ook wordt er gewerkt aan een speciale versie voor de 386 processor, die minder geheugenbeperkingen kent. Experimenten met emTEX laten zien dat het mogelijk is om de geheugenindeling van emTEX's standaard `TeX`-programma zodanig te beïnvloeden dat tegelijkertijd zowel een uitgebreide verzameling afbreekpatronen voor het engels(amerikaans) als een uitgebreide verzameling afbreekpatronen voor het nederlands kunnen worden gebruikt. Of een dergelijke wijziging in de geheugenindeling ook nadelen heeft en welke is nog niet duidelijk.

2 Algemeen:

Na een geslaagde actie met het rondzenden van de diskettes met de emTEX distributie voor de MS-Dos pc's langs een kleine 20 adressen en het versturen aan verschillende personen van DVIPS(5.47) ook voor MS-Dos is het nu tijd om tot een bredere aanpak te komen van distributie van TEX voor pc's.

De reeds eerder aangekondigde $\mathcal{NTG}$-TEXdistributie zal spoedig afgerond kunnen worden. Ons staat iets voor ogen dat vergelijkbaar is met de UNIX-tape. Van deze distributie zal een deel afhankelijk zijn van het apparaat (: de executables) en een (groot) deel apparaatonafhankelijk. Tevens wordt het pakket modulair opgezet, zodat een gebruiker slechts dat deel behoeft te installeren dat hij/zij nodig heeft.

Er zullen nog wel enkele logistieke problemen moeten worden opgelost alvorens op (grote) schaal tot verspreiding onder de leden te kunnen overgaan.

[1] Vergelijk voor de getallen het verslag van de werkgroep in de MAPS van mei 1990, p. 33

Werkgroep 13: Nederlandstalige TEX
The Right of ij to be a Ligature

David van Leeuwen

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Ever since caligraphy (beautiful writing) is used as a way to express ones thoughts writers (and later printers) were concerned about how certain letters clashed. In fact, people thought of ways to camouflage these collisions, and they had at least two methods for doing so: One is known as *kerning*, the slightly shifting the letters with respect to one another, the other is the use of *ligatures*, the replacement of the characters by one single but bigger symbol. What combinations of letters were ugly enough to qualify for a ligature has probably always been influenced by fashion. Everyone who has an eye for typesetting must have noticed how in the earlier centuries manuscript had this weird 'ct' ligature. Although our current Roman style of printing looks in some ways much like the older handwritings, a ct-ligature seems completely superfluous. On the other hand with computer typesetting systems like TEX now readily available, people seem to have a tendency to go overboard in 'inventing' new ligatures.

The computer roman family of fonts, designed by Donald E. Knuth after the fonts used in the first editions of his books on Computer Algorithms, is strongly provided with f-ligatures. The fonts appear a little 'old', because most books and newspapers are printed nowadays in the popular Times-Roman set of characters. These seem to need the f-ligatures much less, although there might be a correspondence between the decline of the number of skilled lead-typesetters and the use of ligatures. Now the fonts of characters of the computer modern family are based on English/American use, where these f-combinations appear strikingly often. But in other languages different letter combinations will occur frequently enough to apply for a ligature.

My knowledge of languages is very poor, the only one I can say meaningful things about is Dutch. Dutch is language with lots of 'open' vowels. So many, that we come short of double combinations *ee*, *aa*, *uu*, and *oo* and need to use *ei*, *ij*, *eu*, *ui* for typically Dutch sounds. (Of course, we do have the 'normal' *a*, *e*, *i*, *o* and *u*, and we use *ie* for a long *i*, but the vowel *y* is not used in normal Dutch words.) An odd thing to a foreigner might be that we use the consonant *j* in a vowel combination. To make things even stranger, the pronunciation of the *ij* is identical to that of *ei*, and the letter *y* in the alphabet is pronounced the same way! Sometimes, the *ij* is treated as a single letter. When one capitalizes a word starting with an ij, *both* will be written in upper case, as in 'IJmuiden' (impossible to pronounce by non Dutchmen, by the way). In some cases the ij leads to inconsistencies: some alphabetization programs use the . . . xyz-alphabet, others the . . . xyijz-alphabet.

One of the worst things of running an English TEX version with Dutch text, is that words with an ij are very likely to break *between* the two characters, which is the worst choice. So having a pattern $\mathrm{i}_4\mathrm{j}$ in the `\pattern` sequence is the change that has the highest yield in improving the English version for Dutch. Well, nowadays there are commercial and non-commercial hyphenation patters for Dutch available, so that problem has been solved. Somewhat more delicate is the fact that we would prefer to position the i and the j just somewhat closer together than cm-fonts would naturally do. So a kerning of one k# between the i and j would considerably improve the readability of Dutch texts.

On this subject, whether the ij deserves a kerning or even a ligature and more importantly how this should be implemented on TEX systems, there has been quite some discussion at the Dutch TEX bulletin board. Generally people agree that the ij has a special status, but how we should deal with it is not a question that is solved. Roughly there are two camps. The first thinks that everything should be done using the standard set of cm-fonts and a huge amount of fairly difficult TEX-source spaghetti, so that everybody can use its standard TEX-setup. The second camp has the opinion that special fonts should be used that respect the ij as a ligature, so that typists need no special training for identifying ij's. The difference may be clear: the first group makes it easier for system operators, the second group for the users. Moreover, the first solution is much more 'international' than the second one, while that will run faster and have better readable source texts.

The best thing to do would probably be using virtual fonts. My own knowledge about it is almost nothing (I don't have any written paper on virtual fonts nor do I have any access to one), but I understand that they come in two parts: a .tfm file that instructs TEX, and an other file that tells a dvi driver how to compose charac-

ters from which .pk files. In any case, this means that every font that is specific to Dutch needs font space in TEX. For plain-TEX users this is not a large problem, nor will singly Dutch LaTEX documents be hard to process. But multilingual LaTEX users should have to enlarge TEX's font space, since LaTEX uses almost all of the standard capacity of TEX's font memory, and if we were to double the amount of fonts this would become a serious thing. But suppose the system wizards that find room to store two (or more) sets of hyphenation patters will also know do deal with the font storage. Then a language-change macro would have to do two things: change the value of `\language` and change the current font. The latter can actually be done if the font naming conventions of the foreign country has the same structure as the cm-family.

Jörg Knappen noticed that a family of fonts exists that has this property. These are called the dc-family, presumably meaning 'Deutsche Computer modern'. The fonts were actually accepted by the international TEX community at the conference in Cork. In order to see if these would be suitable for the ij (and correlated) problem(s) I ftp-ed one of them, dcr10 (cf. cmr10), in .tfm and .pk form. It consists of 255 characters, among them ones that I have never seen before, but are claimed to be used somewhere in Europe (which I have no doubt about). Most normal Latin letters appear on the same place as in cmr10, but ligatures, accents en special symbols are located elsewhere. There are no Greek capitals in it. A fairly large amount of the upper 128 characters are letters that could be formed by plain TEX with normal accents, in this sense the font can be used with 8 bit input where characters are mapped on identical places, so that the French could use this font directly. The ij and IJ appear as one-symbol letters in positions 188 and 156, but these are *not* declared in the .tfm file as being formed by a ligature ij. So in this sense the dcr10 font merely acts as a bitmap source for the drivers, unless Dutch keyboards are supplied with an ij-key. In fact, a dcr10 user could never do without the cmr10 font, because some characters are missing. Also the ligatures `!'` and `?'` are not recognized, although the characters appear in the font.

It is not clear to me how the dcr10 font should be used. It does have the f-ligatures and ligatures for the french double quotes that can be entered as `<<` and `>>`, but when one types a single `<` one doesn't get the single french quote (which the font contains) but a smaller-than sign $<$, which makes no sense outside mathmode. Also it supports the double quote ligatures " and ", but does not recognize the double-comma opening quote „ (which the font does contain), which the German and Dutch would like to use. What is the use of an ij-symbol if it is not recognized as an ij-ligature?

Re-reading the discussion on the ij-ligature I see that Gerben Wierda and Johannes Braams have reached a similar conclusion much earlier than me, and Johannes (and also Yannis) noticed than non-dutch people would probably not like an ij-ligature. I am not so sure about that. In Dutch, we do not need the ffl-ligature as much as the English do, but do we bother to have one? I don't think the ij combination occurs much in foreign languages, or that it would matter much that they are kerned a little closer. On Johannes' remark that virtual fonts would be a solution Nico Poppelier argues that not all dvi-drivers supports virtual fonts. In some aspect this is just the same as with 256-character fonts. Some older dvi-drivers didn't support 8 bit fonts although even TEX $2,x$ did, but since the cm-fonts had no more than 128 characters dvi-driver-makers did not bother to support 8 bit fonts. If dvi-drivers do not yet support virtual fonts we must keep asking the programmers to update their drivers.

I think that we must seek for a solution where TEX itself should take care of finding ligatures like ij, double-comma, french quote etcetera. This can be done by either using virtual fonts and the standard cm family, or by a complete new set of fonts like dcr but with language specific ligatures. (One could think of making the 'i' an active character, checking for the next to be a 'j', but let us call this an academic solution since it will not make life very much easier.) Typing `"y` for a ij ligature could be acceptable in English texts where the ligature hardly ever will be needed, but is completely unacceptable for Dutch texts. It would be comparable to asking the English to write `"ff` whenever the ff ligature should be used. Of the two alternatives (virtual fonts and a different family) the former seems more elegant, using less .pk fonts. On the other hand the latter alternative can be more widely be implemented since not all dvi-drivers accept virtual fonts yet.

For either solution people should get together and decide which languages deserve what ligatures. The dc-family may be a good scheme to start from. For a typical national problem like this international portability is less important than ease to read and write the source texts.

I hope that this can be a positive contribution to the question of language dependent ligatures.

Enige Suggesties aan de Redactie van de MAPS

Kees van der Laan

Gezien de discussie op de laatste NTG bijeenkomsten over de gewenste typografische kwaliteit heb ik de volgende kanttekeningen, als een contructieve bijdrage voor de redactie.

Uitgangspunten

- De MAPS-en zijn primair bedoeld als medium voor snelle informatieverspreiding onder de NTG leden. Het is geen tijdschrift, laat staan een typografisch tijdschrift. (Zie notulen.)
- De MAPS-en bevatten bijdragen in het Engels en het Nederlands, en zijn dus 2-talig.
- De redactie streeft niettemin een zo hoog mogelijke kwaliteit na binnen de gestelde en gegeven beperkingen.[1]
- De auteurs houden zich aan de voorwaarden die de redactie stelt.

1 Wat zijn de problemen?

Er zijn opmerkingen binnengekomen m.b.t. onjuiste afbrekingen en slechtogende (automatische) uitvullingen. Daarnaast zijn er de typos en laat het (Engelse) taalgebruik soms wat te wensen over. Ongetwijfeld zijn er andersdenkenden m.b.t. de gehanteerde format. Zijn er ook 'problemen' t.a.v. de inhoud?

2 Zijn er oplossingen?

Jazeker, alhoewel perfectie niet reëel is, gezien de omstandigheden.

2.1 Afbrekingen

De redactie, en Gerard al eerder, gaat over op TEX 3.x, m.i.v. . . . , inclusief benodigde afbreekfiles. Verleden tijd, dus.

2.2 Slechte automatische uitvullingen

Ik zou zeggen des TEXs[2] en editor proofing is nodig op dat punt. Gelukkig bestaat het redactieteam uit 3 mensen, en daar verwacht ik ook wel het een en ander van. Deeltaken uitbesteden kan verlichting brengen, mits de formats algemeen beschikbaar zijn.

2.3 Typos

Voor typos kunnen wij spelling checkers gebruiken. μ-Spell zou NTG eventueel kunnen verspreiden, en voor het Nederlands? Moeten wij daarvoor aankloppen bij het alom beschikbare Wordperfect?

2.4 Taalgebruik

Er zijn hier op zijn minst twee aspecten.

2.4.1 Consistentie

Inconsistentie is alom. Wij zouden iets aan bepaalde woorden kunnen doen door een lijst van namen (met de bijbehorende macros) te verspreiden. Bijvoorbeeld `\AMSTEX`, etc. Ook moeten wij bepaalde conventies afspreken, bijvoorbeeld `\LaTeX~3`. Dan hebben wij nog de klassieke al-dan-niet verbinding van woorden via streepjes, direct of los naast elkaar. Maar daar is het groene boekje voor, tenminste voor het Nederlands. Ook het gebruik van nummering en interpunctie m.n. in de kopjes moet goed afgesproken worden. Itemize vs. description? Een punt? Of de vrijheid van de auteur. etcetc.
Een auteurshandleiding is dus nodig.

2.4.2 Stijl

Ik vrees dat daar structureel weinig aan te doen is, naast de vraag of dat zou moeten. Kromme zinnen accoord, maar wie bepaalt wat recht of krom is?

3 De inhoud

De redactie kan natuurlijk bijdragen weigeren op grond van een slechte inhoud. Structureel bestaat hiervoor het mechanisme van referees. Deze lieden zouden enpassant ook aandacht aan alle voorgaande items kunnen besteden. Worden wij dan niet een beetje topzwaar?

[1] Als altijd: mensen, tijd en geld.

[2] Men neme Southall's 'buses-and-weirdness' bijdrage op de SGML-TEX conferentie vorig jaar in gedachten.

4 De formats

Een aantal zaken moeten daarbij niet uit het oog verloren worden: data-integriteit, gemak, en kwaliteit. Zonder er veel woorden aan te willen vuil maken wil ik openlijk de `tugboat.sty`-s aanbevelen aangepast aan A4 en eigenlijk niet verder, met als argumenten:

- hoge kwaliteit, terwijl het ons weing kost
- alom en vrij beschikbaar
- wordt elders onderhouden
- flexibel t.a.v. TEX en LATEX submissie van kopij
- guidelines for authors zijn beschikbaar

5 Het productieproces

Keer op keer zullen tijdsplanningen niet gehaald worden, in ieder geval dat is de ervaring van Barbara Beeton. Het is belangrijk dat auteurs weten waaraan zij toe zijn

> Wanneer? Wat? Waarmee? Welke vorm?

Een pakketje voor auteurs op de plank hebben liggen kan nooit kwaad: Guidelines en floppies met benodigde sty-files die ook op de server beschikbaar zijn.

6 Naschrift

Zijn MAPS-en op een dergelijke manier nog wel nodig, zeker nu er een NTG–TUG lidmaatschapsoptie bestaat? Kunnen wij alles niet via TUGboat of TTN kwijt? Mijn antwoord daarop is: Neen! De MAPS-en zijn nodig, de naar-eigen-inzichten speelruimte idem dito, vooral wat betreft de inhoud; bovendien is het leuk, of niet soms?

A Font and a Style for Typesetting Chess using LaTeX or TeX

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The Berkeley Font Catalogue[2] demonstrates how a chessfont in combination with troff can be used to typeset chessdiagrams. This article has inspired me to build a chessfont with METAFONT from the nice font, see diagram 1, I once bought from Schaakhuis De Haan (Arnhem, The Netherlands).

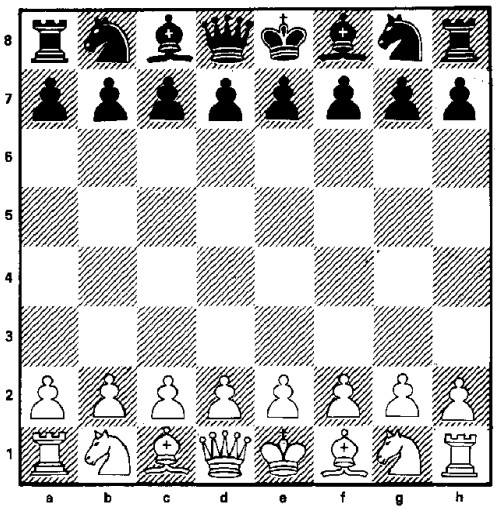


Diagram 1: Original rastered font
(original size of board 9×9 cm)

This 'font' consists of a set of chessboards and separate sets of chesspieces. The pieces have to be pasted on the board after pulling them from a sheet of paper. Nowadays this is still common practice for publishers. Before I used METAFONT I made enlargements of the pieces on graph-paper using my stereo microscope, for which I have a drawing prism. This graph-paper facilitates reading the coordinates of points that need to be given to METAFONT. For the development of the font I have used AmigaMETAFONT which has graphical support. The design of the chess style has been done with AmigaTeX. Both programs run comfortably on my private AMIGA1000 with 2.5 Megabyte of internal memory.

A chess font consists of 26 characters. One for the light and one for the dark square. For each chesspiece (Pawn, kNight, Bishop, Rook, Queen, King) there are four characters to represent it (White, Black) on both squares (light, dark). The troff chessfont also has extra characters for the border of the board. These borders are generated by the chess diagram macros as horizontal and vertical rules in my approach. Table 1 shows all characters from font `chess10` (the size of a square being 10 points).

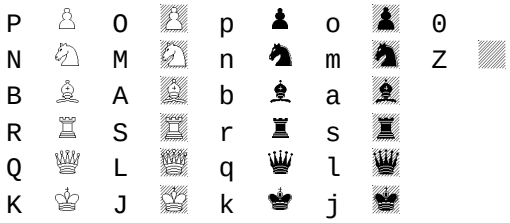


Table 1: Character encodings of `chess10`

There is an extra font `chessf10` that contains only the so called chess figurines (King, Queen, Rook, Bishop, kNight). With this font the move 25. N5 ×g3, in short algebraic notation, can be typeset as 25. ♘5×g3. Next to `chess10` there are `chess20` and `chess30`. The 20 points version is used in the chess style because the diagrams made with it fit nicely in a twocolumn A4 page. But it would be easy to make another size font by changing only one parameter.

The king has given me the biggest trouble to METAfy. I will not go into any implementation details here. If you compare the original font with my METAimitation, you will see a few differences. The chessboard has no labels for rows and lines. These can be added to the diagram macros if desired. The pieces in the original font use shadings to get a better contrast with the dark squares. The rest of the differences have to be ascribed to my insufficient knowledge of METAFONT.

I have hesitated long to publish my METAcopies of the chessfont in TUGboat. I have seriously tried to find the designer or owner of the original font. According to the Dutch firm who has taken over Schaakhuis De Haan I could safely publish them because the fonts are not sold anymore. I hope this article will help in finding the designer of this very nice chessfont, and that he is not upset with my METAcopy of it.

Having a nice set of chessfonts is one thing, typesetting chess using them is another thing. When I accepted the editorship of our 'Schaakmaatje' so my chessclub 'Schaakclub Geldrop' calls its chess-magazine I used TeX and some macros to typeset chessdiagrams. After giving the LaTeX course at our Computer Center, I definitely wanted to move to this macroset. Especially the many available styles, and the need to have a simple macro for typesetting tables, make LaTeX a lot simpler to use.

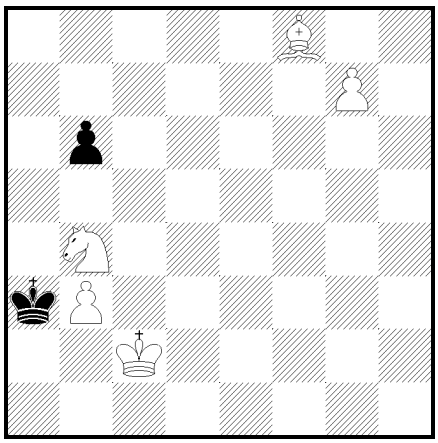


Diagram 2: White mates in three moves

When in TUGboat[1] appeared some macros to play chess in TeX, I used the exposed ideas to make my own chess style. As a typical example of an annotated chessgame I have used a part of the game Fisher played against Tal during the Candidates Tournament of 1959. In the preface from Larry Evans[4] of this game we read: "This is one of the four games that Fisher lost to Tal who, in winning this tournament, earned the right to meet and trounce Botvinnik for the world championship". The game itself is annotated by Fisher. Both the input and the output is included on page 45 of this article.

To typeset the main line with automatically updating the chess position, `chess.sty` has the macro `\newgame` which starts a new game and the environment `position`, to set up a position other than the initial one. The chess position after the 25th move in the game Fisher–Tal (see diagram 3 on page 45) is defined with:

```
\begin{position}
\White(Kh1,Qe6,Re1,a2,b2,c2,g2,h2)
\Black(Kf8,Qb8,Rd7,Rg8,Be7,a6,b4,h7)
\global\Whitetrue\global\movecount=25
\end{position}
```

`\Whitetrue` gives the turn to White (`\Whitefalse` to Black). Setting the movecounter is achieved with `\movecount=25`. The `\global` is needed because both commands are used inside an environment.

There exists another macro `\board` for defining a chess position in case automatically updating is not wanted. This macro is used for the mate in three problem (see diagram 2):

```
\board{ * * B *}
      {* * * P }
      { p * * *}
      {* * * * }
      { N * * *}
      {kP* * * }
      { *K* * *}
      {* * * * }
```

Notice that the user of `chess.sty` does not need to know the character encodings from table 1! He only needs to know the abbreviations of pieces (uppercase for White and lowercase for Black) and that empty squares are represented by a (light) or a `*` (dark).

To show the board in either case, one needs to call the macro `\showboard` or `$$\showboard$$` if the board should be centered.

To automatically update a position defined by the `position` environment there are two macros: `\ply` and `\move`. If Whites move is not followed by some analysis, the macro `\move` can be used. Otherwise the move has to be broken down into two plies (half moves) with `\ply`. The argument(s) of `\ply` and `\move` contains the from square followed by the to square of the moving piece, or the King in case of castling. A square is presented as a line `[a-h]` followed by the row `[1-8]`. In correspondence chess a similar notation is used except for the lines which are also denoted as decimals `[1-8]`. I think that using letters for lines is less confusing and reflects the way, at least in Europe, chess players think.

If a pawn arrives at its final destination, it becomes a Queen, Rook, Bishop or kNight `{Q|R|B|N}`. If the promotion piece is omitted a default Queen is taken. Moves can also be commented with things like `!` for good moves, `??` for exceptional bad moves, and so on. So the syntax, in a free style of Extended Backus Naur Form, of an argument for both `\ply` and `\move` can be described as:

```
[a-h1-8][a-h1-8]{{Q|R|B|N}comment}
```

The translation of this move representation to long algebraic notation is carried out by the 'invisible' macro `\@ply`. For example: `\@ply g1f3` will result in ♘g1–f3 in case square f3 is empty or ♘g1×f3 in case of a capture, `\@ply e1c1` will result in 0–0–0.

To update and enquire the chess board, represented by 64 macros (`\a1`, `\a2`,... `\h8`), `\@ply` uses the private macros `\@set` and `\@get`. The value of a square can either be empty (letter `E`), a White piece (`Q`, `R`, `B`, `N`, `P`) or a Black piece (`q`, `r`, `b`, `n`, `p`). To update the chess position `\@ply g1f3` does a `\@set[g1](E)` to make the square g1 empty and a `\@set[f3](N)` to move the kNight to f3. The macro `\@ply` handles castling and the special pawn moves en passant capture and promotion. Because of its length the macro `\@ply` is not

included. Basically, it is just a set of nested conditionals to cover all cases. Instead the macros `\@set` and `\@get`, that might be of interest to other TeX applications, are included here, together with `\@showchar` (the macro that maps a square value to the correct character encoding using `\@get`) and `\@emptyboard` (a macro for clearing the chess board using `\@set`).

```
\def\@set[#1#2](#3){
  %arguments: [a-h1-8](<letter>)
  \expandafter
  \xdef\csname#1#2\endcsname{#3}}

\def\@get#1[#2#3]{%arguments:\cs[a-h1-8]
  \edef#1{\csname#2#3\endcsname}}

\font\Chess=chess20

\newcount\@c   % column
\newcount\@r   % row
\newcount\@sum % row+column

\def\@col{\ifcase\@c\or a\or b\or c\or
  d\or e\or f\or g\or h\fi}
\def\@showchar{
  \@get\piece[\@col\the\@r]
  \if\piece E \ifodd\@sum 0\else Z\fi\else
  \if\piece P \ifodd\@sum P\else O\fi\else
  \if\piece p \ifodd\@sum p\else o\fi\else
  \if\piece R \ifodd\@sum R\else S\fi\else
  \if\piece B \ifodd\@sum B\else A\fi\else
  \if\piece N \ifodd\@sum N\else M\fi\else
  \if\piece r \ifodd\@sum r\else s\fi\else
  \if\piece b \ifodd\@sum b\else a\fi\else
  \if\piece n \ifodd\@sum n\else m\fi\else
  \if\piece K \ifodd\@sum K\else J\fi\else
  \if\piece Q \ifodd\@sum Q\else L\fi\else
  \if\piece k \ifodd\@sum k\else j\fi\else
  \if\piece q \ifodd\@sum q\else l\fi\else
  \fi\fi\fi\fi\fi\fi\fi\fi\fi\fi\fi\fi\fi\fi\fi\fi}

% inner loop needs extra { ... }

\def\@emptyboard{
   \@r=1
   \loop
      {\@c=1
       \loop
         \@set[\@col\the\@r](E)
         \ifnum\@c<8 \advance\@c by1
       \repeat}
       \ifnum\@r<8 \advance\@r by 1
   \repeat
}
```

In the analysis mode, when annotating moves from the main line or a variation, the chess board is not updated. This means that we can not automatically derive which piece is moving or capturing another piece. In fact we have to provide all this information ourselves. To make the typesetting nevertheless easy and compact, I have introduced a pair of `|...|` to activate the algebraic notation. Unfortunately this character pair can not be used within arguments of macros. But you can of course use the pair outside the macro like `|\centerline{25. Kf8!}|`. Or if you prefer you can use the `chess`-environment instead. Because LaTeX uses the `|` character in the `tabular` environment to draw vertical rules I have made an environment `nochess` that can be used to prevent that the `|` character will activate the analysing mode. Within the `nochess` environment you can use the environment `chess` to get analysis mode again. Here follow some examples to show how short and long algebraic notation can be generated in analysing mode:

input	**output**
`|21. Nf3-e5??, 0-0!|`	21. ♘f3–e5??, 0–0!
`|21.: Ke8*f8|`	21. . . ., ♔e8×f8
`|21. Nfe5, K*f8|`	21. ♘fe5, ♔×f8
`|21.: f8Q+|`	21. . . ., f8♕+

In the analysing mode some characters have a special meaning. The '`*`' becomes a '×' to denote a capture, the '`-`' is mapped to '–' and the '`:`' is used as an abbreviation for '. . .,' as needed if the analysis starts with a Black move.

The chess macros have also support for different languages thanks to the possibilities of the babel package from Johannes Braams. This package can be used within plain TeX and LaTeX in TeX3.0 or in older versions. The names of the chess pieces can be choosen according to their Dutch abbreviations by specifying the language `dutch` before the `chess` style:

```
\documentstyle[dutch,chess]{...}
```

In Dutch the letters K ('koning'), D ('dame'), T ('toren'), L ('loper') and P ('paard') are used to denote the king, queen, rook, bishop and knight respectivally. These letters are used in the macros `\move` and `\ply`, only if you provide a promotion piece, within the analysis mode and in the `position` environment. In the `\board` macro we use the same letters to denote the White pieces and the corresponding lowercase letters to indicate the Black piece. In this macro we need also a letter to represent the pawn. Because both 'pion' (pawn) and 'paard' (knight) start with a 'p' I have choosen the letter 'I' for the 'pIon'.

Hopefully the examples above and the extract of the game Fisher–Tal on page 45 are self explaining.

Using plain TeX

To use `chess.sty` in plain TeX you need the following line for including the chess macros:

```
\input chess.sty
```

The `nochess` and `position` environments from `chess.sty` should be replaced by `\nochess` ...`\endnochess` and `\position` ...`\endposition` pairs.

Further wishes

Although the chessfont and the chess style form a good basis to publish about chess, there are still some wishes

to make the writing really enjoyable. My first wish would be a program with a chessboard interface on which I can set up a position, play a variation and add text to the computer-generated chess moves, go back to the main line, play another variation, and so on. I have seen a X11 based chess interface using hyperbuttons which provides a good starting point to make such a program!

Surely the chess style can be improved and other style conventions added. If anybody does so, please let me know.

Availability

This article, the chessfonts and the corresponding style file with the complete game of Fisher against Tal and other data can be retrieved (files `chess.tar.Z` and `chess.README`) from the file server `sol.cs.ruu.nl (131.211.80.5)` via anonymous ftp from the directory `TEX`.

Acknowledgements

I would like to thank Victor Eijkhout for his help and criticism he gave me to improve both the chess style and the readability of this article. My thanks go also to Hugo van der Wolf for polishing my English, and to the `UseNet` users who have sent me bugreports and have reported inconveniences present in version 1.0. Most of them are solved and will be made available in version 1.2.

References

[1] *Typesetting Chess*, by Wolfgang Appelt in: TUGboat, Volume 9, Number 3, pp. 284–287. Dec. 1988.

[2] *Berkeley Font Catalogue*, in: Ultrix–32 Supplementary Documents, Volume 1 (General Users), page 6–32. Digital Equipment Corporation, Merrimack, New Hamshire, 1984. Order No. AA–BG66A–TE.

[3] *Babel, a multilingual style-option system for use with LaTeX's standard document styles*, by Johannes Braams; TUGboat, Vol. 2, Number 2, June 1991.

[4] *My 60 Memorable Games*, by Bobby Fischer; Faber and Faber, London. 1969. ISBN 0 571 09312 4

Example of the LaTeX-input and output of an annotated chess game using chess.sty

```
\begin{position}
\White(Kh1,Qe6,Re1,a2,b2,c2,g2,h2)
\Black(Kf8,Qb8,Rd7,Rg8,Be7,a6,b4,h7)
\global\Whitetrue\global\movecount=25
\end{position}
\begin{figure}
\centerline{Diagram~3: Fisher--Tal
 after 25.~\ldots, {\Fig K}f8!}
$$\showboard$$
\end{figure}

\ply  e6d7
Not |26. Rf1+, Kg7; 27. Rf7+, Kh8;
and if 28. Q*d7, Rd8; 29. Qg4, Qe5|
wins.

\ply       b8d6
\move d7b7 g8g6
Within a handful of moves the game
has changed its complexion. Now it
is White who must fight for a draw!

\ply  c2c3!
Black's extra piece means less with
each pawn that's exchanged.

\ply       a6a5
On |28.: b*c3; 29. Qc8+, Bd8;
30. Q*c3|=.

\ply  b7c8+
On the wrong track. Right is
|29. c*b4!, Q*b4 (if 29.: a*b4;
30. a3!, b*a3; 31. b*a3, Q*a3 draws);
30. Qf3+, Kg7; 31. Qe2| draws, since
Black can't possibly build up a
winning K-side attack and his own
king is to exposed.

\ply       f8g7
\move c8c4 e7d8
\move c3b4 a5b4
On |31.: Q*b4; 32. Qe2| White should
draw with best play.
$$\showboard$$
```

(See diagram 3.)

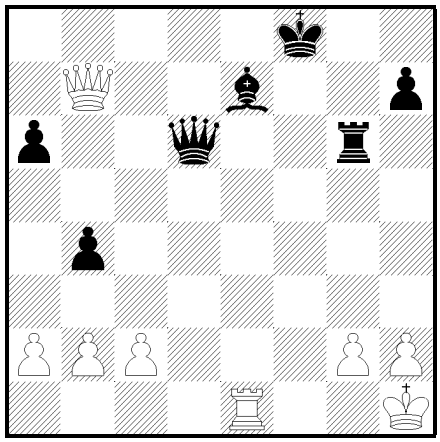
26. ♕e6×d7

Not 26. ♖f1+, ♔g7; 27. ♖f7+, ♔h8; and if 28. ♕×d7, ♖d8; 29. ♕g4, ♕e5 wins.

26. . . . ♕b8–d6
27. ♕d7–b7 ♖g8–g6

Within a handful of moves the game has changed its complexion. Now it is White who must fight for a draw!

Diagram 3: Fisher–Tal after 25. . . . , ♔f8!



28. c2–c3!

Black's extra piece means less with each pawn that's exchanged.

28. . . . a6–a5

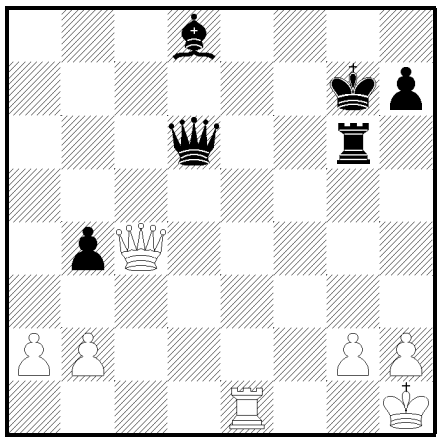
On 28. . . ., b×c3; 29. ♕c8+, ♗d8; 30. ♕×c3=.

29. ♕b7–c8+

On the wrong track. Right is 29. c×b4!, ♕×b4 (if 29. . . ., a×b4; 30. a3!, b×a3; 31. b×a3, ♕×a3 draws); 30. ♕f3+, ♔g7; 31. ♕e2 draws, since Black can't possibly build up a winning K-side attack and his own king is to exposed.

29. . . . ♔f8–g7
30. ♕c8–c4 ♗e7–d8
31. c3×b4 a5×b4

On 31. . . ., ♕×b4; 32. ♕e2 White should draw with best play.



Typesetting Bridge via LaTeX[1]

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Abstract

LaTeX macros and a bidding environment for typesetting bridge card distributions and bidding sequences are given. Examples borrowed from bridge literature are supplied.

1 Card deals

In bridge literature diagrams of distribution of cards over the hands are often given in order to demonstrate bidding sequences or to explain play technique. In order to do this systematically and to abstract from layout details I wrote a macro — `crdima` — with six parameters

first parameter: text, especially who is the dealer and what is the vulnerability. For example: N/None, for North dealer and vulnerability none.

second parameter: text, for example indication of play, e.g., number `Play 1` or otherwise, e.g.,

```
\begin{minipage}[t]{\br}
    Play:\\demo
\end{minipage}
```

next four parameters: the four hands in the sequence N, W, E, S. Each hand is a call of the `hand` macro with four parameters: the ♠, ♡, ♢, ♣ cards.

Example

```
\crdima{N/None}{%
  \begin{minipage}[t]{\br}
     Play:\\demo
  \end{minipage}}%
  {\hand{J74}{AJ}{QJT2}{Q874}}%
  {\hand{A3}{K76}{963}{KJ952}}%
  {\hand{K86}{T9542}{874}{T3}}%
  {\hand{QT952}{Q83}{AK5}{A6}}%
```

yields

N/None
♠ J74
♡ AJ
♢ QJT2
♣ Q874

Play:
demo

♠ A3
♡ K76
♢ 963
♣ KJ952

N
W E
S

♠ K86
♡ T9542
♢ 874
♣ T3

♠ QT952
♡ Q83
♢ AK5
♣ A6

Remarks
By this levelling I circumvented the limit of the number of parameters. Because parameter substitution is done by 'text' replacement there is no '(strong) type checking' as in modern high-level programming languages.
There is no check on the correctness of the cards (correct number, distribution, multiple occurrence or omission), nor on the correct sequence of the parameters. In SGML compliance with the input syntax can be imposed with enhanced user convenience and alleviated proofreading, but at the expense of elaborate coding, [3]. No test on the correctness of the sequence of the hands is possible, except for the mechanism of 'named' parameters.
The `crdima` macro can be used to display all phases of the play. Hands can be suppressed at discretion of the user by empty actual parameters. A void can be supplied via `--`. In the listings of the commands used for the examples the `quote` environment command is omitted.

For tournaments (bridge) plays are often dealt by computer. At the end of tournaments players appreciate

[1] Reprinted from TUGboat 10, 1, 113–116.

prints of the deals. For that purpose my (Pascal) deal program generates ASCII output — for simple display on the PC — as well as LaTeX input, optionally. This input is printed with the aid of `crdima`. Parameter testing is superfluous for LaTeX input generated this way.

2 Bidding

In the context of bidding theory I use a bidding environment. The given card deal takes the following ACOL bidding

West	North	East	South
–	1♣	no	1♠
no	2♠	no	4♠
a.p.			

obtained via

```
\begin{bidding}
-- \> 1\c\> no \> 1\s\\
no \> 2\s\> no \> 4\s\\
a.p.
\end{bidding}
```

Remark The bidding environment is independent of the language of the bidding (West etc. can easily be adapted), the bidding system as well as the number of bid rounds.

3 Macro texts

```
\newcommand{\hand}[4]{
 \begin{minipage}[t]{\br}%I chose \br=8em
 \begin{tabbing}
 %width of parbox depends on the parameters:
 %min{\br, max{string #1, ..., string #4}}
  \(\spadesuit\)  \= #1 \\
  \(\heartsuit\)  \> #2 \\
  \(\diamondsuit\)\> #3 \\
  \(\clubsuit\)   \> #4
 \end{tabbing}
 \end{minipage}     }%end \hand
%
\newsavebox{\NESW}
\savebox{\NESW}[4em]{%
\raisebox{-1.5\baselineskip}%
{\fbox{\small W
   \raisebox{2.6ex}{N}
   \hspace*{-1em}
   \raisebox{-2.6ex}{S}
   {E}
      }
}          }%end \NESW
%
\newcommand{\crdima}[6]{%
\begin{tabular}[t]{lll}
 #1 & #3             & #2\\
 #4 & \usebox{\NESW} & #5\\
    & #6             &
\end{tabular}
}%end \crdima
%
\newenvironment{bidding}%
{\begin{tabbing}
 xxxxxx\=xxxxxx\=xxxxxx\=xxxxxx \kill
 West  \>North \>East  \> South\\
}{\end{tabbing} }%end bidding
%
```

To eliminate data integrity errors the listings of the above macros and the listings of the commands used in the examples are 'included' via a transparent verbatim like environment, [6]; so the same files were used for execution and listing.

4 Some more examples

In order to illustrate general bidding theory from the point of view of one hand only, the `hand` macro can be used. The following layout, heavily used in [2],

♠ AKJ42
♡ AK9
♢ T832
♣ T

West	North	East	South
–	1♠	no	1NT
2♣	?		

is obtained via

```
\hand{AKJ42}{AK9}{T832}{T}\hspace{.5\br}
\begin{minipage}[t]{\br}
\begin{bidding}
-- \> 1\s\> no \> 1NT \\
2\c\> ?
\end{bidding}
\end{minipage}
```

For issues related to defense play one often displays only the dummy hand and your own hand. The following example — layout and text — is from [1].

♠ AJ632
♡ 43
♢ KQ7
♣ A85

N
W E
S

♠ 985
♡ 852
♢ AJ5
♣ KQT3

West	North	East	South
1♠	no	2♡	no
2NT	no	4♡	a.p.

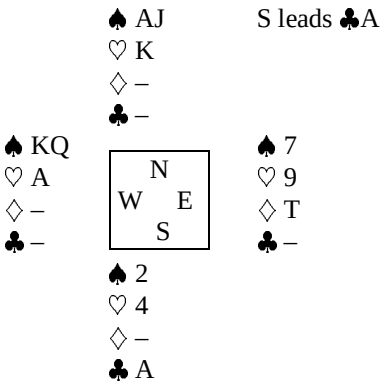
Against 4♡ South starts ♣K, taken with ♣A. Leader continues ♡AKQ. On the third round of ♡'s, partner discards ♢9 (indicates interest in ♠). Leader continues with ♢2, how do you continue?

The example is obtained via

```
\crdima{}{}{}{\hand{AJ632}{43}{KQ7}{A85}}%
          {}{\hand{985}{852}{AJ5}{KQT3}}\\
\begin{bidding}
1\s\> no \> 2\h \> no\\
2NT\> no \> 4\h \> a.p.
\end{bidding}
```

Remark In a similar way W–N, N–E, E–S hands, or W–E, N–S hands, or one hand only, with NESW diagram, can be displayed simply by a suitable call of `crdima`.

Finally, an endplay — positional squeeze — from [4] is given.



The example is obtained via

```
\crdima{}{S leads \c A}%
       {\hand{AJ}{K}{--}{--}}%
       {\hand{KQ}{A}{--}{--}}%
       {\hand{7}{9}{T}{--}}%
       {\hand{2}{4}{--}{A}}
```

5 Variation

An elementary, and in a sense more general, crdima macro is

```
\newcommand{\crdimaele}[9]{%
\begin{tabular}[t]{lll}
#1 & #2 & #3\\
#4 & #5 & #6\\
#7 & #8 & #9
\end{tabular}}%end crdimaele
```

All the given examples can be handled with `crdimaele`. `crdimaele` applied to the original deal without NESW diagram reads

```
\crdimaele{N/None}%
  {\hand{J74}{AJ}{QJT2}{Q874}}%
  {\begin{minipage}[t]{\br}
     Play: demo; no NESW diagram
  \end{minipage}}%
  {\hand{A3}{K76}{963}{KJ952}}%
  {}%
  {\hand{K86}{T9542}{874}{T3}}%
  {}%
  {\hand{QT952}{Q83}{AK5}{A6}}%
  {}
```

with result

N/None
♠ J74
♡ AJ
♢ QJT2
♣ Q874

Play: demo; no NESW diagram

♠ A3
♡ K76
♢ 963
♣ KJ952

♠ K86
♡ T9542
♢ 874
♣ T3

♠ QT952
♡ Q83
♢ AK5
♣ A6

Remarks
A NESW diagram is obtained with `\usebox{\NESW}` — or something you have designed yourself — as fifth parameter.
An elegant solution to the problem of having a default NESW figure which could be overruled by another figure is the optional parameter mechanism, which — helas — is lacking in the macro facility of LaTeX. The same applies to the bidding environment with the default bid sequence West North East South. Again via the mechanism of optional parameters one could provide another bid sequence order, abbreviations or names suited for other languages. For the hand parameters one could think of the mechanism of 'named parameters' with ultimately complete freedom of the sequence order of the parameters: one could then easily provide the hands in the order N E S W, the deal order. A step in this direction is to use variables, e.g., `\ns` for spades of the North hand and so on. The use of `\hand` for North is then `\hand{\ns}{\nh}{\nd}{\nc}`. Of course one could modify `crdima` into a version with parameter calls replaced by 'global' variables. My case rests.

6 Conclusions

The author claims that bridge publications can be typeset easily with high quality via LaTeX and the given macros. Proofreading of deals not generated and typed by computer is error prone and remains tiresome.
The lack of the facility of optional parameters in the `\newcommand` command and the `newenvironment` environment is felt as an understandable inelegancy.

Acknowledgements

The author is grateful to Victor Eijkhout of the University of Nijmegen and Nico Poppelier of the University of Utrecht for their suggested improvements. With my colleague Jan Luyten I had the pleasure of fruitful discussions.

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Typesetting Bridge via TEX

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Abstract

Enhanced plain TEX macros and a bidding environment for typesetting bridge card distributions and bidding sequences are given. As a follow-up of the LATEX macros given in [12]. Moreover, macros for annotated printing of the course of the play are provided. Examples of use are included.

Introduction

After the publication of [12] Bernard Gaulle among others, asked for similar plain TEX macros. This article concentrates on

a. Translation into plain TEX of LATEX macros for printing card deals and bidding sequences as published in [12], i.e., emulated `\hand`, `\crdima` macros and NESW-figure, as well as a flexible (`\bbid`, `\ebid`) environment.
b. (new) TEX macros — (`\bplay`, `\eplay`) environment and `\showgame` — for handling the course of the play, in the same spirit as how chess is 'played' in print, see [2, 16], i.e., with annotations and preserved data-integrity; no retyping of the hands! This starts in section How the play goes.

The translated macros are enhanced with respect to both language as well as application flexibility. The language flexibility is in the spirit of the 'international' DUTCH-sty-option activity, see [4]. Names are provided, via (grouped) macros, which can be redefined easily. Within the context of bridge this means redefinition of the four hands

```
\def\FIH{North}% FIrst  Hand
\def\SEH{East} % SEcond Hand
\def\THH{South}% THird  Hand
\def\FOH{West} % FOurth Hand
```

and redefinition of `\N`, `\E`, `\S`, `\W`, `\EW`, `\NS`, `\TRICK`.

In several books, e.g. [13], the players are personalized into: Partner, RHO, YOU, LHO, where R/L-HO mean Right/Left-Hand Oponent. In newspaper columns the names of the players are sometimes given. This, as well as language variations, can be realized easily by redefinitions of `\FIH` etc. It must be admitted though, that editing source texts is in general not that difficult, just cumbersome.

As long as card values are represented by digits and letters we don't need control sequences for them. They can just be typed in, with the representation you like. We have A(ce), K(ing), Q(ueen) and J(ack), in English and A(s), R(oi), D(ame), V(alet), in French, while in Dutch they read A(as), H(eer), V(rouw), B(oer), along with T(en) — D(ix), respectively T(ien), or generally 10 — 9, 8, 7, 6, 5, 4, 3, 2.

Card deals

`\hand` prints the cards a player holds. `\crdima` (CaRD IMAge) prints all the cards given for every hand in a suitable way. The argument sequences of `\hand` and `\crdima` are similar to the LATEX argument sequences given in [12].

Arguments. `\crdima` takes six arguments:
first argument: text, in particular who is the dealer and what is the vulnerability. For example: N/None, for North dealer and vulnerability none.
second parameter: text. For example, indication of deal as in `Deal 1` or in

```
\vtop{\hbox{Deal:}
      \hbox{demo }}
```

next four arguments: the four hands N, E, S, W, clockwise. Each hand is a call of the `\hand` macro with four arguments: the ♠, ♡, ♢, ♣ cards.

Assumed is a box register, `\NESW`, which contains the central figure.

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As example,

```
$$\crdima{N/None}{\vtop{\hbox{Deal:}}
                      \hbox{demo}}}%
  {\hand{J74}{AJ}{QJT2}{Q874}}%N
  {\hand{K86}{T9542}{874}{T3}}%E
  {\hand{QT952}{Q83}{AK5}{A6}}%S
  {\hand{A3}{K76}{963}{KJ952}}%W
$$
```

yields

N/None	♠ J74 ♡ AJ ◇ QJT2 ♣ Q874	Deal: demo
♠ A3 ♡ K76 ◇ 963 ♣ KJ952	N W E S	♠ K86 ♡ T9542 ◇ 874 ♣ T3
	♠ QT952 ♡ Q83 ◇ AK5 ♣ A6	

Bidding

The bidding environment is not based on tabbing, but `\halign` is directly used. This means that the bidding sequences are lines within `\halign`, with four columns, and have to obey its syntax. The given card deal takes the following ACOL bidding

North	East	South	West
$1\clubsuit^A$	? no	1♠	...no
2♠	no	4♠	a.p.

^{A} means Alert, conventional bid
? means explanation asked
...means think pause

obtained via

```
{\smallskip\narrower\noindent
\bbid
1\c\alert& ? no& 1\s&\think no\cr
      2\s&   no& 4\s&     a.p.\cr
\noalign{\vskip.5ex}
\alert\ means Alert,
   conventional bid\hidewidth\cr
? means explanation
              asked\hidewidth\cr
\think means think
              pause\hidewidth\cr
\ebid                 \smallskip}
```

Remarks. One has to have a nodding knowledge of TEX. A more user-friendly `\annotation` command can be written, in the same spirit as a footnote or endnote.†

Another issue is whether we should test upon illegal biddings. I did not do this because it will restrict the use of the macros, e.g., illegal biddings are needed in arbiter courseware.

The above is natural and will suffice for simple applications. The given `\crdima` and `\hand` macros as well as the bidding environment can be used in a similar way as the LATEX predecessors. So 'drivers'—e.g., in my (Pascal) deal program, for prints of tournament plays—hardly need to be adapted.

Furthermore, LATEX users can also make use of these enhanced versions at the expense of `\halign`'s syntax for the bidding sequences.

In order to handle other bridge typesetting usages‡ elegantly and consistently, we have to think more thoroughly about how to pass information from one macro to another.

Variables and parameters vs. control sequences and arguments

Knuth, [11, p.211], names the possibilities:

> "It is sometimes desirable to pass information from one macro to another, and there are several ways to do this: by passing it as an argument, by putting it into a register, or by defining a control sequence that contains the information."

It is not straightforward to me what to provide via arguments, what via registers and what via control sequences from one macro to another. The above is the TEX terminology and well-defined, while in Pascal-like programming we call the possibilities:

- transfer via parameters (by name, reference or value),
- via global variables, and
- via procedures.†

† A simple approach could be a command with two arguments where the first argument contains the annotation symbol(s) and the second argument contains the explanation and are passed on to (toks) control sequences. `\ebid` must be redefined such that the annotation(s) will appear.

‡ In practice simpler techniques are used, e.g., Meulenbroek edits the previous column with the word processor at hand.

† In numerical mathematics we also have what is called reverse communication.

In command languages (and also in ADA^{TM}) we distinguish between parameters bound to a position and bound via keywords in free order along with defaults.

In `\crdima` the texts and hands, and in `\hand` the cards for every colour, are provided via arguments. Another approach is to provide all this information via control sequences, i.e., control sequences for

- the vulnerability and dealer information,

```
\def\LFTINF{N/None}% LeFT INFo
```

- general information,

```
\def\RGTINF{Demo}  % RiGhT INFo
```

- cards per colour and player, i.e., `\Ns`, for North's ♠'s, etc.

One could then introduce something like `\showgame`, with *no* arguments, which uses these control sequences. This is done in the section on How the play goes.

So, there is essentially one 'variable' left, the representation of the NESW-figure. One could use the optional parameter mechanism, see e.g. [3], with the disadvantage of supplying this parameter for every deal once a personalized layout, different from the default, has been chosen. In my opinion this kind of variability which is no longer there once personalized, can best be provided via a register, e.g., a box register in this case, and not via an optional parameter. When no figure is wanted, just 'empty the box', and when you like one of your own use `\setbox\NESW\hbox{...}`. The notation for the players used in the NESW-figure is contained in control sequences, `\N` etc.

In the bidding environment the notation for the players is also contained in control sequences, `\FIH`, etc. This provides language as well as order flexibility. Annotation commands are, e.g., `\alert`, `\think` (think pause), ? (before the bid: explanation is asked for; after the bid: questionable bid), whatever you like to add, and various combinations, such as question followed by think pause.

In the play environment the lead can be specified by `\LEADN`, `\LEADE`, `\LEADS`, or `\LEADW`. These control sequences set the definitions of `\FIP%FIrst Player`, `\SEP`, `\THP`, and `\FOP`. Furthermore, the cards played have to be given in (English) natural notation, e.g., h8 for ♡8. The (`\bintermezzo`, `\eintermezzo`) environment is a more user-oriented disguise for `\noalign`.

Remark. It is tempting to ponder about where keyword parameters come in (see e.g., [1]). Think of modifying the contents of a register or redefinition of a control sequence. The functionality is already there, for example see the section on application flexibility.

Notation

For the names of the control sequences for the hands and the left and right information I adopted upper case letters `\FIH`, `\SEH`, `\THH`, `\FOH`; `\N`, `\E`, `\S`, `\W`, `\NS`, `\EW`; `\LFTINF`, `\RGTINF`, and for the colours of the cards and for the annotation commands I used lower case letters `\s`, `\h`, `\d`, `\c`; `\alert`, `\think`. For the lead indication and FIrst SEcond etc Player I also used upper case letters: `\LEADN`, `\LEADE`, `\LEADS`, `\LEADW`; `\FIP`, `\SEP`, `\THP`, `\FOP`. Language commands are also in lower case; supplied are `\english` (default), `\dutch`, and `\french`. This naming convention also holds through for name combinations in the control sequences for the cards per hand per colour, i.e., `\Ns`, etc. Note that we have `\NS` and `\Ns`, denoting respectively the North-South combination and North's ♠'s.

Remark. With respect to choosing another language I adopted that the result *in print* will be in the specified language; the control sequences remain in English. Data which will be printed — card values — have also to be supplied in the other language. Note that the card *colours* have to be denoted in English: ♡'s are always denoted by h (in play environment) or `\h` (in bidding environment).

Application flexibility

a Another language. In the following the French language is used.

	N/Personne ♠ V74 ♡ AV ♢ DV102 ♣ D874	
♠ A3 ♡ R76 ♢ 963 ♣ RV952	N O E S	♠ R86 ♡ 109542 ♢ 874 ♣ 103
	♠ D10952 ♡ D83 ♢ AR5 ♣ A6	

takes the following ACOL bidding

Nord	Est	Sud	Ouest
$1♣^A$	pas	1♠	...pas
2♠	pas	4♠	pas
pas	pas		

obtained via

```
{% Local change,
\french
{\smallskip\narrower\noindent
\crdima{N/Personne}{}%
  {\hand{V74}{AV}{DV102}{D874}} %N
  {\hand{R86}{109542}{874}{103}}%E
  {\hand{D10952}{D83}{AR5}{A6}} %S
  {\hand{A3}{R76}{963}{RV952}}  %O
\smallskip}
\noindent takes the following ACOL
bidding
{\smallskip\narrower\noindent
\bbid
 1\c\alert& pas& 1\s& \think pas\cr
       2\s& pas& 4\s&        pas\cr
       pas& pas\cr
\ebid           \smallskip}
}% end local change
```

b Changing order. If for some reason one likes to start with another player, e.g. West, in the printing of the bidding sequences, with the same dealer and vulnerability, this yields

West	North	East	South
–	1♣[A]	no	1♠
...no	2♠	no	4♠
a.p.			

and is obtained via

```
{% Local change, note that the order
% of the defs is free
\def\FIH{West}\def\SEH{North}
\def\THH{East}\def\FOH{South}
%
\smallskip\narrower\noindent
\bbid
       --& 1\c\alert& no& 1\s\cr
\think no& 2\s      & no& 4\s\cr
     a.p.\cr
\ebid             \smallskip
}% end local change
```

Another adaptation is using a different naming, e.g., first hand is Partner via `\def\FIH{Partner}` etc., see section on Endplay analysis, where `\N` etc., are personalized.†

c Natural notation on input. Natural notation is bound to a language. This gives complications if one likes to specify the card colours. For example in the French language we have carreaux and cœurs, which both abbreviate to c, and D(ame) and D(ix).

Furthermore, one can think of hiding TEXnicalities. The latter means that one could omit `&` and `\cr` and use, respectively, a space and a carriage return instead. I decided not to hide & and `\cr`.

One can also think of denoting the colours via the first character of the colour names in the bidding environment instead of the corresponding control sequence. I decided to have control sequences in the bidding environment for the colours, because this makes it possible to supply any prefix. In the play environment I decided in favour of the colour abbreviation, s, h, d, or c, because there is no need for prefixes.

Remarks. Note the keyword functionality in the examples a and b.

> The general disadvantage of flexibility is the need for discipline; no consistency is forced upon. The advantage is freedom, and the question is how to use it.

Macro texts

The provided NESW-figure is implemented via a 'ruled' table. The N, E, S, W symbols are provided via control sequences. The positioning obeys `\haligns` rules.

Source texts. `\hand`, `\crdima`, `\NESW`, and (`\bbid`, `\ebid`)

```
%Date: Tue, 8 Oct 1991 16:00 MET
%From: CGL@RUGR86.RUG.NL
%Subject: bid.tex nodig in bridge TeX artikel
%To: vannes@ecn.nl

\def\hand#1#2#3#4{%
%Example: \hand{AKJ765}{AK9}{--}{T983}
\vtop{\hbox{\strut\s\enspace#1}
\hbox{\strut\h\enspace#2}
\hbox{\strut\d\enspace#3}
\hbox{\strut\c\enspace#4}}%end \vtop
}%end \hand
%
\def\crdima#1#2#3#4#5#6{%
%purpose: layout bridge hand
%#1 left upper text
%#2 right upper text
%#3, #4, #5, #6: N, E, S, W hands
\vbox{\halign{              &##\quad\cr
              #1&          #3&     #2\cr
 $\vcenter{#6}$&$\vcenter{\copy\NESW}$&
                      $\vcenter{#4}$\cr
```

† This modification can be simplified when the NESW-figure is not put in a register, i.e., `\def\NESW{\hbox{\NESWfig}}` and `$\vcenter\NESW$` are used.

```
                &          #5&       \cr
              }%end \halign
        }%end \vbox
}%end \crdima
%
\def\NESWfig{%
\vbox{\font\small=cmr9
\def\str{\vrule height2.2ex%
    depth.75ex width 0pt}
\offinterlineskip\tabskip0pt\hrule
\halign{\vrule\hskip2pt\relax
##\hfil\tabskip3pt&  \str\hfil##\hfil&
##\hskip2pt\relax\hfil\vrule
                          \tabskip0pt\cr
  &      \hbox to 0pt{\hss\N\hss}&  \cr
\W&                    \phantom{N}&\E\cr
  &  \str\hbox to 0pt{\hss\S\hss}&  \cr
       }%end \halign
\hrule}%end \vbox
}% end \NESWfig
\setbox\NESW\hbox{\NESWfig}
%
\def\ebid{\errormessage{%
   bbid command is missing}}
%
\def\bbid{\bgroup%
 \def\ebid{\egroup\egroup\egroup}
 \def\alert{$^A$}
 \def\think{$\ldots$\thinspace}
 % etc.
 \vtop\bgroup
 \halign to\bidwidth\bgroup \tabskip2ex
      plus 1ex minus 1ex&    ##\hfil\cr
    \FIH\hfil& \SEH\hfil&
                  \THH\hfil&\FOH\hfil\cr
}%end \bbid
```

Remark. Plain TEX macros for nicely rounded frames, LATEX's 'ovals', have been published, see [8]. They can be used for another frame representation in NESW.

Some more examples

a. In order to illustrate general bidding theory from the viewpoint of one hand only, the `\hand` macro can be used. The following layout, heavily used in [7],

♠ AKJ42
♡ AK9
♢ T832
♣ T

North	East	South	West
1♠	no	1NT	2♣
?			

is obtained via

```
{\smallskip\narrower
\hbox to \hsize{\hss
\hand{AKJ42}{AK9}{T832}{T}%
\quad\hfil
\bbid
1\s& no& 1NT& 2\c\cr
  ?\cr
\ebid
\hss}          \smallskip}
```

b. For issues related to defense play one often displays only the dummy hand and your own hand. The following example is borrowed from [5].

♠ AJ632
♡ 43
♢ KQ7
♣ A85

N
W E
You

♠ 985
♡ 852
♢ AJ5
♣ KQT3

North	East	South	West
–	–	–	1♠
no	2♡	no	2NT
no	4♡	a.p.	

Against 4♡ South starts ♣K, taken with ♣A. Leader continues ♡AKQ. On the third round of ♡'s, partner discards ♢9 (indicates interest in ♠). Leader continues with ♢2, how do you continue?

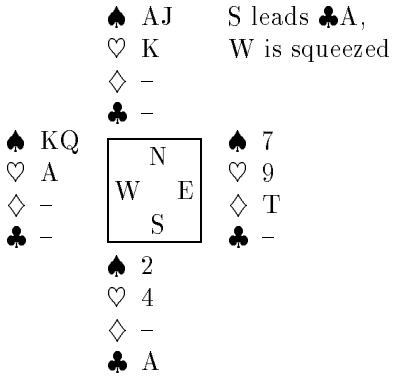
The example is obtained via

```
{\def\S{You} % local change
\setbox\NESW\hbox{\NESWfig}
\smallskip\narrower\noindent
\crdima{}{}%
    {}{}{\hand{985}{852}{AJ5}{KQT3}}%S
        {\hand{AJ632}{43}{KQ7}{A85}}%W
\smallskip
}%end local change NESW-figure

{\smallskip\narrower\noindent
\bbid
 --&  --& --& 1\s\cr
 no& 2\h& no& 2NT\cr
 no& 4\h& a.p.\cr
\ebid    \smallskip}
```

Remark. In a similar way W–N, N–E, E–S hands, or W–E, N–S hands, or one hand only, with NESW-diagram, can be displayed simply by a suitable call of `\crdima`.

c. In discussing endplays only a few cards are left. The following endplay is taken from [10].

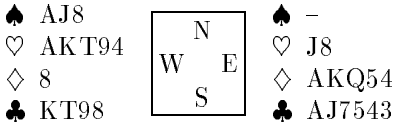


The example is obtained via

```
{\smallskip\narrower\noindent
\crdima{}{\vtop{\hbox{S leads \c A,}
              \hbox{W is squeezed}}}%
        {\hand{AJ}{K}{--}{--}}%N
        {\hand{7}{9}{T}{--}}  %E
        {\hand{2}{4}{--}{A}}  %S
        {\hand{KQ}{A}{--}{--}}%W
\smallskip}
```

d. Finally, a bidding competition. It illustrates how the (`\bbid`, `\ebid`) environment can be used for this application. We have taken only two partnerships: Sjoerd&Martijn and Tsjip&Janski. The material is borrowed from [17].†

W/All; Bidding competition



On the above hands, and given that South will intervene with 4♠, the partnerships bid as follows,

West	East	West	East
Sjoerd	*Martijn*	*Tsjip*	*Janski*
1♡	2♣	1♡	2◇
(4♠ by South)		(4♠ by South)	
no[1]	5♠[2]	dbl	6♣
7♣	no	no	

[1] Forcing pass
[2] Grand slam try

obtained via

```
$$\crdima{ W/All;
  Bidding competition  \hidewidth\cr
  \noalign{\vskip.5ex}}{}%
  {}{\hand{--}{J8}{AKQ54}{AJ7543}}%E
  {}{\hand{AJ8}{AKT94}{8}{KT98}}  %W
$$
```

† Normally, the set of West-hands is separated from the set of East-hands.

```
\noindent On the above hands, and given
that South will intervene with 4\s,
the partnerships bid as follows,
%
{\smallskip\narrower
\hbox to \hsize{\hss
{%Sjoerd&Martijn (Local mods)
\def\FIH{\vtop{\hbox{West}
         \hbox{\it Sjoerd\/}}}
\def\THH{\vtop{\hbox{East}
         \hbox{\it Martijn\/}}}
\def\SEH{}\def\FOH{}
\def\bidwidth{3\wr}
\bbid
\noalign{\vskip.5ex}
   1\h&              &2\c\cr
(4\s\ by South)\hidewidth\cr
no$^1$&          &5\s$^2$\cr
   7\c&               &no\cr
\noalign{\vskip.5ex}
$^1$ Forcing pass\hidewidth\cr
$^2$ Grand slam try\hidewidth\cr
\ebid}%end Sjoerd&Martijn
\quad\hfil
{%Tsjip&Janski (Local mods)
\def\FIH{\vtop{\hbox{West}
         \hbox{\it Tsjip\/}}}
\def\THH{\vtop{\hbox{East}
         \hbox{\it Janski\/}}}
\def\SEH{}\def\FOH{}
\def\bidwidth{3\wr}
\bbid
\noalign{\vskip.5ex}
1\h&                  &2\d\cr
(4\s\ by South)\hidewidth\cr
dbl&                  &6\c\cr
 no\cr
\ebid}%end Tsjip&Janski
\hss}%end \hbox
\smallskip}
```

How the play goes

Explanatory schemes of a play are used for instance on viewgraphs instantly along a match, in books about play technique, or in newspaper columns when discussing interesting matches or puzzles. In order to do this systematically and unambiguously something similar to the 'algebraic' notation in chess, see [2, 16], is needed.

Agreed, reading a book filled mostly with (algebraic) notation tables is quite dull and we can never replace the literary gifted commentator. So, this reduces the practical value of the exercise, but

for solutions of puzzles it might be quite efficient, although I don't expect that many solutions will be sent in using TEX, in spite of quite numerous bridge unions, e.g., NBB (75,000 members), [5], to name but one union. On the other hand the systematic approach eliminates misprints in shown phases, while discussing a play.

Anyhow, it was great fun, and I learned a lot from it.

What we need is a compact unambiguous notation which contains per trick the information about the cards played and who led. Who gained the trick† can be deduced from the general knowledge of the contract and the lead. In print one generally starts every trick with the lead; every card that is played is given by the card colour and card value, followed eventually by commentary symbols like !, or ?.

To print all this information I used basically a table with four columns — the players — and thirteen rows — the tricks. Each row starts with the lead.‡ Apart from printing the cards played (along with trick number), the cards in every hand — the (toks register) control sequences `\Ns`, etc. — are updated. The use is illustrated below.

Let us play a game

The following appeared in 'Meulenbroek's column' last Christmas.†

Puzzle	♠ KQ76 ♡ J98 ♢ J942 ♣ 65	6NT, by East
♠ AJ3 ♡ K653 ♢ AK3 ♣ AQT	N W E S	♠ T9 ♡ A2 ♢ T5 ♣ KJ9xxxx
	♠ 8542 ♡ QT74 ♢ Q876 ♣ 2	

Problem. How must NS defend in order to guarantee 1 trick?

Solution. Start with a ♡ lead in order to break communication. N must discard ♡'s and S must discard ♠'s.

Trick					NS	EW
1.	♡ 4!	♡ K	♡ 8	♡ 2	–	1
2.	♣ A	♣ 5	♣ x	♣ 2	–	2
3.	♣ Q	♣ 6	♣ x	♠ 2	–	3
4.	♣ T	♡ 9	♣ K	♠ 4	–	4
5.	♣ J	♠ 5	♠ 3	♠ 6	–	5
6.	♣ 9	♠ 8	♡ 5	♠ 7	–	6
7.	♣ x	♢ 6	♠ J	♢ 2	–	7

On lead of the next ♣ neither South nor North can be squeezed as can be seen from

Puzzle	♠ KQ ♡ J ♢ J94 ♣ –	NS squeezed on ♣ continuation?
♠ A ♡ 63 ♢ AK3 ♣ –	N W E S	♠ T9 ♡ A ♢ T5 ♣ x
	♠ – ♡ QT7 ♢ Q87 ♣ –	

with continuation

8.	♣ x	♡ 7	♡ 6	♡ J	–	8
9.	♢ T	♢ 7	♢ A	♢ 4	–	9
10.	♢ K	♢ 9	♢ 5	♢ 8	–	10
11.	♡ 3	♢ J	♡ A	♡ T	–	11
12.	♠ T	♡ Q	♠ A	♠ Q	–	12
13.	♢ 3	♠ K	♠ 9	♢ Q	1	12

Input. The above is obtained by

```
\def\LFTINF{Puzzle}
\def\RGTINF{\vtop{\hbox{6NT,}
            \hbox{by East}}}
%
\Ns={KQ76}\Es={T9}\Ss={8542}\Ws={AJ3}
\Nh={J98} \Eh={A2}\Sh={QT74}\Wh={K653}
\Nd={J942}\Ed={T5}\Sd={Q876}\Wd={AK3}
\Nc={65}\Ec={KJ9xxxx}\Sc={2}\Wc={AQT}
%
\showgame
%
\subhead *Problem*
How must NS defend in order to
guarantee 1 trick?
%
\subhead *Solution* Start with a \h\
lead in order to break communication.
N must discard \h's
```

† On viewgraphs underlining is commonly used; this can be implemented, but because of entailed inflexibility I refrained from it.

‡ The lead indication can be hidden for the first lead in something like `\contract`, `\leader` or explicitly `\lead`, and for the next tricks along with the automation of who gained the trick.

† Borrowed from [6].

```
and S must discard \s's.
\smallskip\noindent
\LEADS
\bplay
h4! & hK & h8 & h2 & -- & 1\LEADW\cr
cA  & c5 & cx & c2 & -- & 2\cr
cQ  & c6 & cx & s2 & -- & 3\cr
cT  & h9 & cK & s4 & -- & 4\LEADE\cr
cJ  & s5 & s3 & s6 & -- & 5\cr
c9  & s8 & h5 & s7 & -- & 6\cr
cx  & d6 & sJ & d2 & -- & 7\cr
\bintermezzo
On lead of the next \c\
neither South nor North can be
squeezed as can be seen from%
\def\RGTINF{\vtop{\hbox{NS squeezed on}
             \hbox{\c\ continuation?}}}
\showgame
with continuation
\eintermezzo
cx & h7 & h6 & hJ & -- & 8\cr
dT & d7 & dA & d4 & -- & 9\LEADW\cr
dK & d9 & d5 & d8 & -- & 10\cr
h3 & dJ & hA & hT & -- & 11\LEADE\cr
sT & hQ & sA & sQ & -- & 12\LEADW\cr
d3 & sK & s9 & dQ & 1  & 12\cr
\eplay
```

Remark. The cumulative tricks can be suppressed by deleting columns 5 and 6 and a priori emptying the head texts via `\def\NS{}` and `\def\EW{}`.

Macros for annotated play

The (`\bplay`, `\eplay`) environment is aimed at printing schematically the cards played. Interleaving remarks, showing the phase of the play etc., can be supplied within the (`\bintermezzo`, `\eintermezzo`) subenvironment.

`\pc` does two things: it prints the card played and deletes the card from the appropriate hand.

`\strip` essentially strips out one symbol from a string.

`\showgame` is just a call of `\crdima` with the current values of `\Ns` etc.

Explanation. The problem is to determine dynamically with which colour from which player we are dealing. In each column of `\bplay` the player is known via the control sequences `\FIP`, `\SEP`, `\THP` and `\FOP` (these are eventually adjusted by `\LEADN`, `\LEADE`, `\LEADS`, or `\LEADW`) and passed on to `\pc`, as first argument (see template line of `\halign` in `\bplay`). From the typed in information, within the (`\bplay`, `\eplay`) environment, the card colour and card value are passed on as second and third arguments to `\pc`. Symbols after that are handled as text, and influence `\halign`'s columns positioning.† `\strip` is called by `\pc` to delete a symbol. The symbol which has to be located in the string is used as argument separator.

Source texts.

```
%Date: Tue, 8 Oct 1991 16:01 MET
%From: CGL@RUGR86.RUG.NL
%Subject: play.tex nodig in bridge TeX artikel
%To: vannes@ecn.nl

\def\eplay{\errormessage{%
   bplay command is missing}}
%
\def\bplay{\bgroup\global\trno=0
                     %Version 21/3/90
\def\eplay{\egroup\egroup}
\def\bintermezzo{\noalign\bgroup
                  \smallskip\noindent}
\def\eintermezzo{\smallskip\egroup}
\tabskip1ex plus 1ex minus 1ex
\halign to7\wr\bgroup
 \global\advance\trno by 1
 \hbox to\wr{\hss\the\trno.\hss} %
 \pc\FIP##\hfil&
 \pc\SEP##\hfil&
 \pc\THP##\hfil&
 \pc\FOP##\hfil&&
 \hfil##\hfil\cr     %Template line
 \omit\hbox to\wr{\TRICK\hss}&
 \omit&\omit&\omit&
 \ \NS&\ \EW\cr      %Headline
}% end \bplay
%
\def\pc#1#2#3{%      Version 3/3/90
%Function: prints card #2#3 and
%          deletes it from player #1
%#1 the hand N, E, S, W(uppercase)
%#2 colour s, h, d, or c
%#3 card value A K Q ... 2, or x
%(or your (consistent/language) choice)
%%%% 1. Update hand \#1#2; e.g. \Ns %%%
\xdef\hnd{\csname #1#2\endcsname}
\strip{#3}{\hnd}%
%%%% 2. print card in table         %%%
\xdef\colour{\csname #2\endcsname}
\colour\thinspace #3%
% %Needed for immediate postfix mark(s)
```

† Of course use of `\ ...lap{` *symbol* `}` will not affect the columns positioning, but possibly spoil your print.

```
}% end \pc
%
\def\strip#1#2{%        Version 3/3/90
%Function: deletes card value #1
%          from #2, i.e., \Ns, or ...
  \def\wis##1#1##2\wis{%
  %Function: #1 is deleted from argument
  %          in \wis ... \wis and result
  %          is assigned to \hnd;
  %        (last card is replaced by --)
      \global\hnd={##1##2}
      \xdef\pa{##1} \xdef\pb{##2}
      \ifx\pa\empty {\ifx\pb\empty
         \global\hnd={--}% void colour
      \fi}\fi
   }% end \wis
   \expandafter\wis\the #2\wis
}% end \strip
%
\def\showgame{
%Purpose: Shows all cards still active
%       in the play, via \Ns, ..., \Wc,
%  (note use of upper case for players)
%Used: \crdima, \hand, \LFTINF, \RGTINF
%      \Ns, ..., \Wc
$$\crdima{\LFTINF}{\RGTINF}%
   {\hand{\the\Ns}{\the\Nh}{\the\Nd}%
         {\the\Nc}}%
   {\hand{\the\Es}{\the\Eh}{\the\Ed}%
         {\the\Ec}}%
   {\hand{\the\Ss}{\the\Sh}{\the\Sd}%
         {\the\Sc}}%
   {\hand{\the\Ws}{\the\Wh}{\the\Wd}%
         {\the\Wc}}%
$$}% end \showgame
```

Remarks. Use is made of `\halign`, with a counter for the tricks, and of `\noalign` for the intermezzo. One can also use a third, fourth, etc. symbol, after the colour and card value, in order to denote something special, e.g., !, for a well-played card. I added the reader-friendly feature of printing the cumulative number of tricks gained by each side in extra columns.

One abstraction I consider particular useful is the notation of `x` for cards which don't matter. (Because of the freedom in representation of card values nothing extra had to be done.)

Another question is what to do when the card is not in the hand? This will yield a TEX error message.

Flexibility: Endplay Analysis. The analysis below is due to [15] and shows the elegant use of `\showgame` with (global) control sequences.

Analysis

	♠ A8653 ♡ A4 ♢ AJT ♣ A54	7♡, by South
♠ T2 ♡ 3 ♢ Q987652 ♣ T86	Anton Rens Dick Frans	♠ KQ94 ♡ T82 ♢ 43 ♣ QJ92
	♠ J7 ♡ KQJ9765 ♢ K ♣ K73	

♢2 lead is taken with the K, followed by ♠ to A, ♢A (leader discards a ♠), ♠ trumped, ♡K, ♡ to A, again ♠ trumped, followed by all but one trump. The leader arrived at

Squeeze 1

	♠ 8 ♡ – ♢ J ♣ A5	♡5 will squeeze: W (positionally) E (automatically)
♠ – ♡ – ♢ Q ♣ T86	Anton Rens Dick Frans	♠ K ♡ – ♢ – ♣ QJ9
	♠ – ♡ 5 ♢ – ♣ K73	

Other squeezes can be envisioned, e.g., (Note central figure is suppressed)

Squeeze 2

	♠ A8 ♡ – ♢ J ♣ –	W squeezed in ♠/♢
♠ KQ ♡ – ♢ Q ♣ –		♠ ♡ not ♢ important ♣
	♠ J7 ♡ 5 ♢ – ♣ –	

This squeeze works whenever West holds ♠KQ (or 5^+♠) ànd ♢Q, etc.

Remark. However interesting other squeeze possibilities — after a trump or ♠ lead — might be, they don't contribute further to 'bridge in print.' The above is meant as an illustration of the use of the macros within the context of a less rigid way of description. Because of the informal way the endplays are arrived at, we edited the hands. General play

commands, which will update the hands, are once again not that difficult to write.† For the moment I stopped.

Input for Endplay Analysis. The above is obtained via

```
{%local adaptation variables in NESWfig
\def\N{Anton}\def\E{Dick}
\def\S{Frans}\def\W{Rens}
\setbox\NESW\hbox{\NESWfig}
\def\LFTINF{Analysis}
\def\RGTINF{\vtop{\hbox{7\h,}
            \hbox{by South}}}
\Ns={A8653}\Es={KQ94}\Ss={J7}  \Ws={T2}
\Nh={A4} \Eh={T82} \Sh={KQJ9765}\Wh={3}
\Nd={AJT}\Ed={43}  \Sd={K}\Wd={Q987652}
\Nc={A54}\Ec={QJ92}\Sc={K73}  \Wc={T86}
%
\showgame
%
\d2 lead is taken with the K, followed by
\s\ to A, \d A (leader discards a \s),
\s\ trumped, \h K, \h\ to A, again
\s\ trumped, followed by all but one
trump. The leader arrived at
\Ns={8} \Es={K}  \Ss={--} \Ws={--}
\Nh={--}\Eh={--} \Sh={5}  \Wh={--}
\Nd={J} \Ed={--} \Sd={--} \Wd={Q}
\Nc={A5}\Ec={QJ9}\Sc={K73}\Wc={T86}
\def\LFTINF{Squeeze 1}
\def\RGTINF{\vtop{
            \hbox{\h5 will squeeze:}
            \hbox{W (positionally)}
            \hbox{E (automatically)}}}
\showgame
%
Other squeezes can be envisioned, e.g.,
(Note central figure is suppressed)
\Ns={A8}\Es={}   \Ss={J7}    \Ws={KQ}
\Nh={--}\Eh={not}\Sh={5}     \Wh={--}
\Nd={J}\Ed={important}\Sd={--}\Wd={Q}
\Nc={--}\Ec={}   \Sc={--}    \Wc={--}
\def\LFTINF{Squeeze 2}
\def\RGTINF{\vtop{\hbox{W squeezed}
                  \hbox{in \s/\d}}}
%
{%Sublocal mod: empty figure
\setbox\NESW\hbox{}
\showgame
}%end sublocal mod empty figure
%
This squeeze works whenever
West holds \s KQ (or 5$^+$\s) \‘and
\d Q, etc.
}%end local change \NESWfig
```

Looking back. I refrained from introducing case insensitivity in the card values, and from automatically counting the gained tricks, which is cumbersome but not too difficult to implement, once a suitable representation of the ordering of the cards is chosen.

The above features as well as more natural input can best be considered when the macros are targetted for a particular application, e.g., for typesetting (in a specified language) tournament reports, puzzles and answers, or whatever.

Because of the history of `\crdima` and `\hand`, and because I did not much ponder a priori about the ‘data structure,’ I started with a natural approach. Looking back I could have started from a 13∗4-matrix, where the rows denote the card values and the columns the colours. The value of an array element represents the status, e.g., the card belongs to either N, E, S, W, or has been played, not to mention ‘penalty’ cards. Updating this structure can be done via the ‘array addressing’ technique given in [9]. `\showgame` (and `\crdima`) as well as `\hand` will become more complicated, however. To be honest, I started in my deal program with 52 numbers for shuffling; these 52 numbers could be generalized into 52 memory locations, suitably adressed.

Looking ahead. What about using these macros interactively, e.g., in bridge play programs, or by commentators on TV? Not only to delete a card will be needed but also the reverse, to insert a card, in order to demonstrate variants.† Of course, some fancy graphics will be indispensable, like showing real card faces instead of symbols and playing the cards, i.e., let them *move.* Animation. Multi-media information exchange. How exciting! My case rests.

Availability macros. This article, with macros included, will be available on TeX-NL@HEARN. The previous LaTeX article is also there. I welcome

† Informal notation is characterized by incompleteness. In bridge, while discussing the course of a play, it is assumed that the reader knows which player played a card. One could write a general `\strip` command, with a suitable name, which locates the appropriate hand and subsequently strips and prints the card.

† Perhaps best implemented via a conditional delete?

copies of any publication using these macros, or derivatives thereof. Comments are appreciated.

Conclusions

The author claims that bridge publications with respect to card distributions and bidding sequences can be typeset with high quality via LaTeX, see [12], or via TeX and the macros given. Furthermore, it is possible to explain the course of a play in print systematically and unambiguously, where updating of the hands is done automatically when a card is 'played', i.e., when within the (`\bplay`, `\eplay`) environment the colour and card value are given, obeying `\halign`'s rules. The display of the course of the play can be interrupted with the intermezzo (sub)environment, for among others showing the cards still active in the play via `\showgame`.

Proofreading of deals not generated and typed by computer is error-prone and remains tiresome.

TeX programming differs from 'structured programming' not in the least

- in terminology — (positional, keyword) parameters vs. arguments; variables vs. registers and control sequences— and
- in its attitude — proving programs vs. knowing what one is doing.

Roughly three columns were needed for the (commented) macros; TeX is a powerful tool!

Acknowledgements

The author is grateful to Bernard Gaulle for his interest in the macros. Johannes Braams, who enlarged the LaTeX macros into a bridge style file, is kindly acknowledged for emphasizing language flexibility. Victor Eijkhout suggested to use an argument separator for locating a symbol in a string. He also carefully read the manuscript and proposed improvements to my English. Phil Taylor and Amy Hendrickson, whom I met at the Stanford TUG89 conference, and have had TeX contacts with since, contributed a lot, not in the least helping me 'onward and upward' with the for me unusual way of TeX programming. Last but not least I like to thank the Groningen bridge community for the inspiring discussions and the first class examples.

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Appendix. Registers and control sequences used

```
%Date: Tue, 8 Oct 1991 16:02 MET
%From: CGL@RUGR86.RUG.NL
%Subject: dec.tex nodig in bridge TeX artikel
%To: vannes@ecn.nl

%Card definitions
\def\s{$\spadesuit$}
\def\h{$\heartsuit$}
\def\d{$\diamondsuit$}
\def\c{$\clubsuit$}
%(Toks register) control sequences
%for hands used by play macros:
%showgame, pc, strip
\let\NT\newtoks
```

```
\NT\hnd%Dynamically one of:
\NT\Ns\NT\Es\NT\Ss\NT\Ws
\NT\Nh\NT\Eh\NT\Sh\NT\Wh
\NT\Nd\NT\Ed\NT\Sd
      \NT\Wd %Beware! Already
%in TUGboat.sty in lower case
\NT\Nc\NT\Ec\NT\Sc\NT\Wc
%
\def\english{
%In central figure NESW
\def\N{N}\def\E{E}\def\S{S}\def\W{W}
%In heading bplay
\def\NS{NS}\def\EW{EW}
\def\TRICK{Trick}
%Definition of hands
%used by bbid
\def\FIH{North}\def\SEH{East}
\def\THH{South}\def\FOH{West}
}% end \english
\english%default
%
\def\LEADN{\gdef\FIP{N}\gdef\SEP{E}%
          \gdef\THP{S}\gdef\FOP{W}}
\def\LEADE{\gdef\FIP{E}\gdef\SEP{S}%
          \gdef\THP{W}\gdef\FOP{N}}
\def\LEADS{\gdef\FIP{S}\gdef\SEP{W}%
          \gdef\THP{N}\gdef\FOP{E}}
\def\LEADW{\gdef\FIP{W}\gdef\SEP{N}%
          \gdef\THP{E}\gdef\FOP{S}}
%Definition  of counters
%used by bplay
\newcount\trno%trick number
%Definition of dimensions
%used in bbid
\newdimen\wr %width column
\wr=7ex \relax
\def\bidwidth{4\wr}
%used in crdima
\newbox\NESW
%
\def\dutch{
\def\FIH{Noord}\def\SEH{Oost}
\def\THH{Zuid}\def\FOH{West}
\def\N{N}\def\E{O}\def\S{Z}
\def\W{W}\def\EW{OW}\def\NS{NZ}
\def\TRICK{Slag}
\setbox\NESW\hbox{\NESWfig}
}%end \dutch
%
\def\french{
\def\FIH{Nord}\def\SEH{Est}
\def\THH{Sud}\def\FOH{Ouest}
\def\N{N}\def\E{E}\def\S{S}
\def\W{O}\def\EW{EO}\def\NS{NS}
\def\TRICK{Lev\'ee}
\setbox\NESW\hbox{\NESWfig}
}%end \french
```

Go diagrams with TEX

碁

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October 8, 1991

Encoureged by Zalman Rubinstein, who described his chess diagrams in TUGboat vol. 10 no. 2 [1], I have prepared some special fonts and TEX macros to be used in typesetting go diagrams. For all the people who have never yet played go I found the following introduction to the game [2]:

> *Go is one of the most ancient, interesting, and rewarding of all board games. [...] It is played on a wooden board marked with nineteen vertical and nineteen horizontal lines. The pieces used are disks of slate and white shell slightly more than two centimeters in diameter. These, even made of plastic or glass, as in mass-produced sets, are called stones. They are played on the intersections formed by the lines on the board, not within the squares. The board is empty at the beginning of the game, and the two players take turns placing stones on it one at a time, one player playing black the other playing white. Once played, a stone remains in its place, not moving about from point to point.*

Go diagrams are easy to read. ❶ is the first stone played, ② the second, and so on.

In order to facilitate inserting go diagrams in a text both in Plain TEX and LATEX, I decided to generate with Metafont all the symbols needed, even lines and circles, and to put them in three kinds of fonts:

1. fonts with black stones, eg. go1bla10, go2bla10 (go black stones at 10pt);
2. fonts with white stones, eg. go1whi10, go2whi10 (go white stones at 10pt);
3. fonts with additional symbols, like intersections of lines, border lines, etc., eg. go10 (go symbols at 10pt).

Probably two more fonts will be needed with black and white stones numbered over 255, because games which last over 300 moves are not seldom!

The macros for coding go diagrams are gathered in the 'go.sty' file. In the macros each line intersection is identified by the row label (one of the letters: a, b, c, d, e, f, g, h, i, k, l, m, n, o, p, q, r, s, t) and the column number (from 1 to 19). After issuing the command:

```
\input go.sty
```

[1] I wrote this paper in April 1990, during my work in the Institute of Informatics at the Warsaw University.

the current go diagram is initialized (with no stones on it). Later in your text you can clear the whole diagram or only a part of it by introducing one of the commands:

`\inifulldiagram`

or

`\inidiagram` *with parameters.*

For example, `\inifulldiagram` is equivalent to:

`\inidiagram␣a-t:1-19␣`

(with a space limiting the fourth parameter).

The same rule stands also for showing diagrams:

`\showfulldiagram`

is equivalent to:

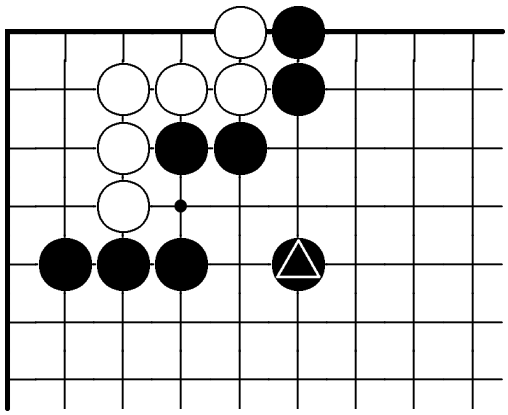
`\showdiagram␣a-t:1-19␣`

Partial diagrams are often used to show go problems, their solutions and different variations of moves.

Putting a stone on the board is coded by the command:

`\pos` *with parameters.*

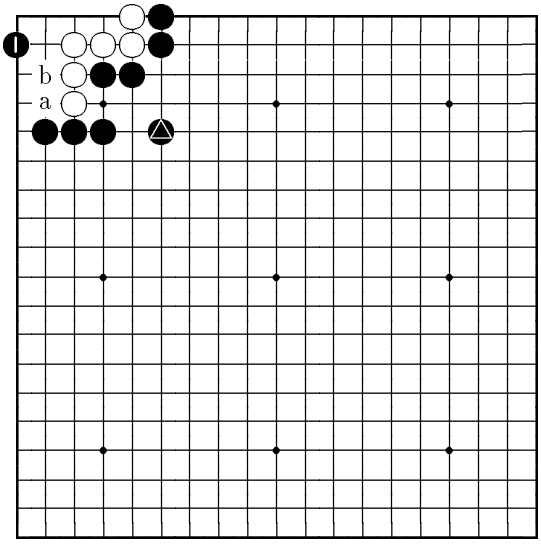
Lets consider an example: a problem to solve (Dia. 1) and its solution (Dia. 2).



Dia. 1

```
\input go.sty          %  inputs macros
\gofontsize{20}        %  chooses the size of stones and other
                       %  symbols (default=10pt)
\pos{a}{5}=\white.     %  puts a white stone (without any number)
\pos{a}{6}=\black.     %  puts a black stone (without any number)
                       %  on the a6 intersection
\pos{b}{3}=\white.
\pos{b}{4}=\white.
\pos{b}{5}=\white.
\pos{b}{6}=\black.
\pos{c}{3}=\white.
\pos{c}{4}=\black.
\pos{c}{5}=\black.
\pos{d}{3}=\white.
```

```
\pos{e}{2}=\black.
\pos{e}{3}=\black.
\pos{e}{4}=\black.
\pos{e}{6}=\black{\triangle}  %  puts a black stone with
                              %  a triangle
$$                        %  centering
\showdiagram a-g:1-9      %  the result is shown in Dia. 1
$$
\pos{b}{1}=\black{1}      %  puts a black stone with 1
\pos{c}{2}=\letter{b}     %  puts a letter 'b' on
                          %  the c2 intersection
\pos{d}{2}=\letter{a}
\gofontsize{10}           %  changes the size of stones and
                          %  other symbols
$$
\showfulldiagram          %  as in Dia. 2.
$$
\inifulldiagram           %  clears a board
```

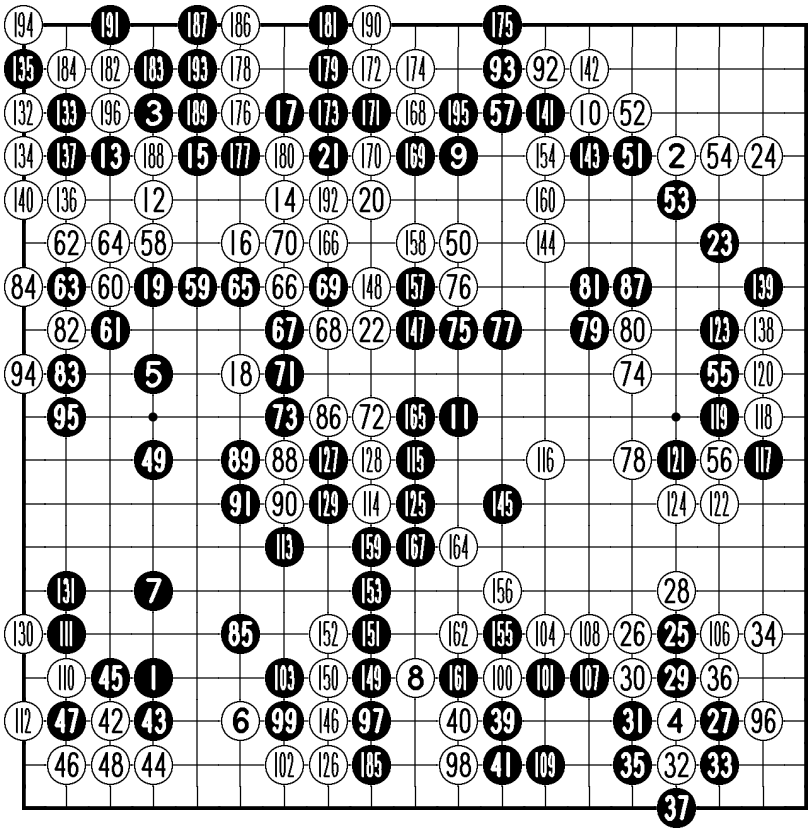


Dia. 2

An example of a real game is shown in Dia. 3 [3].
Diagrams are put in a text like ordinary vboxes.

The stones can be also put directly in a paragraph. To do this you should use the `\textwhite` and `\textblack` commands instead of `\white` and `\black`. For example, the sentence from the beginning of this article: "❶ is the first stone played, ② the second, and so on" was written as: "`\textblack{1}` is the first stone played, `\textwhite{2}` the second, and so on."

There are no other secrets in coding go diagrams. Macros for making 9×9 or 13×13 diagrams can easily be added to 'go.sty' by a simple modification of the existing macros for 19×19 diagrams.



Dia. 3

References

[1] Zalman Rubinstein: "Chess printing via Metafont and TEX", TUGboat Vol. 10, No. 2.

[2] Iwamoto Kaoru, 9 dan: "Go for beginners", Ishi Press, Inc., Tokyo, Japan.

[3] Janusz Kraszek: "Świat Go", COK, Warsaw 1989 (in Polish).

Towers of Hanoi, revisited

Kees van der Laan

Abstract

Another version of TEXing of "The Towers of Hanoi" problem is provided, which does not assume Lisp knowledge, just plain TEX. Also some variations of use are included, among others to remove the restriction on the disks: disk size can be supplied by more than one digit.

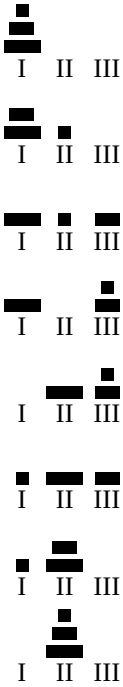
1 Introduction

Along with the Dedham TUG91 conference, I attended David Salomon's advanced TEX course. Despite his clear and ample exercises I decided to simplify Leban (1985).

2 The Towers of Hanoi problem

A pyramid of disks —means a tower with implicit ordering of the disks— has to be replaced under the restrictions that only one disk at a time can be moved, each intermediate state consists of pyramids —obeying the original implicit ordening. In total three pyramids can be used. For a pyramid of n disks, the solution needs $2^n - 1$ moves. For an introduction to the problem see the opening paragraphs in Graham c.s. (1989).

3 Example



is obtained by

```
\newcount\n \n=3
\def\I{123}
%Input auxiliaries and macros
\Hanoi\I\II\III\n
```

4 Macros

I chose to represent the pyramid via defs and to supply the number of disks in a counter.

```
\def\Hanoi#1#2#3#4{%Moves from #1 to #2,
%with aid of pyramid #3.
%The number of disks is #4.
\ifnum#4=1 %For Tower of 1 disk,
           %just move the disk
   \movedisk from#1to#2%
   \showtowers%Print towers after move
\else%Problem of #4 disks is solved by
     %problem of (#4-1) disks, a move and
     %again a problem of (#4-1) disks.
   {\advance#4 by-1 \Hanoi#1#3#2#4}%
   \movedisk from#1to#2%
   \showtowers%Print towers after move
   {\advance#4 by-1 \Hanoi#3#2#1#4}%
\fi}%end \Hanoi
%
\def\movedisk from#1to#2{%Move disk from
%tower #1 to tower #2
    \def\move##1##2\emove{%Separate first
    %disk from #1, move that, and restore
    %stub of #1 in #1
       \pre#2by##1%Precede tower #2 by top
                  %of tower #1
       \gdef#1{##2}%Restore stub #1
                        }%end \move
\ea\move#1\emove%Move from #1 to #2
}%end \movedisk
```

For printing,

```
\def\showtowers{%Display towers
\hbox{\vertib\I\ \vertib\II\ %
      \vertib\III}\par}
%
%Vertical printing(Based on Salomon's notes)
\def\gobble#1{}%To eat character
\newbox\ver %Will contain typesetted tower
\newdimen\diskhigh %Height of each disk
```

```
 \diskhigh=1ex\relax%
\def\vertib#1{%Typeset tower #1
 \setbox\ver=\vbox{}%Will contain tower
 \ea\vertclb#1\end\endd%\ver contains tower
 \vbox to\hgt ex{\vfil\unvbox\ver\kern.5ex%
%               To separate identification
 \hbox to\brd ex{\hss\ea\gobble\string#1%
\hss}}%Tower and identification, typesetted
}%end\vertib
\def\vertclb#1#2\endd{%
  \ifx\end#1%Empty tower
  \else%Put disk #1 in auxiliary hbox
   \setbox0=\hbox to\brd ex{%
   \hss\vrule width#1ex%Size disk #1
          height\diskhigh\relax\hss}%
     %Next add disk to \ver
   \setbox\ver=\vbox{%
    \unvbox\ver\kern.5ex\box0}%Add new disk
   \vertclb#2\end\endd%Add rest of disks
  \fi}%end \vertclb
```

Auxiliaries

```
%To be initiated: \n and \I
\newcount\n  \n=3  %The number of disks
\def\I{123}        %The start tower
%Program proper
\nopagenumbers
\def\II{} \def\III{}
\newcount\brd \brd=\n %Breadth of towers
\newcount\hgt %Height of maximum tower
\hgt=\n \multiply\hgt by2 \advance\hgt by1
\let\ea=\expandafter
\def\pre#1by#2{%Precede string #1 (stored
%in a command) by the character #2.
   \ea\gdef\ea#1\ea{\ea#2#1}%
}%end \pre
```

5 Variations

5.1 Only the number of disks as argument

It would be nice and look simpler to provide only the number of disks as argument, for example via

```
 \hanoi\n
```

The consequence is that behind the screens the pyramid `\I` has to be defined as 1, 2, ... n (≤ 10), and that the old `\Hanoi\I\II\III\n` has to be invoked. The only difficulty is to create `\I`. This can be done in a loop and by the use of `\pre` along with redefinition of `\I`.

5.2 Disks not restricted to one digit

This looks like a serious problem but it is not. The basic approach is to provide commands for numbers consisting of more than one digit. For example one could consider the pyramid 10, 11, 12.

How to do this?

In principle via

```
\n=3    %Number of disks
\def\x{10}\def\xi{11}\def\xii{12}
\brd=12 %Breadth of largest disk
\def\I{\x\xi\xii}
\Hanoi\I\II\III\n
```

5.3 Generalized disks

Up till now we have considered disks consisting essentially out of numbers. What about for example (xyz) as disk, provided via a command? The only problem is the printing because we don't know the size of it. So let us assume for printing that just the contents of the pyramids will do in the implicit provided order. This can be done via the following simplified `\showtowers`.

```
\def\showtowers{\vskip1ex
  \ \hbox to 3ex{\ea\gobble\string\I:
                 \hss}\I\par
  \ \hbox to 3ex{\ea\gobble\string\II:
                 \hss}\II\par
  \ \hbox to 3ex{\ea\gobble\string\III:
                 \hss}\III\par}
```

Example

A tower consisting of 1, ab, (xyz) can be moved via[1]

```
\n=3
\brd=5
\def\ab{ab}\def\xyz{(xyz)}
\def\I{1\ab\xyz}
```

where for printing use is made of the above provided `\showtowers`.

5.4 Interactively?

Downes (1991) examplified how to use `\message` for communicating with the user. One could think of a modification of `\showtowers` with appropriate `\message` commands, such that the moves will appear on the screen. For oneliners the `\immediate\write16{...}` can better be used I could see that it worked; no previewing nor printing. The modified `\showtowers` reads

```
\def\showtowers{
\message{\ea\gobble\string\I:   \I}
\message{\ea\gobble\string\II:  \II}
\message{\ea\gobble\string\III: \III}}
```

6 Conclusion

While still in progress it seemed appropriate to me to release a proof version for NTG's Fall91 Meeting 'Fun with TEX' at Eindhoven.

References

[1] Downes, M.J.(1991): Dialogue with TEX. Proceedings TUG91.

[2] Graham, R.L, D.E. Knuth, O. Pastashnik (1989): Concrete Mathematics. Addison-Wesley.

[3] Leban, B.(1985): A solution to the Tower of Hanoi problem using TEX. *TUGboat* 6(3), 151–154.

[1] The ab and xyz defs can take a space before and after the replacement text. In print the disks will be separated then.

6^{th} European TEX Conference

September 23–26, 1991, Paris

Kees van der Laan

Abstract

- **User groups:**
  CyrTUG is bound to become important. CSTUG prospers. HunTUG is modest. The Poles can't get organized. Yunus is only a list. The other five just go on.
- **Panels:**
  TEX in Europe, how can we obtain better acceptance?
  LATEX 3: impressive history, no release dates of yet.
- **Presentations:**
  Zlatuska's ACCENTS processor, for automatic generation of accented virtual fonts for European languages from English input fonts in the TEX font layout, looks promising.
- **Publishing houses:**
  MIR is involved. Springer is active and has some user guides out for a pilot journal. The Czech scientific journals are all formatted by TEX!
- **Products:**
  LAMS-TEX is still going public. Very promising though, especially the wizards manual.

1 Introduction

GUTenberg took the lead in organizing this meeting. The program committee contained representatives from other LUGs. The conference was well-organized. Some presentors forgot at which date they were scheduled for their act. Outside the (big) lecture room there were vendor exhibition space and PC's with FTP facilities, so that participants could read their e-mail and exchange files. (I received Nelson's TUGlib paper in this way!) Well-done! The conference was bi-lingual, simultaneous translation French $\Leftrightarrow$ English. Representatives from mid and eastern Europe could attend the meeting due to grants from TUG and GUTenberg. In total $\approx$120 people registered, and roughly 100 attended the meeting. It became clear that DANTE had supported CSTUG tremendously! Bravo!

The proceedings are incomplete, and not of top quality, alas. My paper proved itself by stating that for math papers when changing from two into one column format, it is not enough to change the optional (columns) parameter. Furthermore, there is no entry to the paper in the index. It could have been Math, or education, or better still both. Both entries as such are completely lacking as well! An index entry to my paper does not occur under plain either, while it is all about math formatting in plain. Curious. Perhaps, the editor's task will be alleviated if keywords are provided by authors.

In the week before the meeting courses were held: LATEX (Intro by Malcolm Clark and Modifying styles by Chris Rowley), TEX (capita by Philip Taylor) and Metafont (by Doug Henderson and Yannis Haralambous). The organization of the courses was in the hands of Malcolm Clark.

I also grasped the opportunity to put some energy into the TUG publications committee work, while having a 'plat du jour' with Barbara Beeton. Via Patrick Ion I could also lay my hands on the proposed TEX encoding schemes for math: dmsy10, dmex10, deum10, and dmsa10.

From The Netherlands there were three speakers: Johannes Braams, Theo Jurriens and myself, and three other participants. I had a nice time with Theo together with the Russian delegates: Anatoly Urvantsev, who participated also in NTG's 6^{th} meeting at Utrecht, and Alexander Samarin.

Zlatuska won the Cathy Booth reward for the best paper.

Next year's meeting will be in Prague, September 92.

There was no 'Euro-summit', perhaps because Malcolm resigned as European coordinator. There had been no discussion either between the presidents of the local groups about for example evaluation of this meeting and how to procede in future. Bernard just announced the next meeting at the end of the conference, with

consent of CSTUG (Zlatuska?), I presume. Although TUG's democracy has it's negative effects, I prefer the democratic model.

In the sequel I will not follow the day-to-day events, but concentrate on user group issues, presentations, BoFs and panels.

I did travel by train. The night train, couchette included, is very cheap.

2 User Group Issues

Nelson Beebe gave a survey of the state of affairs within TUG. Heavily biased towards his own (good) works.

Since Cork91 CSTUG prospers with a group of similar size as NTG. Most, if not all, of their scientific papers are formatted via TEX. They consider themselves strong enough to organize next year's meeting.

CyrTUG got organized, and is bound to dominate the scene in the (late) nineties. I expect this because of the rich scientific tradition in Russia, the PD character of TEXware coupled to the lack of money at the users level, THE publishing house —MIR— is strongly involved, the sound organization, and the sheer number of Russian (Cyrillic speaking) people. This all in spite of the reorganization difficulties at this moment in Russia.

HunTUG remains modest. Yugoslavia was absent for obvious reasons. And Italic? Peter is active for sure. Yunus is just a list, a 'virtual' group? And what about the Polish TEXies? Hanna mentioned the lack of organization and cooperation: 'two people have three different opinions.'

There was no time scheduled for the other European groups to report about their activities and inspire each other with their plans. A pity! Next best, I dropped 'NTG's Third Year' close to the copying machine. I also dropped the recent MAPS for inspection. Another copy of ukTEXug's 91–92 schedule of workshops was obtained by similar mechanisms.

3 Presentations

3.1 Language aspects

A few presentations dealt with the use of TEX in languages different from English, and even different from the Latin alphabet.[1] Johannes reported about his meanwhile mature, Babel project, which is bound to be incorporated in LATEX 3. Yannis was quite impressive with his ScholarTEX report. I leave the non-Latin contributions for what they are, because I'm a layman on the issue. One thing stroke me however: at least one presentor on the issue did not speak himself even one of the languages aimed at!

3.2 User interfaces

With respect to user interfaces we had Alexander Samarin: TEX integrated shell for the IBM PC, Lavaud: AsTEX an integrated and customizable multiwindow environment for scientific research, and Göpelt & Schmid: WYSIWIG-TEX-editors etc.

Samarin reported about 'yet another window/menu' system, intelligent with respect to selective loading of the needed (font) files. The system is written in Lisp, and not in the public domain of yet, if ever.

Lavaud's principle is sound: Try to make the best available, possibly at lowest cost, with what is available. His system is quite complex: Framework 3, a hypertext like file manager, interactive restructuring facilities for LATEX documents, an interface to FORTRAN for performing numerical calculations from a LATEX document, an interface to MAPLE for performing computations interactively from a text, a worksheet or a database. A PC in a LAN, equiped with this software, is claimed to to be a low-cost alternative for a workstation. Would you believe that?

G&S reinvented the wheel. No mentioning of the GRIF project was done. It is not clear to me how useful this editor is. It does not, because I don't need it, nor does it alleviate the task of typists because their problems are not solved by this, while formatting TEXscripts.

3.3 Utilities

On this front there was: Spivak's LAMS-TEX, Schrod's Makeindex activity, Leguy's Drawing tree structures, Cérin's Macros for colour TEXing, Laugier's Composition of chemical formulas.

Spivak has got fans in France, and he deserves it. His package is in the public domain and is certainly an alternative for LATEX at the moment, and possibly for LATEX 3, at least for mathematicians. So the AMS facilities, and Spivak's package are the tools for them. Hackers might profit from his wizard's manual, to be ordered via spivak@rice.edu, at copying costs.[2]

Schrod drew attention to the problems in creating a foolproof international makeindex. The problems can be indicated by the keywords: non-latin alphabets, special characters, formatting tags, different sorting orders. Does this demonstrate that one should not strive after universal tools, because of complexity?

Leguy demonstrated the reinventing of the wheel. He was not aware of earlier work. Therefore it is not clear in what sense this is better than what is already

[1] There was a curious presentation about the history of alphabets, and their relations by the Association Alphabets.

[2] See elsewhere is this MAPS for details.

[3] A. Brüggeman–Klein & D. Wood(1989): Drawing trees nicely in TEX. EP-ODD, 2, 2, 101–115.

available.[3] Of course his trees look nice, but suffer from the page-size restrictions. With a 'forest' every tree has to be handled separately.

For colour TEX it is believed that better alternatives than TEX are available. A research paper?

Laugier again reinvented the wheel. Since he is employed by Publishing house Louis-Jan, they certainly needed these macros for their formatting. Special symbols —lines— were available in the LINE10 font.[4]

3.4 Publishing houses

Interesting was the presentation of Angelika Binding, from Springer. They experiment with the production of one journal via TEX. She reported about the maintenance problems of all the files involved. The set-up of the styles was not similar to TUGboat, nor AMS. I have asked for a copy of the Springer demo and user guidelines.

Andrew Dobrowolski's presentation was similar to the one at Dedham. All about SGML, TEX, and FOSI.

3.5 Education

Not much about education. No education entry in the index of the proceedings. I think my presentation could best be classified under education. It deals with understanding plain in relation to math, and extending it when necessary, with as simple macros as possible. For complex math structures it is advised to adapt templates, and not to start from scratch. In the 'Am I Blue' section a handful of complex examples are provided.

The pitfalls treated are fundamental. LATEX, (L)$\mathcal{AMS}$-TEX, or . . . TEX users might profit from it as well.

3.6 Fonts

Louarn reported about the use of the Lucida font families. Apart from a 'matter of taste' aspect, no fonts within these families are available for screen preview.

Zlatuska reported about accents handling via virtual fonts. His conclusion: 'The ACCENTS processor has been presented, designed for automatic generation of accented virtual fonts for European languages from English input fonts in the TEX text font layout. We have discussed the reasons why accented virtual fonts are worth being considered as a viable alternative to genuine Metafont-defined accented fonts. The ACCENTS processor has been programmed in WEB with substancial parts taken from VFTOVP and VPTOVF. It can be distributed freely and its source text modified under the GNU General Public licence condition of the Free Software Foundation. So far, change files for ports under MS-DOS and SCO UNIX are available (by the author and David Toman).'
Very intresting if only I needed them. In education as example of virtual font usage?

4 Panels

A pity of publishing the proceedings before the meeting is among others that panel discussions and the like disappear into thin air. No recording was done during the meeting and no conclusions were arrived at. What is the use of this?

4.1 TEX in Europe

Well-prepared by Joachim Schrod. No ETO (European TEX Organization) was mentioned.
His points are (with my comments within parentheses added):
TEX is for hackers not for users (I don't agree),
TEX does not meet the requirements of the different faculties of Universities (Again I don't agree),
TEX is not accepted at large because of high costs in teaching, maintenance and adaptation on the one hand, and on the other hand because housestyles require more typesetting capabilities than TEX can offer. (There is some truth in there, but the context is lacking. Publishing starts with authors in relation with a publishing house. And that might work, see Knuth's impressive books.)
TEX is a monster to maintain (If you want to do everything, even if you don't need it, you will of course end up with a software monster. But once you have targetted your users the task of what to maintain cost-effectively is simplified and shrinked into manageable proportions.)
Eastern Europe requirements are unknown. (Just wait and see what among others CyrTUG will come up with. Just publish your own papers.)
Will adopting other related standards improve acceptance? (Again show by the quality and cost-effectiveness of your publications that it is a worthwhile tool. If so, other standards will come down the road.)

4.2 LATEX 3

I was very much surprised to see Philip Taylor on this panel. He justified his presence because of the complete flexibility aimed at in the LATEX 3 project. Chris Rowley neatly summarized the activities.[5] The keywords are: flexibility, extensibility and modularity. The approach is: kernel + modules, with fully documented code and module interfaces, a designer's interface will also be provided. Some further thoughts are: no fragile

[4] From the Heidelberg server one can obtain chem.TEX, a different but suitable package.

[5] I received from Chris a copy of David Read's report: Some ideas to improve LATEX. It is discussed from the SGML viewpoint.

commands, support for multiple languages, extra graphics facilities (using standard specials), error recovery, support for built-in help, support for any font, more commands will have environmental forms, named arguments, register arithmetic, support for various short forms, flexible float facilities, formatting of SGML-Tagged documents.
A walk through history lane

- Frank Mittelbach and Rainer Schöpf started the project.
- At Stanford89 Frank included a designer's interface.
- During 1990 discussion took place of what was needed for the user-interface. In May91 Leslie Lamport agreed with the specification.
- During 1990 it became clear that modification was not sufficient: a complete new system had to be developed.
- In 1990/91 workshops were held to discuss and elaborate on the designer's interface.
- Now and then some prototype code appears and is promptly critisized and modified.
- . . . no release dates of yet.

Compare this with the ease of using whatever TEX as-is, and modifying manmac if need be, next to colloboration with your publisher (or better your context) on the available tools to be used to get the material out. But we are a vocational group are not we?

From the audience I picked-up the following.
Graphics? Will not be available.
Will the specs be published as such? All will be documented. No dates available.
Will TEX be a proper subset of LATEX 3? Phil suggested to provide an environment which would supply full plain TEX.

5 BoFs

The usual BoFs were held: Future of TeX, Drivers, Fonts, and the brand new one, yes at last, about education. 10 persons for education signed up. The subject is very diverse because of the different backgrounds. Because I chaired that BoF it is easy to include the opinions expressed. It might be of interest to forward these kinds of opinions to the BoD of TUG or to the relevant committee, if any. Certainly, I will pay attention to this as part of my work for the Long-range Planning committee.

Education BoF report. In total 10 people attended:[6]
Kees van der Laan, cgl@rug.nl ((La)TEX, SGML teaching experience),
Theo Jurriens, taj@rug.nl (LATEX teaching experience especially with personnel),
Kriszta Hollo, h115hol@ella.hu (Occasional teacher),
Anne Desarmien, desarmea@esiee.fr??? ((La)TEX teacher),
Ghita Olsen, mdgugo@vms2.uni.c.dk??? (LATEX teacher),
Pierre Dagnelie, gadneliebgxfsa51.be (No teaching at the moment),
Philiipe Maziers, anorsubuclln11.be (TEX teacher),
Lothar Meyer-Lerbs, g07mhbrrz41.ge??? (After course assistance),
Simon Claudet, (Not a teacher),
Mesniry(???), (Not yet teacher).

Time was too short to arrive at conclusions. One thing became crystal clear: teaching is very much context dependent, and biased by the local situation. TUG courses should not address the beginner, that can be handled locally. I mentioned TUG's activities: the TUG courses, and the activity of the Longe-range Planning committee paying attention to the issue.
Then there is the (inactive) TEX education list: tex-ed@uicvm.bitnet.
We also have Bart Childs' TUG publications: Teaching TEX, TUGboat 10, 2, 156–163, and Answers to TEX tests, TUGboat 10, 3, 319–323.
A reaction to Childs' Teaching TEX: Van der Laan: Teaching TEX: Critics and LATEX proposal. MAPS 90.1, 77-82.
Furthermore, there has been published: Charles Martin(1990): TEX for TEXnical typists, TUGboat 11, 3, 425–428, and Theo's contribution about TEXniques in Siberia, Cahiers GUTenberg, 10&11, 7–13.
Donald Knuth (1984): A course on Metafont programming, TUGboat, 5, 2, 105–118.
Richard Southall's report: experiments in Teaching Metafont, in TEX for Scientific Documentation(1985), Addison-Wesley.
Last but not least NTG has a working group on the issue: WG1 Education. Reports of its activities appear in NTG's MAPS.
Generally available selfteaching courseware:
Michael Doob: Gentle introduction to TEX.[7]
Michael Urban: An introduction to LATEX.[8] Both can be ordered from the TUG office. Other books introducing (La)TEX do exist, see for example Nelson Beebe's bibliography at TUGlibscience.utah.edu.
Then there is the pile of video tapes (with DEK life): Software design course based on TEX The Program, available for rent from the TUG office. A set of exercises for 'The Program' has been published in TUGboat, 11, 2, 165–170.

Other aspects mentioned at the Paris Education BoF were:

[6] Email addresses proved wrong in distributing this part.
[7] Translated into many languages. For a review see elsewhere in this MAPS91.2 or consult TEX-NL.
[8] Also translated into French, as part of GUTenberg cahiers series, ISSN 1140-9304.

pricing policy (prices range form for free to TUG's prices),
teachers (most teachers are local, and not of advanced level, there is no need for TUG teachers for the low-level/introductory courses),
courseware (provide standard exercise sets, courseware's function is to support or to take from, self-teaching aids are useful, module contents can best be prescribed via keywords, example teaching, impress people by power of TEX, be aware of language problems, courseware preferably in the native language, math atlas of templates is needed, provide knowledge of typography),
TUG courses (advanced are useful, more time for lab work, workshops to show solutions of frequently occurring problems),
homogenity of groups (wishful, user level typists and scientists),
announcements (make teacher known),
self-teaching (misconceptions are the danger, time-intensive).

Not discussed were teaching issues related to the Document Preparation Workbench: (La)TEX intelligent editors, easy file/font handling, wysiwyg user environments, nor pedagogical aspects.

No general conclusions were arrived at, but the discussion has been (re)started, and will continue, hopefully.

6 Q&A's (Phil Taylor, Raymond Seroul)

Once again most of it disappeared into thin air. A pity. Theo raised the problem how to fill-out every line with dots, as is the habit with legal documents.
Another problem was how to flow text around figures. (Solutions published elsewhere.)
A problem resulted from fonts and Postscript usage: ex is not the height of the lower case letter. The solution is to measure the lower case letter, calculate ratio, load extra font at required size.
Phil challenged the audience —and offering a drink for the correct answer— by the question how TEX would react upon an empty `\if\else\fi`? A theoretical problem, though, with a non-trivial answer, dependent upon the context.

Dictionary: e-mail translates into courier électronique.

The TUG91 Annual Meeting

July 15–18, 1991, Dedham

Kees van der Laan

Abstract

- **Education:**
  David Salomon is a great teacher: insights! He has donated his notes to TUG for inclusion in the TEXniques series.
- **Publishing houses:**
  THE publishing houses accept (La)TEX copy. AMS leads with their total production formatted via TEX: 90K pages per year.
- **Interchange format:**
  DVI and Encapsulated PostScript!
- **Workshops:**
  Modifying manmac was great!
  The ways of encapsulating Postscript are put together by Anita Hoover. (see elsewhere in MAPS)
- **Products:**
  LAMS-TEX goes public.
  Arbortext has extended and improved their products.
  ETP, of Mimi Lafrenz, did steal the show.

1 Preliminary

In the sequel attention will be paid to David Salomon's course, discussion of most papers presented at the conference, some rumours about the LATEX 3 project, and the vendor boots.
In the corridors I enjoyed meeting Mimi Lafrenz, of ETP. I also shaked hands with David Fuchs, yes THE. I also met Gillian Murray and Diana Berezowski, nice Canadian ladies from Carleton University (CU). The result of that was that my paper Math into BLUes, part I and II, has been presented at CU, after the meeting. It was extremely pleasant to refresh earlier made acquaintances, David Salomon, Don Hosek, Yannis Haralamboulis, Jackie Damrau, Lynne Price, to name but a few people who I vaguely new. It was really nice to pass time with friends at dinner. In 'Casa Portugal' I enjoyed sitting next to Mimi Bourbank, one of the anonymous editors of the proceedings, and opposite to David Salomon.. She, together with Christina Thiele, really improved my paper, and arranged that a real version of it will be included in the proceedings, despite its length.
I could not attend all presentations due to BoD committee work. For the Long-Range Planning Committee the roadblocks for effective working via email were removed, and the Publications committee agreed on the issues to be worked out later.
I flew by NorthWestern and enjoyed lodging at Amy's place; the weekend after I was the guest of Christina Thiele (and her Mike) at Ottawa. A pleasant time, if not for the really overloading work during the conference: Conference, BoD meetings, and committee meetings; then the pleasant talking to all those new faces, with the difficulty of remembering what they are up to next to their names: several Mimi's, even more Davids, some Dianas, Michaels, Peters, Chris', just one John —THE John Radel, and those interested in a copy of my paper: Harumi, Derick Wood, and Michael Wester. And believe it or not there are still people I have not met yet.

1.1 Course advanced TEX

Partly as BoD observer and partly as participant I attended Salomon's 5-days Advanced TEX course. Only 5 students were present. The lab made use of Macintoshes. That is an easy-going TEXnigma: easy file handling, fast compilation, handy correction of TEX input, all supported by windows and icons. Amazing simple was the font selection. A powerful previewer and a suitable printing facility completed the 'desk'. David's course can be characterized as: he provides insight to the topics spread all over the TEXbook. His coursenotes have been submitted to the TEXniques series as a donation to TUG. The notes reflect his broad

knowledge of what has appeared in TUGboat. During the lab I reworked Leban's Towers of Hanoi via TEX, TUGboat, 1985, 6, 151–154.

2 Conference

2.1 Organizational aspects

The conference was held in the Dedham Hilton, 10 miles south of Boston. The temperature was in the upper 90-ties. Roughly 250 persons attended, with 50 or so one-day participants on the first day. The theme was well-chosen: Inroads into publishing, and quite a number of publishing houses participated. Along with the presentation of papers, workshops, panels and BoFs were held. A few networking lunches were organized, so that between the mouthfulls no silence was to be heard. (In my opinion a good try to get people with the same interests together, but it did not work. I joined the SGML table but found no real openness, nor willingness to address issues different from pushing SGML. Too bad.) As always there were vendor booths, exhibiting new TEX products and consultants making themselves known. Amy has got quite a reputation already.

The day after the meeting was devoted to a LATEX hearing, which required some extra $'s for participation, devoted to the new LATEX 3 project fund. Before and after the meeting courses were planned. Some were cancelled because of insufficient number of participants. The conference dinner was a Clambake banket: lobster which will wet your neighbours when improperly handled. (The secret is to let the water out before cracking.)

There was no price for the best paper, or the big show, but certainly the British deserved it, in making clear why an on-line help service is needed, as a warming up to Peter Flynn's paper. (Malcolm Clark as an innocent user was pissed-off from pigeon hole to pigeon hole. Doug and Allen did a great performance as respectively a real hacker and a maffia salesman.)

At another occasion, Malcolm imprinted the concept 'TUG a Member'. I felt at speaker's corner. A nice hand-out supported his act. (When you TUG a member a bonus T-shirt awaits you.)

2.2 Monday, July 15

The conference traditionally started with the 'Introduction to TeX' lecture, done by Alan Hoenig. (A nice survey to be taken over as part of our info package.)[1]

Nico as keynote speaker! (See elsewhere inn this MAPS for his paper.) The first day was scheduled with Publishing houses in mind: how do they work and what is the status of TEX in their processes.

Comparing TEX and traditional typesetting for the composition of a textbook. (Petrycki) This A-W-paper set the pace. I can't better summarize the talk by providing the abstract and conclusion.

Abstract

Producing a textbook with TEX, as opposed to a traditional typesetting system, requires different procedures to achiev a similar final result. The publisher's production staff takes on a much different role and enters the publishing process at an earlier stage when a book is produced with TEX. The most significant issue A-W faces when a book is typeset with TEX is the availability of typesetting houses who can produce the book at the level of typographic and page make-up quality we require. When we use a traditional typesetter we may pay a higher price, but we can count on meeting our publishing standards. The most significant advantage of producing a book with TEX is the accuracy of mathematical material, which then does not have to be rekeyboarded, and with which we can easily produce a subsequent edition or spinoffs.

Conclusion.

In my experience, traditionally produced books are more predictable and easier to work on than those produced with TEX. However, TEX does have its place in the technical publishing house. For some authors, using TEX is the most viable option when they want to preserve the accuracy of their mathematical equations. We will continue to support these authors by providing macro packages and working with TEX typesetters to provide the same kind of services we expect from more experienced traditional typesetters. Producing a book with TEX is a process that can proceed as smoothly as traditional typesetting as long as we have done the proper upfront planning and have evaluated the tradeoffs.

Contra-LATEX, or what really works in the publishing world. (Bartlett) Bartlett considers LATEX inferior to TEX because of:

1. LATEX files will be 10% or more larger than an identical plain TEX file.
2. It takes longer to run LATEX.
3. Inputting corrections becomes more difficult.
4. Implementing the publications style is much more difficult to do on top of of LATEX than on plain TEX.

His advice to a novice TEX user in order to produce perfectly acceptable files is:

1. Avoid using TEX primitives, especially those that control spacing, but always call them from macros. (`\kern`, `\v/hskip`, etc. The only place authors should use plain or primitive control sequences is in math mode.)

[1] A reprint is provided elsewhere in this MAPS91.2.

2. Use a macro for every typographical or logical entity in your work. (`\section`, `\example`, `\theorem`, etc.)
3. Use simple automatic numbering and cross-referencing macros. (Print characters as the label in the margin on the proof copies.)

My experiences are similar to Bartlett's, although I use TEX, and LATEX, whenever convenient. For macros I use TEX, such that the codes can be used within LATEX as well. In my opinion his criticisms and advice should be incorporated in courseware.
It is hoped that publishing houses will continue to provide style files, so that the disadvantages of LATEX are less severe. Hopefully, LATEX 3 will address the mentioned disadvantages as well.
A real hands-on paper, with in an appendix criticisms on published, TEX formatted books. It is full of insights.

User: a typist or typesetter? (Anita Hoover) This was all about experience from the user support service.
For theses publication it is advised

- to start from supplied (and documented; examples of use) macros
- to have support available
- to provide inputting support tools (matching verifiers, de-TEXers, spell checking).

Hidden costs are: advisory service, increased user inputting time.

DVI and EPS: the ideal Author-to-Publisher interface. (Horn) DVI files specifying text and document format, along with Encapsulated PostScript (EPS) filter for including figures, are rapidly becoming the de facto standard for interchange of machine readable manuscripts in technical publishing.
DVI-files are extremely standardized, portable and compact.
The advantage of dvi-files over raw TEX-files is that there is no need to bring up the special version of TEX used;
the advantage of dvi-files over Postscript files is that dvi-files are resolution independent.
All that is needed now is a simple standard for figure insertion using `\special`, as is to consider resolution independent Postscript.

Panel: TEX in publishing. The general trend was that publishing houses accept (La)TEX compuscripts, especially for mathematical/technical copy. A major issue was the communication between publisher and autor (Yes, trivial, but experience has it that it is so much underestimated!) Another advice was that authors should refrain from visual lay-out as much as possible: don't design! Not surprising that AMS leads: their complete production is now formatted by TEX, and they provide very good user guidelines along with their PD packages (Macros and fonts)! My general impression of this first day is that the promise[2] did not come through completely, but that TEX has earned its place, especially when typesetting math. In that area it has succeeded with respect to the creative needs of authors and the money-making needs of publishing houses and typesetters. Roughly 20% of scientific book production is done with the aid of TEX. A-W, Prentice-Hall, Springer-Verlag and Elsevier Science Publishers accept mainly LATEX compuscripts. I have not seen detailed guidelines for authors, similar to those of AMS of yet. AMS accepts compuscripts in $\mathcal{AMS}$-TEX, and AMS–LATEX (The AMS extension of LATEX.)[3] Not treated was the issue of self-publishing.[4] It is taken for granted that authors should not. With electronic dissemination in sight, and TEX and Postscript universally available, it is not that obvious. It is done in practice, at a small scale, however.

Workshop: Modifying Manmac. This lab on Macintoshes, by Daniel Olson, was extremely well-done. It showed that it was not that difficult to understand and modify Knuth's macros used for producing the TEXbook.

2.3 Tuesday, July 16

This day was mainly devoted to the SGML-TEX relation. The introduction by McGaffney, did not bring new issues, it even compared SGML and TEX, while they perform different roles! He did not mention competitors, nor refer to other work on the interrelation. No mentioning of problems in using TEX as back-end to SGML.
Sperberg-McQueen elaborated on the SGML tag set created by the Text Encoding Initiative project.[5]
From the abstract: 'This paper focuses on the ways LATEX and the TEI identify and classify the structural and other components of text; discusses the models of text underlying the two systems and the methods of text

[2] For 10 years or more, TEX has promised authors full control of the typographical appearance of their books and publishers a way to turn out high-quality books at much lower costs.

[3] Note: Spivak's $\mathcal{AMS}$-TEX is an extension of TEX reflecting LATEX features, and some more, especially commutative diagram tools.

[4] See for instance: Meadows, A.J. (1978): Should researchers also act as publishers? Universiteit en Hogeschool, 24, 6, 354–361.

[5] Sperberg-McQueen, C.M. and Lou Burnard (eds.) Guidelines for the Encoding and Interchange of Machine-readable texts. Text Encoding Initiative, Chicago, Oxford, draft version 1.1. edition, 1990.

definition and validation they make possible; describes a number of specific issues that arise; considers some systematic differences; and describes one possible way in which they might coexist.'
Note: remind however that no mentioning of tables, math nor graphics was made.

Typesetting SGML documents using TEX. (Dobrowolski) Again Andrew provided an innovative contribution. He concentrated on typesetting SGML documents with TEX as formatter, guided by the Formatted Output Specification Instance (FOSI).
Abstract:
Since its publication as an international standard in 1986, the Standard Generalized Markup Language (SGML) has become a preferred document-markup standard within many industries. Many users have developed their own document type definitions (DTDs) that define the elements (tag sets) for their documents. However, if SGML is to become a universally accepted standard of document interchange, then a standard way of specifying formatted output and a means of producing that output will be needed. The U.S. government's Computer-aided Acquisition and Logistic Support (CALS) initiative selected SGML as the standard for text interchange. The output specification section of the CALS standards proposed the Formatting Output Specification Instance (FOSI) as the means of formatted output specification interchange. TEX can be used as the formatting engine to implement FOSI-based formatting. But without extending TEX, not every FOSI formatting request can be fulfilled. Conversely, certain TEX capabilities cannot be formulated in terms of FOSI characteristics. However, a FOSI/TEX-based formatting system would be a major advance towards fulfilling the document interchange needs of a growing community of SGML users.

Chiwriter into TEX files. (Horstman) It is argued that WYSIWYG input and correcting is easier than inputting TEX. The author, alias vendor, claims that the converter is quite able to scan math formulae in the picturial representation and to translate them in the logical structure required by TEX. The transformation process is illustrated by various examples. As to be expected the transformation of math is severely limited with erroneous converting of multi-line equations, let alone for the numbering. Commands like `\TeX` have to be treated artifically (via so-called shadow font). For tables and matrices it is again claimed that they are easier to input in Chiwriter than in TEX[6] and correctly translated.
Reviewer's comment.
It is a pity that no report with real math documents as copy nor with a canonical test set has been provided. The idea of style files, which govern the lay-out, and logical mark-up are completely bypassed. At best the Chiwriter 'editor' can be seen as a keyboarder for typing in the copy, relieved from the task to provide a (La)TEX correct compuscript.[7]

Panel: SGML and TEX. From this panel no news came across. No survey of available tools, nor where it is used in practice.

Workshop: Getting Postscript into TEX. This workshop done by Anita Hoover 'picked' the brains of those present. See for the report elsewhere.

Other workshops were: Interpreting TEX error messages, and interpreting LATEX error messages.

2.4 Wednesday, July 17

Dialogue between TEX and the user. (Downes) The primitive commands `\message`, `\read`, and `\write` are explained, and some examples of use with respect to communication to the user are given. A form of communicating to the user is the number of automatically determined columns of a table (As in Cowan's tables.sty). Another is checking for the page-break without having to proof the publication: Just TEX and from the messages/flags inserted the page break can be distilled. I like that because I myself proof more or less in the blind.

The main application is how to provide a menu-choice mechanism with a default, while running TEX. The macro for this is supplied and explained. Use is made of puzzling hacks. An example is given below for converting the string contents of a def `\ans@` into uppercase, without using auxiliary macros.

```
\xdef\ans@{\uppercase{%
   \def\noexpand\ans@{\ans@}}}%
\ans@
```

Authors new to TEX publish a TEXbook with a publisher new to TEX. (Rhoads) A report is given about publishing a Programming-in-Pascal book. It demonstrates reinventing the wheel: no already available macros for formatting Pascal syntax diagrams were used, nor macros for formatting programs.
Reviewer's comment. It might be the case that macro packages are not easily found c.q. the right one selected, or that the packages are too complex and repelling for novice users. We are still a long way from a formatting macro library similar to numerical program libraries.

[6] Simple matrices and tables are easy to input in TEX as well, in my opinion.

[7] Experience within NTG, voiced via TEX-nl@hearn, is not in favour of this converter. It might save you some work, but that is insignificant compared to the increased complexity.

Simultaneous electronic and paper publication. (Lavagnino) It is argued that SGML is the best language to choose for 'multiform' texts, that is texts to be used in several forms, for example in print and electronic form. In their 'Thomas Middleton's complete work' project the problem was faced of how to integrate output information from the formatter (line numbers) in the descriptive mark up source. Interesting!

Refining a process. (Williams) The various changes in the type of user of TEX is profiled. The suggestions made for future structure and encouragement in the use of TEX come down to the following.
TEXnically speaking. The future of TEX depends on its ability to meet the varying and continuously growing needs for typesetting of technical documentation.
Non-TEXnically speaking. The basic idea is to establish TEX's uses and users and to support them.

Panel: TEX in publishing—Authors as compositors. The views ranged from following guidelines for authors to submitting Postscript files with all the formatting and inclusion of graphics done. Every possibility in the spectrum has it advantages and disadvantages, as always. A general item is to agree with the publisher on whatever you are intending to do, and to keep in touch.

Form letters with 3-across labels capability. (Damrau & Wester) The motivation for this work is that creating multiple letters that follow similar format by the general methods will yield problems. A general approach is to set up a form with changeable parameters, such as name and address, specified by macros. The form can then be input a fixed number of times, each time preceeded by redefinition of the parameters. The problems of this approach are:
1. Modifying the list of addresses or adding new parameters to the form can be cumbersome.
2. Serious REformatting may be required to use the individual pieces of information (such as the names and addresses) in other contexts.
The difficulties are overcome by the TEX address program which requires as input three files: preamble, list of addresss, and template. The list of addresses use implicit positional tagging, no SGML-like descriptive tagging! The article concentrates on a template file with 3-across labels capability. Macros provided are among others: to separate a first symbol from a string (seen in many applications and are basic in Lisp), and to test whether a line is a blank line. The address program is powerful especially in handling implicitly tagged addresses, as data. The typing of addresses is efficient because no explicit tags have to be provided. No rework, detagging for example, is needed when the same data are to be used by other programs.
Reviewer's note. In my opinion it should be the other way round: an application independent database of addresses, with 'filters' towards particular applications.

Typesetting forms with LATEX. (Roth) A fundamental talk because it tackles the question of how to deal with fill-in forms in the electronic decennium and beyond. Roughly there are two approaches:
1. Provide a template and fill-in (read replace) the 'dotfills', and
2. A two-step process: user interface and LATEX formatting.
The first approach requires knowledge of LATEX, and the layout of the form is not guaranteed fixed. Because of these drawbacks the latter approach has been worked on and reported about in the article. For the user interface the Vitamin C graphics window library of C functions was used. As formatter a *stripped* version of LATEX was used, especially the picture environment was needed. Nine forms are in production. Difficulties encountered were:
1. Getting approval for the project.
2. The variety of computers caused portability problems.
3. Greater printer area than usual provided by laser printers was needed.
4. Complete LATEX did take too much memory, so it had to be stripped.
An interesting detail is the attention paid to the automatic use of smaller fonts when the information does not fit in the left open space.

TEX and those other languages. (Haralambous) It is an account of the power of TEX and Metafont to handle a variety of non-latin languages, such as Arabic, Syriac, Hebrew, Greek(Epigraphical), Armenian, Saxon, Old german. First a combined use of Metafont and a Postscript font creation program is described. Next the TEXnical problems (and their solutions) in relation to each language are presented. Finally some new ideas for further development and application of TEX in non-latin alphabet transmissions through electronic communication medias are given.
Problem areas: lack of space in font tables, lack of typographic tradition, alternating text direction and character shape at each line, kerning.
An overwhelming demonstration of the use of various non-latin languages with TEX. The creation of the new fonts (via Metafont) showed a sound approach and an enormous amount of work done.
Reviewers note. Puzzling is that the author does not speak those languages well. So what is the quality of it all?

Developing a Pop-Up facility for TEX on PCs. (Flynn) A very interesting contribution with respect to on-line help for using (La)TEX. First some existing systems are reviewed. Second criteria which should be

obeyed are enumerated. And third a publicly available product is discussed. The product contains data (50KB, in English) and makes use of Qhelp, a publicly available help system.) The result of a query can be printed as well. The system is available among others at the Heidelberg server as file texhelp.zip.

Math into BLUes. (Kees van der Laan) That the subject is appropriate was demonstrated by ET-P's humorous mission statement as formula: it looked like math to a non-mathematician, but suffered from TEXfalls.

2.5 Thursday, July 18

Graphics and halftones with BM2FONT. (Sowa) From the abstract.
The program BM2font converts different kinds of bitmap files to TEX fonts and writes an input file for integration of those graphics into documents. It is the link between a lot of graphic systems and TEX. The main part of BM2font is the conversion colored pictures to halftone output. This paper describes the method of graphics integration done by BM2font and the most important aspects of the program.
Note reviewer. It is questionable whether considering graphics as text (fonts) is the long-term way. Incidental graphics, like institutional seals, are handled effectively that way, however.

A text-processing language should first be a programming language. (Semenzato & Wing) To the reviewer's opinion the authors have built a preprocessor for TEX. It is unclear what functionality has been added. Complexity is increased and it is difficult to read because terminology has been borrowed from various fields in computer science.

Should TEX be extended? (Vulis) The paper discusses the hot potatoes: Graphics inclusion, font rotation and font selection, with emphasis on the author's VTEX.
Bitmap graphics inclusion. The two methods in use are described as:

- TEX allocates space for a graphics box, sets the reference point and passes the name of a graphis file via `\special`.
- Graphics are converted into .tfm/.pk pairs (for example via Metafont) and TEX treats them as characters.

The author states that only `\sizegraph` needs to be implemented. VTEX's extension is discussed, especially the implementation to measure the sizes of graphs, via `\exec`.
Font rotation. Hoenig's approach is elaborated, although VTEX and Postscript drivers are mentioned to provide already the facility.
Automatic index generation. The only drawback mentioned with respect to TEX is the lack of sorting possibilities. The use of the separate IDXSRT program together with TEX is explained.
Font selection. The problem is the lack of compact and portable definition of `\large`, `\small`, etc. that will support all TEX fonts.
Reviewer's note. It is felt that the author's believe 'Software systems that remain unchanged are destined for oblivion' is somewhat unshaded, or better misplaced, with respect to extendible and flexible systems, to which class TEX belongs. The paper does not convince this reader that modifications to the kernel of TEX have to be made. It is a believe of this reviewer that Knuth had the right feeling what could best be done by a system like TEX and what could best be done by other tools.

7 Bits good, 8 Bits bad or The eight-bit blight. (Clark, BHK, Kempson) The article focusses on the need for a universal encoding scheme to accomodate the many different kinds of files and file organizations that need to be supported by archives. Specs are given and a new encoding scheme —VVcode— was needed. The article concludes with the enumeration of the archives which will support VVcode: Aston, Heidelberg, Sam Houston State University, TUGlib.

Panel: Future of TEX. Apart from the discussions Spivak had handed out 'A contrarian view on TEX extensions.' The problem is that it is not clear yet and generally agreed upon what is needed. Another aspect of that is that there is still so much other work to do, that better gains are obtained by paying attention to the neglected areas instead of paying so much attention to the extensions. A general mistrust in committee work was felt and the general believe was in the air that the extensions will come from individuals who simply will provide them. Nelson Beebe challenged the audience to make their wishes explicit in writing, with Frank's E-TEX as example to start with.

Typesetting along arbitrary curves with TEX and metafont. (Hoenig) Abstract. It is possible to ask TEX to successfully typeset text on arbitrarily curved paths provided one enables TEX and metafont to communicate with one another in an appropriate manner. In this paper, we describe one method for setting text on convex paths. One possible application of this work may be toward setting text along circular rims of institutional seals so that TEX can include such images in letterheads. We discuss the particular example in some depth.
Reviewer's note. Really impressive but still cumbersome to do, and not competitive towards other techniques from the old-days. But if paste up has to be done

by electronic means there is not much choice. And redoing costs less energy than inventing.

Historic round table. Very amusing to hear the people talk about their experiences from the pioneer's days: the anarchy model was explictly chosen, then.

2.6 LaTeX 3 forum: 19–20 July.

I did not participate in the workshop. From 'the corridors' the following was felt.
Again a workshop on the LaTeX 3 project. What is to be desired is well underway, but implementation lags behind, because of too many people willing to coordinate the project and not that much people are willing to implement other people's ideas. The admission fee will be used for the LaTeX3 fund.
Note: Two years since Stanford have been passed by, and no product of yet, not even dates are available when what version will appear.

3 Vendor booths

THE contribution was from Mimi Lafrenz, ETP services. Also noteworthy is Spivak releasing LAMS-TeX into the public domain. Arbortext has further improved The Publisher.
The vendors: AMS, ArborText, Blue Skye research, Electronic Technical Publishing, Micropress Incorporated, Personal TeX incorporated, Quixote Digital Typography, TCI Software Research, TeXnology Inc. and Y&Y. What they are up to is summarized in the program and will be available for inspection on the next NTG meeting.
It is just a pity that I had not the right frame of mind to visit the Micropress booth with VTeX.

Also enumerated in the program brochure is a list of TeX consultants and production offices, with a summary of their services.

TUG Board of Directors meeting

Dedham 13–14 July, 1991

Kees van der Laan

The following are loosely formulated issues which were agreed upon. For more preciseness the reader is referred to the (approved) minutes.

1 Mission statement

The TEX Users Group provides leadership

- to encourage and expand the use of TEX, Metafont and related systems
- to ensure the integrity and portability of TEX, METAFONT, and related systems
- to foster innovation in high-quality electronic document preparation.

2 Reciprocal membership

Long awaited (since Paris 89 on my agenda) and finally adopted. The agreement has to be detailed and worked out with Ron. (Operational!)

3 TUG a member

A T-shirt can be earned when TUGging a member. Notify the office of the member(s) you gained.

4 Misrepresentations of TEX.

A person who points out some possible misrepresentations of TEX for the first time earns $16,-.

5 Openness BoD meetings

Face-to-face board meetings are open for members. Similarly, face-to-face executive committee meetings are open to BoD members.

6 Copyrighting

TUG does not hold copyrights. The copyright remains with the author(s). TUG will seek for an appropriate form of the new general public license.

7 Interim executives

Malcolm Clark is next year's interim president. Other interim officers are: Christina Thiele (vice-president and secretary), Allen Dyer (treasurer).

8 Board structure

The new BoD will consist of 6 special vice presidents (the current 5 and the newly invited Japanese delegate), 15 elected members and the elected president. Board elections will take place in odd-numbered years for a two-year term. Presidental elections (by the full membership) will take place in even-numbered years for a two-year term. Vice-president, secretary and treasurer to be board members, will be selected by the board for a one-year term. Business is conducted by face-to-face meetings as well as via e-mail.

9 LATEX 3 project

A fund for the LATEX 3 project will be raised. Results of the project are envisioned for mid 1993.

10 Future of TEX

No consensus about the future of TEX exists.

11 Committees

Most committees are active and plan to report in the near future. The (real) DEK scholarship committee was nominated and the operational procedures were adopted. Members of the committee are: Chris Rowley (chair), David Salomon, Nico Poppelier, and the last winner Linda Williams.

12 Next annual meeting/conference

It is planned at Portland, Oregon, TEX in context, July 27 to 30, 1992. Program coordinator is Mimi Lafrenz.

13 Budget

Of course budget issues and the 'office' were discussed as well. Again a deficit, and the office will shrink. Ron Whitney has the status of Technical director/business manager.

Visit AMS and TUG office

Kees van der Laan

July, 91

1 AMS (RI)

I was hosted by Regina Girouard. Of course I met Barbara Beeton as well, had some lunch with them accompanied by Ron Whitney. Regina gave an excellent survey of what AMS is up to, showed me around (really impressive the warehouse, AMS stocks every publication!) and introduced me among others to Ralph Youngen, William Woolf, and Michael Downes.

AMS is located at two places: main division at Rhode Island, and the reviews division at Ann Arbor, Michigan. (I also met Patrick Ion at the conference who works at the Ann Arbor division.) In total roughly 210 people are employed; 160 in Providence and 50 in Ann Arbor.

Headquarters comprise among others the departments: Publication division (acquisitions and translations), Production and Computer Services division (editorial services, composition, printing, technical support, etc.), and Marketing and Distribution division.

AMS organizes meetings, acts as publishing house for math, provides on-line and CD-ROM (math) reviews with MathSCi browse facilities, and supplies TEX support to the community at large.

AMS runs their complete production (90K pages/year) cost-effectively via TEX as formatter. No SGML as such is used, but the SGML spirit can be found in the macro packages. The keyboarding is organized in two steps: first the typing (done mostly by full-timers who work at home), without too much worrying about the correctness of TEX (it will be proofread by others) and second the fine-tuning (by more advance typists/programmers). A nice and cost-effective example of the separation of concerns principle.

AMS accepts copy submitted in AMS-LATEX or AMS-TEX. AMS-LATEX is LATEX oriented with AMS-TEX extensions added. (This is different from Spivak's LAMS-TEX: plain TEX compatible extended with AMS-TEX and LATEX functionality.) It is also possible to submit manuscripts, and the typing etc. taken care of by AMS.

Note that AMS has put their packages into the public domain as well as their fonts. They can be obtained via FTP, email or surface mail. The following FTP session gave me the read.me file

```
ftp e-math.ams.com
Name (e-mat.ams.com:cgl): anonymous
*get /ams/read.me
*exit
```

1.1 Further information

Technical Support Department
American Mathematical Society
P.O. Box 6248
Providence RI 02940
Phone: 800-321-4ams (321-4267)
or 401-455-4080
Internet: `tech-support@math.ams.com`

1.2 Recieved documents

- Youngen, R. (1991): *Typesetting with TEX at the AMS* (4p.). (A nice survey of why and what for AMS is using TEX.)
- *Computers and Mathematics. Notices AMS*, March 1989. (Discusses TEX, LATEX and AMS-TEX, summarizing also the relative advantages. Since the publication of this note AMS-LATEX has been released, and Spivak has provided LAMS-TEX. Of course these are not dealt with.)
- *A look inside the AMS.* (A nice brochure of what AMS is all about.)
- *Think about publishing with the AMS.* (Another nice brochure about the merits of publishing with AMS: effective marketing, extensive promotion, worldwide distribution, better sales, longer life of book, royalties, support worthwhile noncommercial activities for the benefit of the scientific community at large (for example the TeX project)).
- *Guidelines for preparing electronic manuscripts:*
  AMS-TEX (booklet, 52p)
  AMS-LATEX (booklet, 58p)
  (Both very well-done. I have not seen of yet guidelines of similar quality! Simply the best available up till now. Much experience to learn from.)
- *AMS-LATEX User's Guide.* Version 1.1 (1990).
- *Providence Network.* June 1991. (The ethernet structure with the FTP addresses of all connected machines.)

- Note. I received earlier by snail: AMS-TEX User Guide and the AMS-fonts publications, as well as the files (old? floppy disks 1.4Mbyte).

2 TUG Office

A modest office with a niche for every person. The 'warehouse' is very simple, just a couple of bookcases. For archive material there is hardly place. The disk copier had just arrived, and the floppy-disk niche for PD software distribution was just created. I bought the TEXbook, final version in hard cover and some back issues of TUGboat, as well as 'The cats' T-shirt. Ron Whitney (business-manager/technical director) and Karen Butler (membership issues, handling sales) are full-timers. Cliff(ord) Alper is part-timer (handling/organizing courses). Paula Donovan (bookkeeping) again a full-timer. Theresa and Charlotte have left the office. I enjoyed talking with Ron about the future of TUG (office) and the role of the various LUGs. My vision is that Russia (CyrTuG) will be the important issue to deal with in the 90-ies, and of course that education is paramount.

TEXniques in Siberia[1]

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Abstract

This article summarizes the problems of giving a LATEX course in Siberia. It concludes with an overview concerning the future of TEX inside the USSR.

1 Introduction

My visit to Siberia in 1983 led to a long standing friendship with Siberian scientists. Mutual visits have since occurred frequently. During a Russian high-school computercamp at Ob Lake in 1989, which I attended with eight Dutch students,I surprised my Siberian hosts with the power of TEX. In Novosibirsk TEX was mainly known because it was written by Donald Knuth from Stanford University with which Novosibirsk University has an exchange program.

In November 1990 Dr. Anatoli Urvantsev[2] visited the Netherlands. During his visit he attended a meeting of the Dutch TeX Users Group (NTG), where he again became attracted to the power of TEX. Together we discussed the possibilities of TEX and especially the use of TEX in Siberia.

Urvantsev is working in the science city Akademgorodok, 30 kilometers South of the "Chicago" of the USSR: Novosibirsk. The level of Science is rather high, illustrated by the fact that Akademgorodok host about 100 international, USSR and regional conferences a year. Quick, high-quality publishing of proceedings is difficult and we agreed that TEX or LATEX could simplify matters. So mutually we decided to set up a LATEX course.

2 Why LATEX?

In 1987 I started to use TEX. I wrote my own macros and concluded that in a way I was writing my own kind of LATEX. I was forced to explore LATEX upon request of my institute, which was introducing LATEX as the **document preparation tool**. To train our seven secretaries in the use of the program i set up a three-day course, held in the middle of nowhere (still in the Netherlands) to guarantee that we weren't disturbed by daily work, phone calls, etc. The result of this training was a cook-book [2], full of examples, which is still in use.

During that time I also used LATEX to edit my own books [3]. The editing of an astronomical yearbook proved to me that LATEX is 99% powerful enough.

So I answered the request of initiating TEX in Siberia by offering an 18 hour LATEX course based on my earlier experience. This time I really went to the middle of nowhere.

3 Course

3.1 Material

Since I am not a millionaire, it was impossible to buy books for the course, I had to prepare my own course material. This was based on the earlier-mentioned cook-book [2], important pages of Lamport's book [1] and the LATEX manual [4]. Why re-inventing the wheel? I visited the USSR already ten times so I know about possible limitations: language problems, equipment etc. It's easy to give a course somewhere in the Netherlands, everything you want or need is available. Or you bring it yourself and charge them for it. Bringing all the things you need to Siberia is impossible nor can you charge them. That they create their own cook-book, example book is a rather stimulating result. I deny that I reinvented the wheel, it was an exclusive

[1] Presented at EuroTEX '91, Paris.
[2] Computing Center, Prospekt Lavrentiev 6, 630090 Novosibirsk

course adapted to my clients and based on a lot of experience. As mentioned earlier due to my job at the Institute I know rather well what scientists want to do with TEX or LATEX.

ArborText was kind enough to provide the latest versions of μTEX and AMSTEX for cyrillic fonts. During the course we used the built-in previewer. In this situation it was not wise to wait two days before starting exercises. The previewer is also a good teaching-aid. Again as a result of the course we produced a Siberian LATEX cook-book [5].

I also prepared 40 exercises, we made them all [3] through which I tried to test the knowledge and understanding of my students. Considering the language problem, **teaching by example** is the best approach. Appendix A gives an overview of the topics of the exercises.

3.2 Equipment

During the course we used 6 AT with 30 Mbyte hard disks. Imagine the fun of installing all the 45 ArborText diskettes. I felt like a disc-jockey. Urvantsev confessed it was a hard job to arrange for all the PC's. His colleagues couldn't believe the amount of effort he put in to organize the course, seminar. Later on we also used a HP-Laserjet IIP, but in fact we only used it to produce the course-certificates.

3.3 Students

The most important part of a course are the students. Urvantsev selected 13 students originating from different parts of the scientific community: a publishing house, computing center and university. Although I asked that students would be selected on the basis of their knowledge of English, their level of English was poor. So I simplified my English and, with the help of a Dutch friend,[4] I survived. Of course it's rather easy to visualize things in TEX. A remarkable fact was that 11 of the 13 students were female. The oldest student was over 50.

Figure 1: The author (top row, second left) and his students in the conference-room of the Vice-President of the Siberian Division of Academy of Sciences of the USSR (photo: Maaike van Koldam).

I presented the course in six lessons of three hours, and each with a tea-break (made in a "Samovar") according to Russian traditions .

It was an advantage that nobody had a really good knowledge of document preparation. Some of them knew about Chiwriter and only one knew about Ventura. It seemed that Soviets adored Norton, so we used the Norton Commander to perform our needs.

[3] A result I never expected

[4] She graduated from Groningen University and speaks Russian fluently

4 Topics

As mentioned earlier I used Urban's manual as the main text of the course. Table 4 shows the set-up of the course. Chapters are referring to Urban's manual [4].

lesson 1	Chapter 1 & 2
	Introduction & Getting Started
2	Chapter 3
	Control Sequences
3	Chapter 4
	begin and end environments
4	Chapter 5, partly Chapter 6
	Putting It Together
5	Chapter 6,7 & 8
	Tables and Figures,
	Cross-References,
	Equation Formatting
6	Chapter 8
	Equation Formatting

Table 1: Course setup, each part is 3 hours

Based on my earlier experience I used examples relevant to my students work. In the case of the aforementioned astronomy secretaries I used astronomical examples. And for the simple text I used phrases from the gossip journals. Since there are no such magazines in the USSR, I either used the examples of Urban's manual or invented them myself. We also used some examples from the LaTeX manual composed by Samarin. This booklet (in Russian) was brought along by one of the students. Nobody in the Computing Center knew about this booklet. It was also useful to explain commands. As mentioned earlier, the lack of knowledge of English was sometimes a problem.

Also I used my own experience and the experience of "my ladies" in the course. At my institute I am the local TEX answering machine so I have a good impression of what the users of TEX or LaTeX want to do. I tried to introduce commands through examples which are frequently used in making documents. The following example illustrates that:

```
\newlength{\novo}
\setlength{\novo}{5cm}
\hangindent=\novo \noindent But last
week, humour turned to alarm when the
group .....

\settowidth{\novo}{novosibirsk}
\hangindent=\novo \noindent But last
week, humour turned to alarm when the
group .....

\addtolength{\novo}{3cm}
\hangindent=\novo \noindent But last
week, humour turned to alarm when the
group .....
```

Another practical example is the use of `\@` in tabular-environment. And because the array-environment is a special form of the tabular-environment it's rather useful in the array-environment too.

```
\begin{tabular}{lr@{,}l}
              & \multicolumn{2}{c}{p}\\
              & \multicolumn{2}{r}{p}\\
apple, 1 kilo & 2&50 \\
coffee, 250 gram & 10&09 \\
bread & 0&25 \\
\end{tabular}
```

In illustrating `\newenvironment` I used a too simple example. After the complaints of my students I gave an example using `\newenvironment` to define the head of a complicated, often used table. The default question when using lists is how to change the default labels.

Error recovery etc. (Chapter 9 of Urban's manual), was addressed during each of the lessons. The best way to do it: make and recover your errors yourself.

5 Cyrillic

I intended to use AMSTEX to do the cyrillic things but unfortunately one of the distribution disks was damaged. So my colleagues from Groningen sent me some files by email and also a local hacker helped me create cyrillic fonts. Dimitri Vulis supplied programs to do the encoding from the Russian keyboard to TEX.

6 CyrTUG

To stimulate TEX it's necessary to first have an organisation, like CyrTUG. In the Soviet Union having enthusiastic people is not enough — you have to organise. Otherwise Novosibirsk is knowing about what is going in Leningrad our vice-versa. In Western-Europe, in general, everybody knows about everybody. In the Soviet Union it's not the case. The end of May CyrTUG is founded: a logical and necessary step. Keep them informed and communicate with them.

Acknowledgements: I want to thank my Siberian host Urvantsev for supporting my stay, Maaike van Koldam for helping me to survive, Betsy Dale from ArborText for supplying μTEX, the Dutch TEX Usersgroup (NTG) and the colleagues and secretaries at my institute for providing examples and problems every day.

References

[1] Leslie LAMPORT, *LaTeX user's guide and reference manual*, Addison-Wesley, Reading, Mass., 1986.

[2] Theo JURRIENS et. al., *LaTeX kookboek*, 1988.

[3] Theo JURRIENS, *Hemelwijzer 1989*, De Feniks Pers, Meppel, 1988.

[4] Michael URBAN, *An Introduction to LATEX* TEX Users Group, P.O. Box 9506, Providence, RI 02940, U.S.A, 1986.

[5] Theo JURRIENS et. al., *A Siberian LATEX cookbook*, 1991.

A Exercises

- simple text, illustrating the meaning of `\par`, blank lines and spaces,
- `\indent` and `\noindent` ,
- dashes, the use of ~ and overfull boxes and how to hyphenate ,
- special characters, control words and - symbols,
- preamble, changing sizes, `\newlength` ,
- type faces and type sizes,
- two column, `\raggedright`,
- `\begin{center}` , `\begin{quotation}` etc,
- floats ,
- lists ,
- `\newcommand` and `\newenvironment` ,
- the different styles ,
- footnotes,
- title-page,
- page-numbering and page-style,
- table of contents, list of tables etc,
- `\include`,
- `\ref` and `\label`
- bibliography and `\cite`
- tabbing and tabular,
- a lot of math,
- letters,
- cyrillic .

An Introduction to TEX for New Users[1]

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Abstract

The purpose of this brief introduction is *not* to present a tutorial into the use of TEX, but rather to introduce the user to the whole notion of what it means to use TEX, how TEX differs from other typesetting systems, and what the advantages are to using TEX.

1 Introducing an Introduction

When researching TEX and its uses, it's easy to feel you've fallen into a slippery pit with sharp, upended spikes at the bottom. What's all this talk of backslashes, macros, LATEX, and bad puns, and what relevance does it have to producing a nicely printed document? And what do you mean, TEX isn't WYSIWYG?

Thus this brief discussion. It's not a tutorial about TEX, for who could create such a thing in only a few pages? I will make mention of certain basic TEX technical matters, but only in passing. My aim is to give my own idiosyncratic view TEX, including an assessment of why you'd want to bother with it. You'll find the TEX pit is not so slippery after all, and those spikes are more like toothpicks. (But there's nothing to be done about the bad puns.)

2 To Begin: What is TEX?

We all of us find ourselves having to communicate information to others in a written fashion. That is, we face the constant need to prepare letters, memos, reports, books, and so on. For high-quality presentations, we need a way to *typeset* this information using the conventions of typesetting that have evolved over the centuries.

We may choose to use a computer to help with this chore. If we do, we need special typesetting software, and TEX is one such software system for performing this typesetting. For certain needs, many feel it is the *best* typesetting system. Before discussing why this should be so, let's remind ourselves how TEX works.

This reminder is important because TEX works differently from other systems that paint type on paper. Many people involved with entering words at keyboards tend to regard word processing and even desktop publishing (DTP) in the same light as typesetting. Such systems revolve around a comforting two-step life cycle:

- Enter the text at the keyboard, observing the screen all the while to see how the final output will appear; and then
- Print the document.

Pay attention to the first item. Most of the time in these programs there is a correspondence between the appearance of the text and stuff you enter at the keyboard and the final printed appearance of the document.

Compare this to the TEX life cycle:

- Enter the text at the keyboard, using a text editor (not TEX—it is not itself a text editor).
- Now run the text file through TEX. With luck, there will be no errors, and we can proceed to the next step. Otherwise, as most TEX users come to know early on in their TEX careers, it's back to step 1.
- A successful run through TEX produces not a document but rather a new file, a so-called *device independent* file. With the aid of a separate program called a *device driver* appropriate to your printer (printing device, hence the term *device driver*), you print the document. Only now does your document appear, right before your eyes.

A lot about TEX can be learned by carefully considering and contrasting these two ways of doing things.

2.1 TEX is More than One Program

While Ventura *Publisher* or Adobe *Pagemaker* are standalone programs, TEX apparently isn't. A careful count indicates we need at least three programs to do TEX.

First of all, there is the text editing program with which we prepare our document file and which is separate from TEX. TEX is pretty tolerant of which such program you can use, but just be aware that TEX itself makes no provision for accepting your text and therefore makes no provision for displaying your text as you type it. (A slight exception: some integrated implementations of TEX do have an editing mode for preparing the manuscript, but strictly speaking, it's not TEX doing the editing, it's an add-on component.)

You may use any editor so long as the resulting file is extended ASCII. In this way, your *source file*—this file that you prepare to feed to TEX—is portable and can be fed to virtually any implementation of TEX working on virtually any computer platform.

On my PC, which is where I do most of my TEXing, I use inexpensive or free editors (they're in the public domain or are shareware). They aren't fancy by any means, but they deliver ASCII text TEX needs. I don't care that there are many fancy things they cannot do, for it's not *they* but TEX that will do the formatting.

2.2 TEX Itself

The program TEX only enters the picture during the second stage of the cycle. TEX requires as input the source file you have just finished. It considers your text in light of the formatting and typesetting commands with which you have peppered your source file, and if all goes well, it delivers as output a `dvi` file. If all does not go well, because you mistyped a TEX command or because your commands are misused, then TEX halts and gives you an error message.

This process of feeding separate source files to TEX, correcting whatever errors may occur, and waiting for a clean `dvi` file reminds many users of the process of programming a computer. After all, creating a working computer program requires creation of a separate program file, which is compiled (again, if all goes well) to produce the final object module.

It's only the object module which "runs" the program. Comparing this with TEX, the source file is like the program file, the `dvi` file is similar to the object module, and the process whereby TEX ingests and analyzes your file is like the compilation process for Pascal or Fortran. For that reason, one often speaks of *compiling* a document with TEX.

But bear in mind—this is an analogy only! TEX users need have no programming experience, ability, or inclination in order to use TEX with great profit.

2.3 The dvi File

This is a file in which the positions of all elements of your document—letters, figures, punctuation, square root symbols, and so forth—are specified using a very general placement language. There has been no cooperation between printer manufacturers and there are as many ways to tell a printer to advance to the top of the next page, say, as there are different printers.

The author of TEX did not want to get bogged down in these considerations. He felt ill at ease with the concept of anchoring TEX to any one printer or even to any single printer technology, and so he created this general and generic `dvi` language to act as a gateway to all printers. Therefore, yet a third program is needed to translate this general `dvi` language into a form comprehensible to a particular printer. This is the job of the *device driver*, a program intended to do this translation so the printer can paint the characters, lines, and so on onto the actual page.

By virtue of this separation of duties of TEX and of a device driver, TEX becomes relevant across a broad spectrum of printing technologies. Device drivers exist to print your documents on dot matrix printers, on hi-tech laser printers, and on costly phototypesetters. Except for resolution of individual characters, your document is identical across printing hardware. That is, the page breaks, line breaks, position of math characters, and so on will not vary. That makes it possible to use a laser printer as a proofing device. Once you are pleased with the look of your document, you may ship off your source file or your `dvi` file to a service bureau for printing off a single, high-quality copy, which you give to your printer, who makes the plates for the whole kit-and-caboodle of the printing manufacturing process.

2.4 Screen Previewers

There is yet a fourth type of program that is part of the TEX process, called a *screen previewer*. Such a program makes it possible to see on the video terminal what your document will look like. Since screen previewers work much faster than printers and with a lot less bother, it's convenient to have one for your display terminal. Understand, though, that previewers are special cases of device drivers; that is, instead of printing to paper, a screen previewer allow you to "print" a `dvi` file to your computer's monitor.

2.5 The WYSIWYG Issue

Almost everyone knows by now that WYSIWYG stands for "what you see is what you get". With a fancy word processor, a centered chapter title set in some fancy

display font really looks that way on your screen. The theory is that you have immediate visual feedback and you can make corrections or revisions right away.

If you refer back to the description of the TEX life cycle, you see that TEX could not possibly act this way. Remember, the process of preparing the document source file and introducing it to TEX are entirely separate. Computer people refer to processes like this as *batch processing* (in contrast to *on-line* WYSIWYG processing). Anyway, since the TEX program lies quiescent at the time you are preparing your document file, it would be impossible for TEX to intercede in the on-screen formatting of your document. To add possible insult to injury, it's a fact that your source file might only *approximately* resemble the look of the final output.

For those of you who die without WYSIWYG programs, let me say that the situation, though bad, could be worse. For some integrated implementations, TEX processes your file so rapidly, passing the resulting `dvi` file to the screen previewer automatically, that it is an "almost WYSIWYG" system.

It seems as if TEX requires perhaps a good deal more work than, say, *Pagemaker*. If this is true, why bother with TEX at all?

3 The Advantages of TEX

I fiercely maintain that TEX is worth the bother, if bother indeed it be. First of all, let's remind ourselves that none of the leading contenders for desktop publishing are particularly painless. There is no royal road to fine typesetting.

Let's look at the WYSIWYG issue first. Is this WYSIWYG deficiency a true deficiency? I and others would argue that it is not. Leslie Lamport, in one of the most spirited defenses of the TEX *Gestalt* I've seen, remarks that the WYSIWYG acronym should be replaced by

WYSI*A*YG

—what you see is *all* you get. For WYSIWYG systems generally require you to achieve the look you want by manually attending to many details you quickly tire of attending to.

For example, in TEX I was able to create a new command which, when placed in front of a paragraph, is able to select the first letter, enlarge it, box it, create the proper hanging indentation, and to finally drop the capital as you see in this paragraph. In a WYSIWYG system, I might have to stop, position the mouse, and do the same formatting in a somewhat lengthy and tedious procedure. If there are lots of boxed and dropped capitals in the document, there is no painless substitute for this tedium.

There are other things I expect my typesetting program to do. I expect, for example, sections, exercises, equations, and so on to be numbered automatically. Many programs require *you* to perform that chore. I might be able to put up with that, but what happens if I've created a set of 70 or so exercises for a textbook I'm writing, and my editor informs me that I need about 20 more elementary problems at the *beginning* of the exercise set? In this day and age, I don't expect it to be my responsibility to renumber all the exercises by hand. Yet that is what many WYSIWYG systems would demand. TEX, needless to say, does not. It renumbers them for you automatically, as it should.

Those of us involved in scholarly publication know that lots of flotsam and jetsam accumulate around any paper—tables of contents, indexes, answers to odd-numbered problems with hints for solution, footnotes, endnotes, and so on. If you set TEX up properly, it's possible that all this and more will be generated automatically every time you run your document through TEX. Not only is all this good stuff taken care of automatically, but it automatically gets revised each time you revise the main document.

4 Logical Document Structure

It's important to me that I create my documents in a form that identifies the parts of the document, rather than how they will look. For example, I would prefer to begin an article something like the brief excerpt shown in Figure 1.

```
\input docmac

\begintitle
   An Introduction to \TeX{}
     for New Users
\endtitle

\beginauthor
   Alan Hoenig
\endauthor

\beginabstract
   This talk...new to \TeX.
\endabstract

\begindocument

\head
   What is \TeX?
\endhead
...
\subhead
   More Details Revealed
\endsubhead
...
\enddocument
```

Figure 1: Logical document structure.

For those who are *really* new to TEX, the word-like things preceded by a backslash are commands that may

be recognized by TEX. There are a few other things that need saying about the nature of TEX syntax, but they are not germane to this talk.

Certainly, this is *not* the way I want my document to appear in its final, printed form. But the commands above the actual text identify the function of the text that follows when I prepare the document for input. Then TEX can perform the formatting appropriate for the particular publication.

The important thing to know about TEX commands is they can be strung together to form your own personal typesetting commands. We call these new commands *macros*, short for "macro instruction." Although it's often easy to create simple macros, and to create them on the fly, the process of creating more complicated ones is similar to writing computer programs. Serious debugging may be called for, and this sharpens the comparison between TEX and a high-level programming language we made earlier. Indeed, part of TEX's repertoire includes commands to iterate loops, make decisions, and perform input and output, just like a "real" programming language.

The very first line of this example seems to imply that TEX's first act should be to read in an auxiliary file containing macro definitions for this document. If we've done our jobs well in tagging or marking up our document, and in creating the macro definitions, then it's straightforward to alter the look of my paper without having to revise the paper (except for that first line). I simply instruct TEX to read in a different file with different macro definitions. The tags become typesetting commands.

For example, for the proceedings of a conference to include this introduction, the title part of the paper might look something like

> An Intro ... TEX for New Users
>
> Alan Hoenig

but if this paper is not going to be included those proceedings, then I can easily submit it to some other journal where the formatting looks like

> **An Intro ... TEX for New Users**
>
> by
> *Alan Hoenig*

by leaving the document untouched and simply revising the `\begintitle` - `\endtitle` definition in the macro style file. This is the kind of thing that publishers could exploit—while their authors are creating the book according to a generalized markup scheme, style designers can create the definitions of these macros to implement that book's proper style.

We've just seen that when formatting needs change, only the macros change and not our text. A related advantage of macro commands, and TEX's command structure in general, is that when the text does undergo revision, TEX's formatting commands ensure that the proper formatting continues to apply to the revised text. We need not worry further about proper formatting. I defined a `\strangepar` macro so this paragraph is typeset by entering

```
\strangepar We've just seen that ...
```

in my source file. In case this paragraph needs revision, all I do is revise the text, making sure that `\strangepar` precedes the text in the same way, and the same strange formatting will carry through.

Workers early on realized the importance of creating macro files to facilitate the tagging of the logical parts of a document, and people worked hard to create extensive *macro packages* for use with TEX. Another motivation behind the creation of these packages was a hope that these packages might make TEX easier to use. The basic, primitive TEX commands can be combined in so many unusual and flexible ways that a creative macro designer can almost rewrite the standard TEX syntax.

Of the macro packages that have appeared so far, the two most well known are LATEX and $\mathcal{AMS}$-TEX. $\mathcal{AMS}$-TEX specifically designed to simplify the typesetting of mathematical quantities, equations, and displays, and to format the output according to any of various preset style specifications. The author of $\mathcal{AMS}$-TEX has rewritten another set of macros to incorporate the best features of $\mathcal{AMS}$-TEX and (the original) LATEX; this new package is L$^{\mathcal{A}}\mathcal{MS}$-TEX.

LATEX helps separate the *structure* of a document from its meaning while at the same time making TEX easier to use. LATEX has been set up to encourage us to create documents with the kind of logical document structure we spoke of earlier. LATEX did make TEX easier to use, but many people feel that certain changes are harder to make within the LATEX model. At the moment, the LATEX macros are being extensively rewritten to eliminate these problems and make them even easier to use.

It's important to remember—whenever you use a macro package, no matter which one, you are still using TEX.

5 TEX's Other Strengths

One real typographic strength of TEX lies in its ability to automatically invoke typographic niceties that other systems only dream about. Let me briefly mention some of them.

- TEX's line-breaking scheme is far more successful than other DTP or word processing programs at eliminating obnoxious hyphenations and rivers of space in a paragraph. This is largely because TEX considers the whole paragraph when deciding on

line breaks. In extreme examples, the last word of a paragraph can influence the line break of the first line.

- TEX will automatically *kern* adjacent letters properly. A ke is a dollop of white space that is added or subtracted to improve the appearance of a word. Consider:

unkerned: WAVE
kerned: WAVE

- Over the centuries, typesetters have replaced certain pairs of adjacent letters by single letterforms called *ligatures*. If needed (and if the ligature is available in the font), TEX will automatically typeset the ligature. In the standard Roman typesetting, TEX provides these ligatures:

ffl ffi ff fi fl

Compare with the unligatured letters:

ffl ffi ff fi fl

- TEX is super at doing tables and mathematics.

6 TEX's Siblings

The 10-year effort that resulted in the birth of TEX also produced two other major software systems. By the way, this delivery happened at Stanford University, and the author of all these systems is Donald E. Knuth, to whom we should all render thanks.

The first major software system is METAFONT, the graphic side of TEX. All the letterforms in the Computer Modern family of typefaces were produced by this program. METAFONT would also be perfect for the creation of logos and diagrams for papers. I personally find METAFONT a "neat" program to use, neater in many respects than TEX.

Both TEX and METAFONT are massive Pascal programs, each containing between 20,000 and 30,000 lines of code (depending on how they are pretty-printed). How can any one person thoroughly test and debug such programming monsters? Knuth's answer was the WEB system of structured documentation, the second additional system I want to mention.

You create a master WEB file which contains lines of code and documentation that have been entered according to the proper WEB conventions. This file is then run through two different programs depending on whether you want to work with the documentation or with the program. When the *documentation* is generated, it's in a form which is particularly easy for humans to read and understand. When the *program* is generated, it's in a form particularly easy for machines to understand (but quite difficult for humans to read; this way, you are discouraged from making changes to anything but the master WEB file). In practice, WEB can be used to generate large-scale, complex computer systems fairly rapidly. But by and large, TEX users don't deal with WEB.

Knuth, D.E., 1984. *The TEXbook*. Reading, MA: Addison-Wesley.

Lamport, L., 1986. *LATEX: A Document Preparation System*. Reading, MA: Addison-Wesley.

Spivak, M.D., 1986. *The Joy of TEX*. Providence: The American Mathematical Society.

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Electronic manuals.

Doob, Michael, 1990. *Gentle Introduction to TEX*. Avail. from TEX Users Group, Providence, RI.
St. Sauver, J.E., [no date]. *Using TEX on the VAX to Typeset Documents: A Primer.*
Warbrick, Jon, [no date]. *Essential LATEX.*
Knuth, D.E., 1986. *The MetafontBook*. Reading, MA:

Addison-Wesley.
Knuth, D.E., 1983. *The WEB System of Structured Documentation*. Stanford, CA: Computer Science Department, Stanford University.

Figure 2: A brief TEX bibliography.

7 Learning More about TEX

Assuming I've sparked your interest, let me tell you how you can find out more about TEX.

The TEX canon is *The TEXbook*, written by the author of TEX, Don Knuth. Essentially everything you need to know about TEX is found here, some place or other. Leslie Lamport's *LATEX: A Document Preparation System* and Mike Spivak's *The Joy of TEX* provide the same service for LATEX and $\mathcal{A}_{\mathcal{M}}\mathcal{S}$-TEX.

Beginners constantly demand ever more information about TEX at a lower level; let me mention several works that might be useful in satisfying that demand. First is *PC-TEX Manual* by the Mike Spivak and then there is *LATEX for Engineers and Scientists* by David J. Buerger.

There are at least three electronic introductions to TEX that you may be interested in. That is, they have been written by caring and generous authors who have placed electronic copies of their manuscripts in the public domain. The first such is Michael Doob's *Gentle Introduction to TEX*; two others are *Using TEX on the VAX to Typeset Documents: A Primer* by Joseph St. Sauver,

and *Essential LATEX* by Jon Warbrick. The *TEX Primer* is useful regardless of your computer system, since most of TEX is independent of the computer system.

A continuing source of information on TEX-related material is *TUGboat*, the transactions of the TEX Users Group (P O. Box 9506, Providence, RI 02940 USA; [401] 751–7760).

Hoe met LaTeX een boek kan worden gemaakt

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Abstract

Het creëren van een boek met LaTeX is geen vanzelfsprekende bezigheid. Onderstaand het relaas van zo'n poging: het boek-in-wording *Inleiding Informatica* dat in eerste instantie als dictaat bij het bijbehorende college is geschreven en nu in een boekversie is aangeboden aan Addison-Wesley.
In onderstaand betoog wordt voorbij gegaan aan het belangrijkste onderdeel van het schrijven van een boek: het schrijven van de tekst. We zullen het hier slechts hebben over de problemen en oplossingen voor wat betreft de layout.

1 De stijl

Addison-Wesley kent een aantal regels waaraan de layout van een boek moet voldoen. Ondanks het feit dat Addison-Wesley de hoofduitgever is voor wat betreft TeX-materiaal, kent de Nederlandstalige tak (waarvoor het boek bedoeld is) geen mogelijkheid tekst langs electronische wijze aan te bieden. Nodig is dus een camera-ready manuscript met een layout overeenkomstig de eisen en regels van de uitgever .

Het boek *Inleiding Informatica* is niet mijn eerste boek bij Addison-Wesley. Voorheen verscheen *Simulatie en Implementatie*. Voor dat boek heb ik de layout al eens moeten aanpassen aan de eisen van de uitgever. Dit heb ik gedaan door uit te gaan van de LaTeX-stijl `book` en deze aan te passen. Belangrijkste aanpassingen zijn de gewijzigde hoofdstuktitels (cursief, nummer erboven, rechts aangelijnd, zonder het woord hoofdstuk), geen extra lege regels tussen opsommingen, terwijl alle indentaties (nieuwe paragraaf, items in `itemize` en `enumerate`, formules) gelijk zijn. Verder dienden de sectie-titels te worden aangepast (font, ruimte eromheen e.d.), de titels van figuren links aangelijnd te zijn (niet gecentreerd) en waren bepaalde waarden opgegeven voor tekstbreedte en -hoogte. Eén en ander bleek redelijk eenvoudig in de files `book.sty` en `bk12.sty` aan te passen. Zo ontstonden `awbook.sty`, `awbk12.sty` en later ook `awbk11.sty` voor eigen gebruik bij dictaten.

Naast `awbook` zijn nog een aantal aanvullende `sty`-files vereist. We noemen `fleqn` (om formules links te beginnen in plaats van gecentreerd), `which` (zie verderop), `pict` (de file `pict.sty` bevat een groot aantal macros voor het tekenen van eindige automaten. Een aantal daarvan zijn ook nuttig voor tekeningen in dit boek), `idxans` (zie verderop), `inlmacros` (alle macros, die voor het boek nodig zijn, zoals vetgedrukte **en**, stelling en opgave-omgevingen e.d.) en `program2` (de zelfontworpen programma-omgeving waarmee PASCAL-programma's elegant kunnen worden gelayout, zie verderop).

2 De indeling

Zoals Lamport al aangeeft in zijn boek over LaTeX is het verstandig een boek op te delen in hoofdstukken en per hoofdstuk een file aan te maken. Hiervoor geschikt zijn de macros `\include` en `\includeonly`. De laatste heeft als parameter de naam van de file die verwerkt moet worden. Van alle ge-`\include`-de files wordt wel de betreffende `.aux` file gelezen, maar verwerking van de tekst vindt alleen plaats als de filenaam ook als parameter in `\includeonly` meegegeven is. Zo kan inderdaad netjes hoofdstuk voor hoofdstuk worden afgewerkt zonder problemen te hebben met paginanummering, cross-referenties e.d.

Het boek is dan ook onderverdeeld in een hoofdfile `dictaat.tex` (Het boek bestond al als dictaat voordat het een boek werd!) waarin de nodige macro-files worden aangeroepen en verder slechts aanroepen staan van `\include` (voor elk hoofdstuk één). De tekst

van de hoofdstukken is vervolgens terug te vinden in de files `ch00.tex` tot en met `ch18.tex`. Aangezien later hoofdstukken zijn toegevoegd bestaan ook de files `ch11b.tex` en `ch14b.tex`. Ook voorwoord, inhoud, index, e.d. hebben een eigen file, maar daarover later meer.

3 \which

Voor eerdere boeken (en artikelen met hoofdstukken) is al eens de macro `\which` ontworpen, die in grote trekken overeenkomt met de standaard macro `\includeonly` met dat verschil, dat het argument van de laatste interactief kan worden opgegeven. Bovendien worden alle files verwerkt, indien de vraag wordt beantwoord met een return. De macro `\which` is alsvolgt gedefinieerd:

```
\def\which{\typeout{%
Give file(s) to be processed.}
\typein[\file@name]{%
(without .tex, separated by commas,
return for all files)}
\ifx\@empty\file@name \else
\includeonly{\file@name} \fi}
```

De `\ifx` vergelijkt de ingevoerde filenaam met de lege macro en roept alleen `includeonly` aan indien de filenaam niet leeg is. Is de naam wel leeg, dan volgt geen aanroep van `\includeonly` en worden dus alle files verwerkt. `\include` heeft dan ongeveer dezelfde betekenis als `\input`.

4 \include

De macro `\include` heeft als grote bezwaar, dat bijvoorbeeld de index steeds terechtkomt in de file `dictaat.idx`. Als we een hoofdstuk verwerkt hebben en aan een nieuw hoofdstuk beginnen worden de oude gegevens in `dictaat.idx` overschreven door de gegevens uit het nieuwe hoofdstuk.

Om dit op te lossen is de macro `\include` vervangen door de macro `\Include` die per hoofdstukfile een `.idx` file aanmaakt. Bij verwerking van een volgend hoofdstuk blijven de gegevens van het vorige hoofdstuk dus netjes bewaard. Voor de index betekent dat dan dat (afgezien van sorteren e.d. van de index-items) we alleen nog maar de files `ch00.idx` tot en met `ch18.idx` achterelkaar behoeven te zetten en te verwerken. Bij gebruik van de oude `\include` moet de laatste keer het hele boek worden ge-LaTeX-ed om een lijst met index-items te verkrijgen voor het gehele boek.

Het boek bevat verder veel opgaven en het leek handig de antwoorden van de opgaven direct in de tekst erbij te kunnen typen en LaTeX ervoor te laten zorgen dat deze naar een aparte file worden geschreven om later in één keer weer te worden ingelezen. We hebben hiervoor gebruik gemaakt van de macro `\answer` zoals beschreven in het TeXbook van Knuth:

```
\newwrite\ans
\immediate\openout\ans=\jobname.ans
\outer\def\answer{\immediate\write\ans{}
\immediate\write\ans{\string\antwoord{\theopg}}
\copytoend}
\def\copytoend{\begingroup\setupcopy\copyans}
\def\setupcopy{\catcode‘\\=12 \catcode‘\{=12
\catcode‘\}=12 \catcode‘\$=12 \catcode‘\&=12
\catcode‘\#=12 \catcode‘\%=12 \catcode‘\~=12
\catcode‘\_=12 \catcode‘\^=12 \catcode‘\ =12
\catcode‘\ =12 \obeylines}
{\obeylines\gdef\copyans#1
{\def\next{#1}%
\ifx\next\empty\let\next=\endgroup%
\else\immediate\write\ans{\next}
\let\next=\copyans\fi\next}}
```

Voordeel van deze methode is verder dat de nummers van de opgaven (deze staan in een counter met de naam `opg`) direct beschikbaar zijn (als `\theopg`) en niet met behulp van `\label` en `\ref` opgeslagen behoeven te worden (bovendien spaart dit geheugenruimte en verkleint het de kans op de mededeling dat de capaciteit van TeX overgeschreden is).

Gebruik van de macro `\answer` eist de nodige zorgvuldigheid: alle tekst tot de eerstvolgende lege regel wordt naar de antwoordenfile weggeschreven.

Evenals bij de index willen we graag per hoofdstuk een antwoordenfile (met extentie `.ans`). De macro `\Include` ziet er dan alsvolgt uit:

```
\def\Include#1{\clearpage
\if@filesw \immediate \write \@mainaux
{\string \@input {#1.aux}}\fi
\@tempswatrue \if@partsw \@tempswafalse
\def \@tempb {#1}\@for
\@tempa :=\@partlist \do {\ifx \@tempa
\@tempb \@tempswatrue \fi }\fi
\if@tempswa \if@filesw
\let \@auxout =\@partaux
\immediate \openout \@partaux #1.aux
\immediate \write \@partaux {\relax }\fi
\immediate \closeout\@indexfile
\immediate \openout \@indexfile #1.idx
\immediate \closeout\ans
\immediate \openout \ans #1.ans
\@input {#1.tex}\clearpage
\@writeckpt {#1}\if@filesw
\immediate \closeout \@partaux \fi
\let \@auxout =\@mainaux \else
\@nameuse {cp@#1}\fi }
```

Het verwerken van één hoofstuk heeft nu tot gevolg dat voor dat hoofdstuk een file onstaat met de bijbehorende index-items en met de bij de opgaven uit dat hoofdstuk behorende antwoorden.

De macros `\Include` en `\answer` zijn uiteindelijk samen gezet in de file `idxans.sty`, die nu binnen onze vakgroep voor algemeen gebruik beschikbaar is.

Voor het afzonderlijk bekijken van de antwoorden van één hoofdstuk (en de index) is er een tweede mainfile gemaakt: `answer.tex`. Deze werkt weer gewoon met `\include` en geeft de mogelijkheid (m.b.v.

`\which`) de antwoorden en de index-items per hoofdstuk te verwerken. Vooral aan het begin is dit handig omdat dan niet alle antwoorden ge-LaTeX-ed behoeven te worden en steeds locaal per hoofdstuk kan worden gewerkt. De index-items worden in volgorde van optreden in de tekst genoteerd. Hiervoor is in `answer.tex` een macro `\itementry` gedefinieerd (alle indexitems komen standaard voorafgegaan door deze macro-aanroep in de `.idx`-file, dit doet LaTeX) die een item in de indexlijst oplevert. Deze indexverwerking gaat dus buiten `makeindex` (zie verderop) om.

5 De index

Voor het maken van de index kon gelukkig op het laatste moment gebruik worden gemaakt van het programma `makeindex`. Deze heeft een aantal handige faciliteiten, zoals het in de index opnemen van pagina-ranges waarin een term wordt uitgelegd:

```
\index{term|(}          % op beginpositie
\index{term|)}          % op eindpositie
```

het gebruiken van subitems en subsubitems:

```
\index{term!subterm!subsubterm}
```

het in de index plaatsen van verwijzigen naar een ander woord:

```
\index{term|see{other term}}
```

en het in andere stijlen (bold, cursief, in mathmode e.d.) opnemen van woorden zonder dat dit de sortering verstoort:

```
\index{en@{\bf en}}
```

Belangrijk is overigens al dat het programma de index-items sorteert en gelijke voorkomens bijelkaar veegt. Een heel plezierig programma. In ons geval is nu slechts nodig alle `.idx` files in één nieuwe file te zetten (met behulp van het UNIX commando `cat` bijvoorbeeld), `makeindex` hierop los te laten en het uiteindelijke resultaat nog eens door LaTeX te halen. Lange tijd is overigens besteed aan het opsporen van fouten in de index (vooral het terugzoeken van de bijbehorende macro-aanroep in de tekst) en het consistent krijgen van de index (geen woorden soms als item en soms als subitem opnemen, bijvoorbeeld). Klein probleem was verder nog dat de uiteindelijke file begint met `\begin{theindex}`. In LaTeX wordt standaard een index niet in de inhoud opgenomen. Dit kan wel door na `\begin{theindex}` een extra macro aan te roepen(nl. `\addcontentsline`), maar dat is in ons geval weer onmogelijk omdat we dan de file die `makeindex` oplevert steeds weer opnieuw eerst zelf zouden moeten editen. Een oplossing is een herdefinitie van de macro `\theindex` die uiteindelijk door `\begin{theindex}` wordt aangeroepen:

```
\let\oldindex\theindex
\def\theindex{\oldindex
\addcontentsline{toc}{chapter}{Index}}
\input{index.tex}
```

waarna de door `makeindex` geproduceerde file `index.tex` direct met het gewenste effect kan worden ingelezen. Voorts diende de verwijzing in de index aangepast te worden aan het Nederlands:

```
\def\see#1#2{{\it zie} #1}
       % #2 is pagenumber, to be omitted
```

6 Programma-omgeving

Oorspronkelijk stonden de grotere programma's in een `figure`-omgeving (één van de twee mogelijkheden zogenaamde zwevende tekst te krijgen. De ander is de `table`-omgeving), maar aardiger is het een speciale programma-omgeving te hebben: een zwevende tekst, waarin een programma gezet kan worden, die in de bijbehorende titel (de `caption`) ook netjes programma heet en niet figuur of zo. Hierin is LaTeX heel netjes, slechts een paar regels waren nodig om dit opgelost te krijgen:

```
\def\listofprogrammes{\@restonecolfalse\if@twocolumn\@restonecoltrue\onecolumn
 \fi\chapter*{\@PLijst}\@mrkr{\@PLijst}%
\@starttoc{lop}\if@restonecol\twocolumn
 \fi}
\def\l@programme{\@dottedtocline{1}{1.5em}{2.3em}}
\newcounter{programme}[chapter]  % new counter
\def\theprogramme{\thechapter.\@arabic\c@programme} % counter layout
\def\fps@programme{tbp}          %
\def\ftype@programme{3}          % figure has type 1, table type 2
\def\ext@programme{lop}          % listing in file .lop
\def\fnum@programme{\@Programme\ \theprogramme} % caption number layout
\def\programme{\@float{programme}} % the real definition
\let\endprogramme\end@float
\@namedef{programme*}{\@dblfloat{programme}} %idem for twocolumns
\@namedef{endprogramme*}{\end@dblfloat}
\def\@PLijst{Lijst van programma's} % title for list-chapter
```

Overigens moest hier gebruik worden gemaakt van de naam `programme` omdat `program` al een omgevingsnaam is (zie verderop).

7 Programma-layout

Er zijn in feite twee methoden om een (PASCAL-)programma(fragment) in de tekst op te nemen: een eenvoudige en een mooie. De eenvoudige manier is gebruik te maken van de `verbatim`-omgeving. De programma's verschijnen dan in teletype-font en letterlijk zoals ze zijn ingetikt. De mooie manier is gebruik te maken van vetgedrukte gereserveerde woorden, in math-mode geplaatste statements, in teletype geplaatste strings en alles volgens een strakke, van te voren vastgelegde layout. Mijn voorkeur ging al direct uit naar de tweede manier.

In eerste instantie verzon ik een groot aantal macro's om de gereserveerde woorden in boldface te krijgen zonder iedere keer dingen hoeven in te tikken zoals `{\bf program}`. Zo ontstonden de macro's `\PROGRAM` e.d. Verder maakte ik gebruik van de `tabbing`-omgeving om een nette layout te krijgen. Later bedacht ik, dat het verkrijgen van een nette layout wellicht meer geautomatiseerd kon door de `tabbing`-macros op te nemen in de gemaakte macros.

Aangezien een programma uit een aantal levels bestaat (elke procedure-aanroep creeërt een nieuw level en bij beëindiging van een procedure-body wordt weer teruggegaan naar het vorige level) was iets nodig als een stapelmechanisme om oude tab-settings te bewaren. Dit mechanisme is in TeX standaard aanwezig in de vorm van groups. Bij het verlaten van een binnengroup worden de waarden en definities van de omvattende group teruggezet. Hier heb ik dan ook driftig gebruik van gemaakt. Verder kan met behulp van `\+` en `\-` worden geregeld dan de eerste voorkomens van `\>` in een regel achterwege gelaten kunnen worden.

Op de een of andere manier heb ik gekozen voor een layout met de volgende eigenschappen:

1. locale declaraties en de body van een procedure zijn van een dieper niveau dan de procedureheading.
2. de programma-heading, de globale procedure-headings en het hoofdprogramma behoren tot het bovenste niveau.
3. de formele specificatie van een procedure (of functie) behoort tot hetzelfde niveau als de heading.
4. een dieper niveau springt in.
5. bij het herhalingsstatement staat de **do** onder de **while** indien het herhalingstatement een compound statement is. Evenzo voor **if**, **then** en **else** en vergelijkbare statements.
6. puntkomma's tussen statements in een compound-statement staan niet achteraan de regel, maar vooraan de volgende, onder de **b** van **begin**. De **e** van de afsluitende **end** staat hier weer onder.
7. declaraties over meerdere regels springen op volgende regels in.

Uiteindelijk resulteerde dit in een de verzameling macro's die is terug te vinden in de stijl `program2`.[1] Om niet onnodig $-tekens te hoeven tikken heb ik naast `tabbing`-omgeving een `mathtabbing`-omgeving gemaakt (`tabbing` in mathmode).

De uiteindelijke programma-stijl wordt op dit moment ook door andere leden van de vakgroep gebruikt. Een uitgebreide handleiding hiervoor is beschikbaar onder de naam `program.tex`.

Als illustratie een aantal fragmenten uit de `sty`-file. Het stapelmechanisme is geïmplementeerd door de macros `\@push` en `\@pop`. De teller `\@tabs` geeft het aantal extra tabposities in de nieuwe omgeving aan. De teller `\@etabs` geeft het aantal extra terug te springen tabposities aan bij verlaten van het level. Bijvoorbeeld: een **end** komt te staan onder de **begin**, dat is in het te verlaten level `\@tabs` tabposities terug. In de regel na deze **end** moet er nogeens `\@etabs` posities worden teruggesprongen (het compound statement sprong naar alle waarschijnlijkheid al een aantal tabposities in). De macro's `\@stopf` en `\@contf` komen uit de `tabbing`-omgeving. De macro `\@test` is een debug-faciliteit en drukt de waarden van een aantal tellers af.

```
% \@pushXX creates following level and defines \@tabs to be XX
\def\@push#1{%\@test@{push}
\@stopf\global\advance\@level by1\relax \begingroup
 \@tabs#1\relax \@etabs=0 \relax\@contf}
% \@addXX adds the value XX to \@tabs
\def\@add#1{\@stopf\advance\@tabs by#1\relax\@contf}
%
%\@extraXX sets extra \- to be done by reentering this level
\def\@extra#1{%\@test@{extra}
\@stopf\advance\@etabs by#1\relax\@contf}
%
% \@pop returns one level and does the needed number of \- and \<
% it does \-\< as many times as mentioned in \@tabs and \- as mentioned in
% \@etabs
\def\@pop{%\@test@{pop}
\ifnum\@level<0\@warning{Negative level in program environment}
\else\@stopf\global\advance\@level by-1 \global\@tmp=\@tabs \@contf%
```

[1] Er is ook een stijl `program` waarin de mathematische mode ontbreekt.

```
\@ifatmargin
 \ifcase\@tmp\or\<\-\or\<\<\-\-\or\<\<\<\-\-\-\or\<\<\<\<\-\-\-\-\fi
\else \sp@c % mathspace
 \ifcase\@tmp\or\-\or\-\-\or\-\-\-\or\-\-\-\-\fi
\fi \@stopf
\endgroup  \global\@tmp=\@etabs \@etabs=0 \@contf%
\ifcase\@tmp\or\-\or\-\-\or\-\-\-\or\-\-\-\-\fi \fi }
```

Als voorbeeld het gebruik van `\@pop` en `\@push`
voor de **begin** en **end**-symbolen:

```
\def\@plusb{\@stopf\advance\@Begins by1\@contf}
\def\@minusb{\@stopf\advance\@Begins by-1\@contf}
\def\@begin@#1{\enddecl\endheading#1\=\+\@push1\@plusb}
\def\@end@#1{\@minusb
          \ifrecordcase\@pop#1\@pop\@stopf\recordcasefalse\@contf
          \else\@pop#1\fi\@stopf\recordfalse\@contf
          \ifbody\ifnum\@Begins=0\ifnum\@level>0
             \@stopf\bodyfalse\@contf \@pop \fi\fi\fi}
\def\BEGIN{\@begin@{\mbox{\bf begin }}}
\def\END{\@end@{\mbox{\bf end }}}
```

Vooral de `\END` is lastig. Een **end** kan zowel de afsluiter zijn van een **begin** (waarbij het verschil maakt of dit een gewoon compound statement is of een body, in het laatste geval sluit de **end** tevens de procedure declaratie af), als van een **record** (eventueel een variant record), als van een **loop** (in ModPas). Zonodig is van conditionals gebruik gemaakt om het onderscheid te kunnen maken.

Andere overwonnen moeilijkheden in deze omgeving zijn de indendatie van procedurebodies en locale declaraties, terwijl de regels tussen de heading en de locale declaraties gebruikt kan worden voor een formele specificatie en niet ingesprongen worden, de verschillende betekenis van bijvoorbeeld `\VAR` als aankondiging van een variabele-declaratie en als aankondiging van een locale var-parameter (in het laatste geval dienen geen tabsettings plaats te vinden, in het eerste (meestal) wel), de juiste indentatie voor compoundstatements achter een **do** van een herhalingsstatement, achter een **then**, enzovoorts.

Naast de macros zoals `\PROGRAM` bestaan er ook macro's `\Program` die een gereserveerd woord vetgedrukt afdrukken: **program**-tekst krijg je dan door
`\Program-tekst`
te tikken.

8 Ergenissen

De grootste ergenis bij het gebruik van LaTeX is het veelvuldig optreden van de mededeling
`TeX capacity exceeded`
als gevolg van het gebruik van de `picture`-omgeving in combinatie met een redelijke hoeveelheid cross-referenties. Een aantal keren heb ik de mededeling (en het afbreken van de verwerking) kunnen voorkomen door een aantal `aux`-files tijdelijk weg te halen (de cross-referentie-lijst werd dan minder lang) en een aantal keren door de plaatjes uit de tekst te halen (d.i. nog slechts een lege `picture`-omgeving laten staan) en in een aparte file het werkelijke plaatje onder te brengen. De bijbehorende plaatjes moeten dan wel met de hand worden ingeplakt.

Helaas wordt in LaTeX voor elk label een macrodefinitie gemaakt en deze wordt op dezelfde plaats opgeslagen als de nog niet ge-`\output`-te ingelezen tekst. Zeker bij plaatjes in een zwevende tekst omgeving loop je dan het risico de maximale hoeveelheid te gebruiken ruimte te overschrijden (overigens een kwestie van het integer-bereik van de gebruikte PASCAL-implementatie, is mij eens verteld).

9 Conclusie

Wie een boek schrijft en het manuscript camera-ready aanlevert haalt zich dus veel werk op de hals. Gebruik van TeX (en vooral LaTeX) heeft dit werk sterk vereenvoudigd (veel is al mogelijk of eenvoudig te maken en met behulp van `makeindex` is nog nooit zo snel en volledig correct een index gemaakt) en ook weer sterk bemoeilijkt (omdat het zo mooi kan, wil je het ook zo mooi mogelijk, wordt je verschrikkelijk precies en ga je alle mogelijkheden benutten).

Overigens, een ieder die iets van bovenstaande wil gebruiken (of gedetailleerder wil bekijken) kan mij een email sturen.

LADIES and LATEX

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Abstract

This paper describes the use of LATEX by non-astronomers at the Kapteyn Institute. Although the general opinion is that it is too complicated for non-scientist, experience in Groningen proves otherwise. If you provide good tools or styles everybody is capable of using LATEX. Also, the astronomers took over tricks from the ladies, simplifying their lives, too.

1 Introduction

Just before my first LATEX course, given to the secretaries at the Kapteyn Institute, [1] I had a discussion with colleagues at the Computing Center. The subject of discussion was the title of this paper "Ladies and LATEX" – according to my colleagues of the Computing Center it wasn't the right combination. But the experience gained from five years intensive LATEX use shows a complete different result: the secretaries of our Institute are now experienced LATEX users and in most cases they are able to solve their own LATEX problems. So this paper isn't intended to be unfriendly towards ladies.

2 History

Before introducing LATEX as the **document preparation tool** the ladies were used to a "what you see is what you get" editor, working on a system called A.E.S. It was a huge computer with two workstations and one big noisy printer. Learning wasn't easy at all and the system wasn't open to the world. More astronomers started to type their own texts using TEX: the quality of these were much better than that of the texts produced by the ladies. So it was clear: the A.E.S. system was out of date.

3 Why LATEX?

In 1987 I started to use TEX. I wrote my own macros and concluded that in a way I was writing my own kind of LATEX. I was forced to explore LATEX upon request of my institute, which was introducing LATEX as the **document preparation tool**. In 1987 only Word Perfect 4.0 was available and wasn't capable of producing formulas and nicely lined-up tables – always in need in astronomy. So Word Perfect wasn't the solution for our ladies. Different reasons also existed for not selecting Chi-Writer, at that time the favourite editor of our colleagues at the Deparment of Mathematics.

In order to train seven secretaries in the use of LATEX I set up a three-day course – which since the first "performance" in Erm has been used several times[2] , held in the middle of nowhere to guarantee that we weren't disturbed by daily work, phone calls, etc. The result of this training was a cook-book [2], full of examples, which is still in use. I used Urban's manual [4] as the main text for the course. Table 1 shows the set-up of the course. Chapters refer to Urban's manual [4].

During that time I also used LATEX to edit my own books [3]. The editing of an astronomical yearbook proved to me that LATEX is 99% powerful enough.

[1] The Institute incorperates the Kapteyn Laboratory of the University of Groningen, the Kapteyn Observatory in Roden and the Laboratory for Space Research

[2] 1990: Department of Mathematics, 1991: Department of Mathematics Groningen University, Computing Center Novosibirsk USSR

lesson 1	Chapter 1 & 2 *Introduction & Getting Started*
2	Chapter 3 *Control Sequences*
3	Chapter 4 *begin and end environments*
4	Chapter 5, partly Chapter 6 *Putting It Together*
5	Chapter 6,7 & 8 *Tables and Figures,* *Cross-References,* *Equation Formatting*
6	Chapter 8 *Equation Formatting*

Table 1: Course setup, each part is 3 hours

4 Restrictions

The ladies had several technical requests concerning the possibilities of the text editing system/environment:

1. To have their own private printer so that they could print confidential papers or letters and avoid the queue of the general printer.
2. Printing in landscape mode.
3. The possibility of previewing.
4. When necessary, to be independent of the local area network.
5. Easy to learn.

Besides these technical issues, there were more restrictions involved with the type of work of our secretaries: making mailing labels, typing letters, manipulating databases, producing forms and preparing manuscripts for publishers. To solve these problems I created several tools which I will describe in this paper. The problem of preparing manuscripts was solved by the publishers: more and more publishers are adapting LATEX or TEX as the standard document preparation tool. According to our "ladies" the styles provided are easy to use.

5 Tools

5.1 Letters

To easy life, the use of LATEX, we created some tools and adapted several style files. For example the plain `letter.sty` was not good enough for our purposes. About 75% of our outgoing mail are letters so we adapted the letter style file to suit our needs and also included the symbols of our letterhead (see figure 1). Both are adapted from a description for a Kyocera laserprinter. It is converted to a 300 dpi pxl-file and is created without a `MF` - file. The rules of our University regarding letters require certain characteristics of a letter, like the address, date, etc., to be at a fixed position on the page. To obtain this result a picture environment is used.

Figure 1: The two elements of the style of the University.

Our `kapteyn.sty` letter style knows two languages: Dutch and English. With one switch we can change the language of the fixed elements like the date, the name of the Institute, etc (see table 2). An environment is also supplied for preparing telefaxes. With this environment, it is possible to count or give the number of pages. The output is in 12pt by default to avoid reading problems at the other end of the line.

English	Dutch
Our no.:	Ons nr.:
Re:	Betreffende:
cc:	I.a.a.
Encl:	Bijlage(n):
Date:	Datum
Our ref.:	Ons kenmerk
Your ref.	Uw kenmerk:
Subject	Onderwerp

Table 2: Some language-dependent elements in our letter style.

In the current working environment – a SUN platform – we are using a script to make letters. It prompts for the language and then chooses the right template for doing the job. So the secretary must simply type the letter. Of course, the scripts are used by non-secretaries too. Thus all outgoing mail now has the same face to the world. Users are able to change the phone-number and email address in the letterhead.

5.2 Mailing-labels

To create mailing-labels a three-column plain-TEX macro, available on request, was adapted for our needs. Before finding the good sizes it was necessary to play around. We use labels in use for copying machines. The adapted macro prompts a file containing the adresses. Each adress is separated by `\next`. If the file contains only one adress it will create 24 labels, the maximum of one sheet of labels. If the adress is to big it is split over two labels with a • sign to notify the person who is really doing the job of mailing.

Figure 2: The language-varying elements of our letterhead: on the left a Dutch version, on the right, the English. To be in line with official rules of the University, PostScript-fontsare used instead of the default CMR fonts.

5.3 Databases

Currently we use Dbase for keeping track of all publications made by the astronomers at our Institute and also information about our students. In the first case we mainly use the information for our Annual Report: an overview of research and all publications. Some Dbase-programms are used to separate between publications in journals, contributions in conference – proceedings, thesis etc.

6 Publications

Every year our Institute produces the earlier mentioned Annual Report and the "studiegids" a guide for students. For the purpose a `bk9pt.sty` file was created in combination with a `A5.sty`. Both publications are easy-made. To improve output quality, we use an adapted DVI2PS driver, for 600 dpi. At our University printing house we have access to a 600 dpi printer (Varitype).

7 Conclusion

LADIES and LATEX are a perfect couple, in other words:
everybody can use it!!

References

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Two Sides of the Fence[1]

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Abstract

The purpose of this talk is to give an overview of the four days of the twelfth annual TUG meeting; it is an attempt to show that the different streams in the programme of the meeting are connected, that they are part of a whole.
Also, I make some comments and observations regarding the current status and the future of TEX, and the future of publishing in general.

1 Introduction

In his book *Zen Buddhism* [5], Christmas Humphreys writes:

> How then, does it work, this faculty of the mind [the intellect] which men so highly prize and far too lightly claim to be infallible? The answer is, by the interaction of the opposites.

The purpose of this talk is to give an overview of the four days of this conference, and I will use pairs of opposites to guide me through it.

If you talk about pairs of opposites, you also talk, implicitly, about a fence, a boundary between the two opposites. And if you consider any of these fences you can ask yourself: do we make an opening in the fence, i.e. make a pragmatic decision in order to bridge the gap, to integrate seemingly irreconcilable views? Or will we remain passive, will we stay 'sitting on the fence', i.e. not decide anything? There is of course a third possibility, namely that the fence is there for a real purpose.

I hope that this conference will result in gates through the various fences I will discuss.

2 Dichotomies

The first pair of opposites came into my mind very quickly: the TEX-using author vs. the TEX-accepting publisher. From the TEX files we've received so far at Elsevier Science Publishers I've gotten the impression that the average TEX-using author wants as much freedom as possible to typeset the text, the tables, the math and the figures. He/she wants to use TEX in any possible imaginable way and, according to TEX experts at a few physics institutes, spends sometimes up to 50% of the total time for the article or book on its presentation.

Suppose he has to deal with publisher X, who has a TEX macro package plus instructions to authors. Then maybe the author isn't very happy with it, since it limits him in his creativity and furthermore, since he has to deal with many publishers, he has to figure out a way of dealing with these different macro packages and instructions. A very likely solution is that he just ignores them all!

The publisher who accepts TEX has a slightly different point of view. Of course, on the one hand, a publisher wants to be as friendly as possible to an author and accept his compuscript. But, on the other hand, a publisher wants to convert the TEX compuscript into a printed book or journal paper in the shortest time possible with a minimal amount of effort.

[1] Keynote presentation at TUG91 meeting in Dedham, USA; to be published in TUGboat,

There are several constraints to be met in this publication process: the house-style for the particular journal or book series, the quality of the publication (language, layout), the time it takes to publish the article or book, and the cost of all this. Most publishers are commercial firms, not philanthropic institutions, so cost efficiency is an important criterion. In most cases, the publisher would really like to see authors following the instructions.

How do you solve this dilemma? A compromise might be to agree upon a certain standard or set of standards between various publishers. In our company, we think that we will not be able to handle TEX compuscripts efficiently if we accept all varieties of TEX, especially because the material ranges from very simple to very complex with lots of math and tables. Efficiency is particularly important for journals, where you have a steady flow of material, a fixed house-style and a routine way of working.

Our choice is: one variety of TEX, namely LATEX. For book and proceedings projects this preference is somewhat less strong, although making a book ready for publication, in a house-style or in the style of a particular book series, complete with a table of contents and an index, is easier if the book was prepared with LATEX—and the author has used LATEX well!—than if it was prepared with plain TEX.

Besides the problems just mentioned, there are several other matters you have to solve anyway, regardless of whether you use plain TEX, LATEX or, say, ΦΥΣTEX:

- complex tables
- page layout
- font selection (other fonts than Computer Modern)
- illustrations in PostScript or other format

So now I've come to my second pair of opposites, one that will be addressed by several speakers this week: TEX versus LATEX.

The key concept of LATEX is, as you of course know, the concept of logical design: an author writes his text in terms of abstract building blocks, in terms of the logical structure of the text. Content and layout are decoupled as much as possible. The visual structure is derived from the logical structure, and is specified in the document style.

As I said earlier, some authors appear to spend large amounts of time on the presentation of a paper that is submitted for publication in a journal: they write sets of macros ranging in size from one screen to many hundreds of lines, use any font they can find in all sorts of combinations, etcetera. This strikes me as odd for two reasons: (i) an author's main concern should be the *contents* of the article or book, and (ii) the presentation the author chooses will almost always be changed by the publisher anyway, whether he submits the material on paper, on a diskette or via electronic mail.

We have found that the LATEX-way-of-working is fine for both journals and books: document styles have been written for about ten journals and several books. The difference between conventionally typeset material and material produced from author-prepared LATEX files can only be seen by a well-trained eye.

Now of course, there is much more to this type of electronic publishing than just changing the document style: a technical editor has to look at spelling, punctuation, language in general, notation, the appearance of mathematical formulas in text and in displays, the layout of tables, the page layout, spacing, hyphenation, ... a lot of work, often difficult work. The combination of usual copy-editing with TEX requires skilled technical editors and a certain routine way of handling TEX.

But TEX is not the only document preparation publishers have to deal with. And so now I come to my next pair of opposites: TEX vs. non-TEX, or TEX versus the rest of the desktop-publishing world.

If we asked scientists who publish in one of our more than 600 journals whether they use a computer to write their articles and if so, what word processor they use, we would find enormous variety in their answers. In physics and mathematics, TEX is used by the majority of authors, but even there you find a significant number of authors who use `troff/eqn`, ChiWriter, Word or various Macintosh word processing programs.

In other scientific disciplines, TEX is used by only a few people—if at all! What I personally find most interesting is the many ways TEX is used, not by mathematicians and physicists, but by people working in, say, linguistics, humanities. My next pair of opposites.

Often there is no alternative but TEX for producing texts in languages that use non-Latin alphabets or the Latin alphabet with diacritical marks. With TEX you can produce remarkable, often beautiful results, after you have solved dozens of problems that others, who use TEX for texts written in English, with a lot of math and tables, have never thought of. I am fascinated by the work on

- hyphenation of other languages than English
- right-to-left text with TEX: Hebrew and Arabic
- diacritical marks and other embellishments: Hebrew, Vietnamese
- wonderful fonts: Greek, Hebrew, Arabic, Old German, Ethiopic, Korean *hangul*, Japanese *kana*, Chinese *kanji* or *hanji*, and the many languages of the Indian sub-continent
- vertical typesetting: Japanese and Chinese

and I hope to see a lot of these types of TEX applications during this conference. I think that, in principle, TEX has great potential as a text composition system for authors in *all* scientific disciplines and in *all* languages. But, I said 'in principle'—I will come back to that later.

Coming back to the observation that TEX is not the only software: when a publisher sees that he also re-

ceives papers prepared in Word and ChiWriter, what does he do with them? Does he handle them in the old-fashioned way, that is re-type the whole thing and introduce lots of typos, so that the author has to read the stuff for the umpteenth time? Or should the publisher convert it to one of the professional typesetting systems he uses? Or convert it to TEX, since there are several of these conversions available: WordPerfect to TEX, ChiWriter to TEX, ...

I think conversion will become important or is already becoming more and more important. Conversion of information from one format into another, from an author's word processor X to a publisher's typesetting system Y. Now suppose authors use M different word processors and that publishers uses N different typesetting systems: does this mean we have to wait for the development of $M \cdot N$ different conversions? This does not appear to be a feasible solution. Conversion, or translation, via an intermediate language, a standard exchange language for text, would require only $M + N$ different conversions, much less!

As most of you know, such an intermediate language already exists: SGML [6, 2, 4]. Aha, you might think: the fourth pair of opposites. Well, yes and no. Yes, in the sense that many people think that TEX and SGML are two alternatives for one and the same purpose. No, in the sense that I do not agree with this: I do not believe that SGML and TEX form a pair of opposites and I would like to explain why I think this is the case.

SGML is not a typesetting language, but an abstract language, or more precise: a meta-language. Just as you can define the computer programming languages Pascal and Modula-2 in BNF (Backus-Naur form), another example of a meta-language, you can define typesetting languages in SGML.

In SGML, there exists something that is called the *document type definition*. A document type definition (DTD) is a description of a class of documents. You describe a document instance, a document that is representative for a certain class of documents, say *book*, as a hierarchy of building blocks. To give an example:

```
book    = front_matter body back_matter
body    = chapter+
chapter = chapter_heading, paragraph?,
          section*
...
```

all the way down to the basic building blocks: paragraphs of text, mathematical formulas, ... This defines the contents of the book in terms of logical entities: you might call it 'object-oriented writing of a document'.

An alternative is to describe the visual structure of a document, which can also be regarded as a hierarchy of building blocks.

```
book       = pages+
page       = header_block text_block
             footer_block
text-block = ...
...
```

These are sketches of two DTDs. A DTD defines a set of tags, you could say typesetting instructions, and their hierarchy. The set of typesetting instructions is in fact a typesetting language. So in fact I've just given two typesetting languages. You could also define the syntax of a language like TEX in SGML. Mostly however, document type definitions are written with the logical structure of a class of documents in mind.

By the way: two parallel views of one piece of text—view 1: logical structure, view 2: visual structure—can be important or even essential in pre-existing text, something that is pointed out in the draft report of the Text Encoding Initiative [10], on which Michael Sperberg-McQueen will speak [9]. For example: inscriptions found on historical sites or texts in *real* manuscripts—you know: hand-written books.

At present however, publishers do not receive a great quantity of SGML-coded material—not yet! There are not many SGML editors available and the ones that are available are not or hardly ever used by the authors one finds in normal textbook or journal publishing. Furthermore, the word processors these authors use do not have an SGML export facility. So if a publisher wants to have material available in some form of SGML, it means converting it from whatever form the material is in when he receives it—at least for many years to come.

Encoding a piece of text with SGML means

- separating form from content, presentation from function
- adding structure to a text, enriching the text

In particular, the last activity is a time-consuming one, both for the author and the publisher, but it significantly increases the potential usefulness of the information. If a text is fully tagged, as it is called in SGML, if pieces of text are identified by their function, all sorts of information can be extracted, stored and re-used. For example: the article opening and the lists of literature references. If you use the text as part of a hypertext, links to figures, tables, references, footnotes and other parts of the text can be derived *automatically*.

But I would like to stress that SGML has nothing to do with getting a piece of text on paper or on screen. For that, you always need a separate program. So, 'SGML or TEX' is not a question at all, since you can't compare SGML and TEX. Valid questions to be asked are:

- do you combine SGML and TEX, SGML and Ventura, or SGML and you-name-it?
- *how* do you combine, let's say, SGML and TEX?

Suppose you use TEX as a back-end to a document-preparation system based upon SGML. What sort of problems do you encounter then? If you make a list of these problems and add ideas from various other TEX experts, you get a very long wish list indeed. What extensions do we need to add to TEX? *Are* we going to

change TEX or are we going to build a completely new program?

3 Future of TEX

I'd like to spend a few minutes of my talk on this subject, since I'm not really happy with the current status of TEX. If you think the following is a bit provocative, well . . . , maybe it's intended that way.

To put it simply: I think the program should never have been frozen. Its author should either have continued developing TEX or handed over this work to a new implementor, or preferably a group of implementors. If this happens with professional—or, if you like, commercial—software, if you do not listen to the users of your program, or if you freeze a program, the software will be as good as obsolete after a few years.

I will not try to improve upon Frank Mittelbach's excellent paper 'E-TEX: Guidelines for Future TEX Extensions' [8], which he presented at last year's meeting in Texas. Rather, I will add a few of my own comments, or observations.

A big deficiency in TEX is the page-breaking algorithm and the tools TEX offers to program complicated page layouts, for example two-column or three-column with footnotes and floating bodies of 1 or more columns. If you use TEX as it now is as the back-end to an SGML-based system, page layout cannot be achieved fully automatically: manual work is still required. And even though TEX is intended to be used by a typist, not as a fully automatic back-end system, the more work the computer does without human intervention, the better. This makes the SGML–TEX combination far from ideal.

The same problem occurs if you use LATEX, which has a pretty complex output routine for scientific journals with a two-column layout, with lots of figures, tables and footnotes.

TEX users who have tried it know how difficult it is to let TEX typeset text—let's assume ordinary left-to-right text—in a language with lots of accented letters, ligatures and complicated hyphenation. Why are there no under-accents, multiple accents? Why is hyphenation of accented words or compound words with hypehns such a problem? I will use a few technical phrases from my own background, nuclear physics, as examples to show that the problem of hyphenating compound words, for example, is not just a problem of, say, the German or Dutch language.

Compound words are quite frequent in Dutch, for example:

`schillenmodel-berekening`

(shell-model calculation). Most TEX users would like to see TEX hyphenate this as 'schil-len-model-bere-kening', which TEX of course doesn't do.

But compound words of this type also occur in English:

`formation of a compound nucleus`

is hyphenated by TEX as 'for-ma-tion of a com-pound nu-cleus', whereas

`compound-nucleus formation`

is hyphenated by TEX as 'compound-nucleus for-ma-tion', instead of 'com-pound-nu-cleus for-ma-tion'.

There should have been a switch for this in TEX, but there isn't! Why wasn't the functionality of TEX–XET and everything else I've mentioned added to TEX 3?

It is my opinion that TEX would have been a better program if its creator had agreed to re-think certain choices he had made years ago, especially when users argued their case by showing what sorts of problems TEX poses, as was done by several of them in articles in *TUGboat*. Barbara Beeton explained to me some time ago that the decisions regarding TEX's accent mechanism—`\accent` or ligature, single or multiple accents, only above or also below and to the side?—were Don Knuth's decisions and his only; they were not based on discussions with other experts, which I think is unfortunate. I sometimes think—and this is not intended as a bad joke!—that certain parts of TEX would have looked different if Knuth had been German or Greek, because English is such an easy language to typeset, relative speaking!

And while TEX is superior in mathematical typesetting, there is still a lot to criticize in that area as well. An example is the spacing between the eight basic types of math atoms, which is hardwired into the program as a sort of matrix, instead of being accesible via parameters. This results in a lot of handwork if a particular house style deviates from TEX's rules. Again, I would like to refer to Frank Mittelbach's article and the work on $\mathcal{AMS}$-TEX by Michael Spivak.

Another example: where's the missing lowercase Greek?

	upright form	slanted form
lowercase letter	?	π
uppercase letter	Π	$\mathit{\Pi}$

In other words: why was it arbitrarily decided that there was no need for upright Greek lowercase letters in the Computer Modern fonts?

A lot of work still needs to be done. Whoever is going to do it, I think that the successor to TEX 3—the matter of the name, TEX 4 or E-TEX 1 or God-knows-what, is unimportant, the important thing is that there should be *one* successor, not several incompatible systems based on or derived from TEX—should not be developed and maintained by

- one single person
- one or more persons all working in one field of work, for example mathematics or physics

  - otherwise the successor to the font set that is now more or less standard, Computer Modern plus $\mathcal{AMS}$-Fonts, will contain exotic symbols such as $\precapprox$ and $\rightsquigarrow$, but not basic ones like the male and female symbols
- one or more persons all speaking the English language

During this conference there will be a panel 'The future of TEX'. An important subject, something the TUG board, TUG members and TEX users in general should think about a lot. As I said earlier: in principle, TEX has great potential for authors in *all* scientific disciplines and *all* languages, but only if the program is developed further.

4 Future of Publishing

The last topic I would like to talk about is the future of publishing. I don't think I am the right person to make prophecies concerning the future of publishing. Instead, I would like to present some ideas I have found in recent science fiction stories and novels.

One of the most striking ideas I've come across in the past couple of years is the idea of direct brain-computer coupling, as used by the Canadian author William Gibson, who is called the founder of the sub-genre 'cyberpunk', in his *Neuromancer* novels. With the direct brain-computer coupling, you can access any collection of data and it is as if you navigate with a virtual body through the space of data, which Gibson called 'cyberspace'. It is not such a weird idea at all, although an idea of the far future, and it is related to what people call 'virtual reality', a very popular phrase in some circles nowadays.

An idea that might become reality in the near future can be found in a book by the American science fiction writer, David Brin, in his latest novel 'Earth' [1]:

> If only it were a modern document, with a smart index and hyper links stretching all the way to the world data net. It was terribly frustrating having to flip back and forth between the pages and crude flat illustrations that never even moved. Nor were there animated arrows or zoom-ins. It completely lacked a tap for sound . . . in a normal text you'd only have to touch an unfamiliar word and the definition would pop up just below. Not here though. The paper simply lay there, inert and uncooperative.

To leave fiction and come back to the here-and-now: according to the Faxon Planning Report 1992 [3], Faxon Press'[1] poll of 52 periodical publishers, half of them commercial publishers, the other half non-profit organizations, a small majority of these publishers were quite worried about the future of publishing as we know it. Almost all of them still believe in the primacy of printed books and journals for decades to come. Is the vision David Brin presents something of the very far or of the very near future?

Just a few points to think about:

1. There are still librarians and scientists who see nothing whatsoever in electronic journals and books.
2. But the amount of information printed on paper increases exponentially.
3. And finding the right information becomes increasingly difficult.
4. Furthermore, increase of paper usage is also a serious environmental problem.

Well, you can't halt progress: electronic books are here already and their number will grow. In the transition period there is still another problem. An electronic book has to be available in paper form as well, since most readers still prefer a paper book.

Suppose you use TEX for the paper version, what do you use for the electronic version? How do you handle the two presentation styles? This is something I hope John Lavagnino will address in his talk on simultaneous electronic and paper publication of Thomas Middleton's complete works.

Is DSSSL[2] the answer to these problems, or FOSI[3]? What will the role of TEX be in non-paper publishing? I really don't know, but we should all think about it.

TEX is superior compared to desktop-publishing programs. It can handle mathematical formulas and complex tables, and this is a capability that is often lacking or poorly developed in desktop-publishing programs. Existing programs for the creation of electronic books also lack these capabilities: they can handle only text and graphics. If you want to include mathematical formulas or tables, the most sophisticated you can do is prepare bitmaps of these components—by means of scanning, or perhaps TEX?—and put these in the electronic document in the form of graphical objects.

5 Conclusion

This conference offers a great opportunity for discussions between TEX users and commercial professionals, since the programme contains a lot of talks about many different current applications. There are interesting panel discussions and hopefully there will be plenty of

[1] A large, completely automated subscription agent in the United States, involved in many activities.

[2] An ISO standard under development for the specification of document processing, such as formatting and data management [7]. The acronym stands for 'Document Style Semantics and Specification Language'.

[3] See the paper by Andrew Dobrowolski in these proceedings.

time for discussions during the breaks and in the evenings.

One of the goals of this conference is to try and bridge the gap—apparent or real—between the two poles of my first dichotomy: the author who is a TEX user, and publishers or other commercial professionals who want to accept TEX material. Looking at and thinking about present applications of TEX, as well as an historical perspective, can help to bridge this gap.

This conference is also a good opportunity to discuss the future of TEX, the future of publishing and the future of TEX-in-publishing. And I hope that it will be a success in all respects: that we will be able to find solutions to the problems I mentioned and those that will be described in the next four days—that we will be able to make gates in the fences and not just sit on the fences.

I'd like to thank the organization for inviting me to give this introductory talk. It was a pleasure to prepare and give this talk, and I feel honoured having been invited here.

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Report on Workshop Getting PostScript into TEX and LATEX Documents[1]

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1 Introduction

I had a very difficult time deciding how to conduct this workshop. I had mixed feelings because I did not have general solutions for all computer platforms and printers. It became a nightmare trying to solve just one platform, UNIX. So the more I worked on the preparing for the workshop, the sooner I realized that I should present the research on UNIX and open the floor for comments from those who attended.

This format worked wonderfully. The point of a workshop is to exchange ideas. Many interesting comments came out of the workshop and I would like to share them with all who attended the conference.

2 Anita Z. Hoover, University of Delaware (USA)

Anita presented her solution for the UNIX environment. The following information can be accessed via anonymous ftp from `zebra.acs.udel.edu (128.175.8.11)` in `pub/tex/postscript`.

- Document from workshop `psw.tex`
- LaserPrep files for System 7 (unmodified)
  `lprep71.pro` generated from a MacWrite file
  `lprep71md.pro` generated from a MacDraw II file
- `psfig.tex` macros for dvips version 5.47 (Tom Rokicki)
  The original `psfig.tex` can be accessed via anonymous ftp from
  `whitechapel.media.mit.edu (18.85.0.125)` in `pub/psfig` or
  `linc.cis.upenn.edu (130.91.6.8)` in `dist/psfig`.
- Filter to fix Framemaker (landscape and portrait), Splus and Mathematica `epsf_filter`

3 Edward A. Garay, Univesity of Illinois at Chicago (USA)

Ed presented a solution that he uses for the VM/CMS environment. The driver he is currently using is DVILASER/PS from ArborText Incorporated and `psfig` macros.

4 Calvin W. Jackson, Jr., California Institute of Technology (USA)

Cal talked about a group called SUMEX. He said that this group is a very good resource for information about Macintosh computers. Here is the readme file if you are interested in Info-Mac.

```
Welcome to the Info-Mac archive at
sumex-aim.stanford.edu [36.44.0.6].
Our software is available through anonymous FTP,
a mailserver, and the Bitnet shadow archives.

More information is stored in the
/info-mac/help directory:

accessing-files.txt -- instructions on accessing
                       and converting files
all-files.txt -- a list of all files in the archive
recent-files.txt -- a list of recently created or
                    modified files

To get there, type "cd help". Then either
"ls" or "dir" should show you the available help
files. Use the "get" command to transfer them to
your system. Since these files are text, no
special decoding is necessary.

NOTE:  As a volunteer staff, we do not have the
time to check every binary for viruses or system
compatibility.  You should always use caution
when running a downloaded binary.

Please read "help/posting-guidelines.txt" before
making a submission to the archives or the digests.

The Info-Mac Moderators
info-mac-request@sumex-aim.stanford.edu
```

[1] To be published in TUGboat, © 1991, TEX Users Group.

5 Shashi Sathaye, University of Kentucky (USA)

Shashi presented her solution for the VM/CMS environment. She is using a package called PsTEX. PsTEX is a BIBTEX-like processor for including figures into LATEX documents. Figures are included using the "`\psbox`" macro; this macro causes LATEX to make entries in the ".aux" file(s) for the job. PsTEX finds these entries, locates the corresponding POSTSCRIPT files (which should be in EPSF format as appropriate for dvips), and determines how to size the figure according to the options specified in the macro in LATEX, and according to the nominal size and shape of the POSTSCRIPT. PsTEX was originally developed for the UNIX environment, Shashi has made the necessary changes for VM/CMS and this is now available through the standard VM/CMS TEX distribution tape managed by Joachim C. Lammarsch.

She also said she was willing to port Tom Rokicki's driver (dvips version 5.47) to VM/CMS.

One week after the conference, Shashi had done the port to VM/CMS. She tested it for Computer Modern Roman fonts, and Edward Garay is currently testing the PostScript fonts. When the testing is complete, dvips version 5.47 will be available through the standard VM/CMS TEX distribution tape managed by Joachim C. Lammarsch.

For more information, e-mail to shashi@ms.uky.edu (Internet) for PsTEX (UNIX and VM/CMS) and dvips (VM/CMS). For dvips (VM/CMS), you may also send e-mail to Ed Garay at U12570@UICVM (Bitnet).

6 Standardization of \special

General comment about standardizing on the syntax of `\special` would be helpful as a first start for driver standards rather than trying to get all of the standards agreed upon.

7 Robert A. Adams, University of British Columbia (CANADA)

Bob presented his solution by using a package called MG (Mathematical Graphics System). From the first paragraph of his handout at the Conference,

"MG is a program for generating high-quality two- and three-dimensional mathematical graphics on an IBM PC (or compatible) computer, and for printing these graphics on a POSTSCRIPT output device. The POSTSCRIPT output of MG can be obtained either as an encapsulated POSTSCRIPT file for direct printing, or else as a pair of TEX readable POSTSCRIPT and Label files suitable for incorporating into a TEX document. In this case TEX will typeset the labels on the graph; the graph itself is relayed to the output device driver by a TEX `\special` command. Low- and high-level TEX macros are provided to enable such inclusion of TEX-labelled MG graphics in TEX documents."

From the last paragraph of his handout at the Conference,

"The MG System software is available on two 5.25 inch diskettes or one 3.5 diskette. When ordering, please specify which format you prefer. Single CPU licences for MG are being offered at US$ 95.00 or CAN$ 110 plus $5.00 shipping in the USA or Canada, or $10.00 overseas. Network and site licences are also available. Orders or inquiries should be sent to MG Software, 4223 West Ninth Avenue, Vancouver, B.C., Canada, V6R 2C6. E-mail inquiries: useradms@mtsg.ubc.ca (Internet), or useradms@ubcmtsg (Bitnet). Payment by cheque, or money-order. Institutional purchase orders are also accepted."

8 Jan Michael Rynning, K.T.H. Royal Institute of Technology (Sweden)

Jan made a suggestion for determining if your POSTSCRIPT file has font independence by scaling the entire document up or down a percentage. If the fonts remain unchanged, then your POSTSCRIPT file has font independence.

9 Roger B. Jagoda, Cornell University (USA)

Roger talked about an integrated network approach for Macintosh and UNIX computers. Here is a detailed description from Roger.

We have SPARCstations (SUN OS 4.1.1) and DECstations (Ultrix 4.2), both UNIX workstations, connected over a thin ethernet network (TCP/IP). The thin net connects to a Kinetics FastPath K-4 box (K-box) to our AppleTalk network. The K-box is the gateway from UNIX TCP/IP to the Macintosh AppleTalk protocol. It also converts between these two protocols. ALL printing (i.e. all the POSTSCRIPT LaserWriter NTX printing) is done on the AppleTalk side. There are no printers directly connected to any UNIX workstations. This is because we've found AppleTalk to be faster than 9600 baud. To let the UNIX workstations "see" the AppleTalk LaserWriter NTX printers, we use CAP (Columbia AppleTalk Protocols) ver. 6.01 from the network.

So what works? We use *Textures* from Blue Sky Research on the Macintoshes and they can do everything. Blue Sky Research now has available POSTSCRIPT fonts, so you can avoid the Computer Modern Roman font nightmares. But, DO NOT install ANY of these fonts into the Macintosh System Folder. . . only *Textures* is set up to use them and it can REALLY screw

things up for any other applications such as MicroSoft Word or Excel.

The UNIX side is a bit tougher. We have used two products successfully. We use Sitka (formerly TOPS) Corporation product, TOPS and that links the UNIX workstations so they can at least "see" the AppleTalk printers as "bsd line printers". However, this works for text files only. Xinet (Berkely, CA, formerly Mt. Xinu) also has a product to do this called K-Spool which works better (faster) than TOPS. Again this works for text files only. For PostScript, we use Adobe Systems Incorporated product, TRANSCRIPT, which Cornell has a site license for (~$900.00 per year to maintain, don't ask what the initial cost was, I just don't know). This software provides the filters and AFM (Adobe Font Metric) files needed for ANY UNIX box to prepare true POSTSCRIPT files (i.e. BoundingBox, etc.). The POSTSCRIPT file is sent to the LaserWriter NTX printers via TOPS or K-Spool.

The problems are related to the UNIX side, TOPS doesn't handle the K-Box routing as well as K-Spool and it's slower. Also, when you try to include POSTSCRIPT files, `psfig` is needed, otherwise the file never gets to the printers. We've traced this problem to the UNIX lpr program and how it interacts with the routing software. Without the K-Box, lpr STILL chokes on included files, so I think the K-Box may be innocent on this problem.

The Macintosh never has a problem as they are native to AppleTalk. They are just slow and all our data is on the UNIX side. Sun Microsystems Incorporated has a new way of prining called NeWSPrint, where the processing is done on the UNIX machine and then the POSTSCRIPT file is dumped to a dumb printer (no on-board smarts, like an HP Laserjet or similar beast). The problem is that to make it work you REALLY have to dedicate a whole CPU as a printer server with at least 32MB of RAM. I'd rather get the POSTSCRIPT printer and keep the CPU for as a usable system (screen/user/desktop).

For more information,
e-mail roger@ionvax.tn.cornell.edu (Internet)
or roger@crnlion (Bitnet).

10 David K. Steiner, Rutgers University (USA)

Dave presented a document that explains what programs, macro packages, and fonts are available for TEX, LATEX, SLITEX, $\mathcal{AMS}$-TEX, LA$\mathcal{MS}$-TEX on UNIX machines at Rutgers. This document also explains how to use various programs to create graphical output (in POSTSCRIPT) and include them into your TEX document.

It was discussed during the workshop that a document like this should be put together for general use. Perhaps the ideal situtation would be to have a document for each platform/operating system. We could use the standard installations and develop documents based on this information. Hopefully there will be overlap in certain areas.

11 Barry Smith, Blue Sky Research (USA)

Barry presented an integrated approach on the Macintosh using *Textures*. He also mentioned that Adobe will be coming out with there own print driver and this should eliminate alot of the Macintosh related problems. It is also important to make sure that your LaserPrep files match with the POSTSCRIPT file you are trying to include in the TEX and/or LATEX document.

He also pointed out that there is a problem with the Adobe Type Fonts for Computer Modern Roman when used with dvips version 5.47 (Tom Rokicki). The discussion lead to the fact that Tom was aware of this and the problem was being worked on.

12 Lee Thompson, University of Wisconsin (USA)

Lee presented some tricks that can be directly done in POSTSCRIPT. He was using `\special` commands with raw POSTSCRIPT that worked for DVILASER/PS from ArborText Incorporated. These `\special` commands can be adapted to work with other drivers and the POSTSCRIPT should still work.

Here is an example for "reverse printing" (reverse video—white on black). The basic idea is to generate a closed curve (in the simplest case, a rectangle outling the entire page), fill it with black, then set the halftone parameter to "white" before returning. Subsequent TEX output will then be "painted" in white on the black background.

```
% PostScript procedure for use by TeX \special
% to do reversed printing
% For the ArborText DVILASER/PS software,
% invoke by a line such as:
% \vbox to 0pt{\hbox to \hsize{%
%   \special{ps: plotfile rvrsprnt.psx}\hfil}}
% The syntax for other drivers will differ.
%
% Utility procedure:  lets work in inches
/inch {72 mul} def
gsave
% Make a black retangle that fills the page
0 0 moveto 8.5 inch 0 rlineto 0 11. inch rlineto
-8.5 inch 0 rlineto closepath
0 setgray fill
grestore
% Now, leave "graylevel" set to "white" when we
% go back
1 setgray
% That's all
```

(Note that this procedure deliberately violates on of the rules normally followed when invoking POSTSCRIPT

procedures; it returns to TEX with the graphic state of the laser printer altered.)

With more elaborate coding, one can fill only a specific area (say a rectangle with rounded corners) with black, let TEX set some type, then use another invocation of `\special` to restore the halftone to "black".

Comment by Anita Hoover: It would also be very easy to write a macro to enter the numbers being used in the POSTSCRIPT. You would probably have to change the way you include the raw POSTSCRIPT.

13 Final Comments

Solving the problem of getting POSTSCRIPT into TEX and LATEX documents certainly proved to be a difficult one. It appears that many working solutions exist for different computer platforms and environments. I hope this report can put you in contact with the right people to help you. Please feel free to contact me if you would like to add any information or comment on this report. There was a lot of good information exchanged at the workshop. I want to thank everyone who contributed to the workshop and this report. I could not have done this without you.

APPENDIX
Getting PostScript into TEX and LATEX Documents

UNIX environment

Anita Z. Hoover

1 Introduction

Most of the testing I did was based on the UNIX platform. My hope is that most of these ideas will help with the transition to other platforms. However, some of the programs are written specifically for the UNIX platform and therefore solving problems may not be so easy.

My basic environment consisted of the following:

- TEX 3.0 and LATEX 2.09
- `dvips` version 5.47 by Tom Rokicki
- Macro packages used to include POSTSCRIPT
  1. `psfig`
     These macros worked well because it allowed you to scale the height and width (soon to be available with dvips macros). It also allows a clip option if the POSTSCRIPT figure contained a lot of white space.
  2. `epsf`
     These macros are part of the `dvips` program, and with the exception of the added features mentioned above in `psfig`, is a fine macro package.
- `bbfig` to help calculate the BoundingBox values
  I first used this to calculate the BoundingBox values. If this did not work I would calculate it by hand using the great explanation in the `dvips` document by Tom Rokicki.
- The LaserPrep files for the Macintosh
  1. LaserPrep5.2, `"(AppleDict md)" 68 0`
  2. LaserPrep6.0, `"(AppleDict md)" 70 0`
  3. LaserPrep7.0, `"(AppleDict md)" 71 0`
- Three POSTSCRIPT printers
  1. HPIIIsi
  2. QMS-PS1500
  3. Apple LaserWriter
- Example POSTSCRIPT files
  1. Mathematic
  2. Macsyma
  3. S
  4. FrameMaker
  5. Macintosh Applications
     - CricketGraph
     - SuperPaint
     - MacDrawII
     - MacDraw (only for LaserPrep5.2)

2 Mathematica, Macsyma, S

Just incorporate the POSTSCRIPT file following the directions for `psfig` or `espf`.

3 FrameMaker

I found it the easiest to run the FrameMaker POSTSCRIPT file through a filter which fixes the location of the BoundingBox and changes the line which uses the BoundingBox called FMDOCUMENT.

4 Macintosh

4.1 LaserPrep5.2

You must include this file as a header in your document using the following `\special` command for `dvips`

```
\special{header=lprep68.pro}
```

Assuming you have your LaserPrep file as `lprep68.pro`.

Include your POSTSCRIPT file using `psfig` or `epsf` with the correct BoundingBox option. When you create this file from the Macintosh, the file should not contain the LaserPrep file.

```
\psfig{figure=file.ps,bbllxpt,bbllypt,%
bburxpt,bburypt}
\epsf[bbllx,bblly,bburx,bbury]{file.ps}
```

These POSTSCRIPT files printed on the Apple LaserWriter NTX, QMS-PS1500, and HPIIsi.

4.2 LaserPrep6.0

All that applies to LaserPrep5.2 (except you need to include the LaserPrep file for version 6.0), however these files only printed on the Apple LaserWriter NTX. I tried everything and could not get these to work on the other 2 printers.

4.3 LaserPrep7.0

Under System 7.0, the new Print Dialog Box now provides a button to create a POSTSCRIPT file. Doing so creates a file that automatically includes the LaserPrep file.

4.4 QMS-PS1500 and HPIIIsi Printer

All Macintosh POSTSCRIPT files that did not require fonts to be downloaded worked fine. In the case where a font needed to be downloaded, you must change the Macintosh POSTSCRIPT file so that `cexec` is something different. I changed it to be `texec` and this worked. I was able to combine all types of Macintosh POSTSCRIPT files this way in TEX and LATEX documents.

This method worked especially nice for the HPIIIsi. I ran into a problem for the QMS-PS1500, where the SuperPaint file did not translate properly. Following the method below for the Apple LaserWriter printer solved this problem.

4.5 Apple LaserWriter

I do not know why this happens, as I am not a POSTSCRIPT Language expert, but taking the same files that printed on the QMS-PS1500 and HPIIIsi did not print on the Apple LaserWriter. In order to consistently get these files to work, I needed to split out the original POSTSCRIPT files created by the Macintosh to **not** include the LaserPrep file. To do this, you need to delete the text from

```
%%BeginProcSet:
        ⋮
%%EndProlog
```

This is somewhat of a hassle, but I was able to get consistent results. I also needed to create 2 different LaserPrep files.

1. MacWrite, CricketGraph and SuperPaint
2. MacDrawII

I was not able to get the MacDrawII POSTSCRIPT file to print using the same LaserPrep file for the other Macintosh applications. Perhaps the difference was based on the downloaded fonts required for my MacDrawII example. I will have to do further investigation.

As a result of having to use 2 different LaserPrep files to print these specific applications, I was not able to combine MacDrawII POSTSCRIPT files with the other Macintosh POSTSCRIPT files.

5 Conclusion

I think the best thing to do is to just include the POSTSCRIPT file originally. If it does not print, see if there is a filter available to make the proper changes to allow it to print. Lastly, see if there is a logical change that can be made to the POSTSCRIPT file to make it work.

Also if you plan to mix different POSTSCRIPT files generated from different applications, you can expect to have problems.

The TUGLIB Server[1]

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1 Introduction

Scores of sites on the worldwide Internet now provide access to assorted collections of software relating to TEX and METAFONT. In many cases, these are accessible only via the Internet mechanism known as *anonymous* `ftp`, a scheme that permits logins from unknown users, usually on other machines, with very restricted access. The name `ftp` is an acronym for *file transfer protocol*.

Generally, only a portion of the file tree is visible to the anonymous user, and the command repertoire is usually limited to little more than directory listings and file retrieval. Only a few sites permit the anonymous user to deposit files in the anonymous login directory. Anonymous `ftp` provides a means whereby individual remote users can access file archives, browse around in the file tree, and retrieve selected files, all without troubling the staff or other users of the local machine.

While anonymous `ftp` has been enormously useful to the Internet community, it is available only between sites that have direct Internet connections, and on one of which, anonymous `ftp` logins have been enabled. Sites with only electronic mail connections to the Internet, such as those on other networks, like Bitnet, Junet, SPAN, and Usenet, and those on networks which are incompatible with the Internet, such as JANET in the UK, are prevented from using anonymous `ftp`. Similarly, sites on the Internet that have security restrictions, which includes many commercial, government, and military connections, may have restrictions that allow only e-mail access.

2 The TUGLIB connection

To improve the access to the TEX archives and other software at Utah, I have installed a modified version of the `netlib` server [1], which has been renamed `tuglib`. This server provides a means whereby remote users can send electronic mail messages containing service requests to a daemon program. The daemon parses the requests, logs them, and responds to them.

The `tuglib` daemon program runs on a local UNIX system at Utah, but the mail access is actually through a mail forwarding address on another machine, `tuglib@science.utah.edu`. The reasons for this separation are:

- `science.utah.edu` is a more widely-known host with a name which has been registered on the Internet for several years. It is therefore likely to be known on those machines which still have not upgraded from fixed host tables to domain name servers for Internet addressing.
- The `tuglib` software runs only on the UNIX operating system. `science.utah.edu` is a DEC-20/60 running TOPS-20, but in late 1990, it will likely be retired and replaced by a UNIX system that will answer to the same Internet host name (but a different numeric address).
- Separation of the server from the mail drop provides flexibility in configuration. In response to load patterns, we could change the machine running the `tuglib` daemon without having to make the change known to thousands of users who might wish to use the `tuglib` service.
- Through the wonders of NFS (*Network File System*), the UNIX system running the `tuglib` daemon is able to mount the TOPS-20 file system, because `science.utah.edu` runs an implementation of NFS developed by Mark Lottor at SRI. This makes the archives of two quite different machines available through a single service.
  Had we purchased NFS support software for VAX VMS, it would have been possible to provide ac-

[1] To be published in TUGboat, © 1991, TEX Users Group.

cess to our VAX 8600 as well; that will regrettably not happen, because our plans are to retire it a few months after the DEC-20.

The present configuration of `tuglib` provides several services:

- ask for help;
- list contents of a file directory;
- find a file in the archive;
- send one or more files; binary files are automatically encoded into a subset of the printable ISO/ASCII characters for e-mail transmission;
- query the TUG address file for membership information;
- check load libraries to determine file dependencies, so that if a request is made for a particular file, all other files that it references are automatically sent as well.

The last capability is not currently used by `tuglib`, since the bulk of the software in the distribution is TEX files (macros and fonts), rather than source code of mathematical libraries like LINPACK and EISPACK for which `netlib` library support was originally developed.

`tuglib` also provides some internal services, such as logging of requests (both successful and failed), and exclusion of users listed on an 'enemies' list. The latter has not yet been needed, but support is already there should it ever become necessary.

The log of successes provides a useful record of utilization of the service that may be needed to convince local administrators of its value.

The log of failures is useful in guarding against break-in attempts, or hogging of resources.

The log can also be for finding out whether alternate query syntaxes might be useful; for example, `envoyer`, `get`, `mail`, `request`, and `sned` are all recognized as synonyms for the `send` command.

`tuglib`'s e-mail responses come mostly from external files, rather than from text embedded in its programs, making it easy to customize for particular applications, and updates of textual information can be installed without recompilation of the software.

3 Getting help

The simplest command recognized by `tuglib` is `help`. It produces a response containing a short description of the `tuglib` service with sample commands.

Synonyms for `help` include `directory`, `index`, `info`, and `information`.

4 File retrieval

Files can be retrieved by commands of the form
`send filename` or
`send filename from directory`.
Punctuation is ignored, and unrecognized words are discarded. A request like

```
Please send me the index from the ftp
directory.  Thanks for your help.
```

is recognized: you will get both an index, and a help response.

Directories are named as in UNIX, that is, a series of one or more names, separated by slashes, with no embedded blanks. If no directory is specified, the top-level `tuglib` directory is assumed. Here are some examples:

```
send index
send index from ftp
send plain.tex from tex/inputs
send uudecode.c from support
send 00tdir.lst from tex/pub/cweb
```

UNIX symbolic links (duplicate names for the same file) are used to make particular file trees accessible to `tuglib`; the file in the last example, `tex/pub/cweb/00tdir.lst`, actually resides elsewhere in the file system (in fact, on the DEC-20 as the file `aps:<tex.pub>00tdir.lst`), but appears to `tuglib` to be the UNIX file with the absolute path `/tuglib/tex/pub/cweb/00tdir.lst`.

The top-level `tuglib` directory, `/tuglib`, contains only a small number of files at present:

`ftp`	symbolic link to the anonymous `ftp` directory on `science`
`support`	support software, mostly for encoding of binary files into printable characters
`tex`	symbolic link to the TEX tree on `science`

For security reasons, you cannot trick `tuglib` into sending an arbitrary file from elsewhere in the file system by specifying an absolute directory path in the `send` request. The leading slash is stripped, so that the file name *always* appears at or below the `tuglib` home directory.

`tuglib` does not provide any mechanism for wildcard matching of file names, mostly out of concern for security, and limiting e-mail traffic. Only those files that are explicitly listed in index files are visible via `tuglib` (unless the remote user is rather good at guessing names).

Ideally, each directory accessible to `tuglib` should have an index file named (naturally), `index`, containing names of files and a short description of their contents. Here is a portion of the index from the `ftp` directory, slightly edited to fit in these narrow columns.

```
PS:<ANONYMOUS>INDEX..7, 9-Dec-89 17:17:54,
Edit by BEEBE

This is an index of files available in
the anonymous ftp login directory on
science.utah.edu.

00DIR.CMD           -- FTP command file
                       to retrieve files
                       alphabetically
00DIR.LST           -- alphabetical
                       directory listing
00NEWS.TXT          -- brief
                       announcements
                       of new additions
                       to the collections
00PCDOS.TXT         -- setting up TeX for
                       PC DOS
...
TEX-FOR-APPLE-MACINTOSH.TXT
                    -- sources of
                       Macintosh TeX
TEX-FOR-ARABIC.TXT  -- sources of TeX for
                       Arabic typesetting
TEX-FOR-IBM-PC.TXT  -- sources of IBM PC
                       TeX
TEX-FOR-PICTURES.TXT-- combining graphics
                       with TeX
...
```

However, keeping such an index up-to-date is a demanding task, considering that at present, there are nearly 130 file directories and 8000 files in the TEX tree alone. Consequently, in most cases, only major directories will have an `index` file. To supplement these index files, a batch job is run periodically to automatically create four special files in every directory accessible to `tuglib`:

`00dir.cmd`	alphabetical list of files as `ftp` and `tuglib get` commands
`00dir.lst`	alphabetical verbose directory listing
`00tdir.cmd`	reverse time-ordered list of files as `ftp` and `tuglib get` commands
`00tdir.lst`	reverse time-ordered verbose directory listing

The `00dir.cmd` and `00tdir.cmd` files are handy for initiating a retrieval of a complete file directory, since their contents can be shipped back almost verbatim as requests to `tuglib`. The verbose directory listings contain file sizes in bytes and the last-write time stamp. A reverse time-ordered listing makes it easy to find out what is new.

The format of the directory listings depends on the particular operating system; here is part of the `00tdir.lst` file in the `tex` directory, which resides on TOPS-20; some reformatting has been necessary to make it fit here:

```
  APS:<TEX>
00LAST30DAYS.TXT.20;P777752 48 121566(7)
            23-Aug-90 03:08:41 OPERATOR
00LAST7DAYS.TXT.23;P777752   2 3641(7)
            23-Aug-90 03:04:47 OPERATOR
00RECENT.LOG.1;P777752       6 2707(36)
            23-Aug-90 03:02:14 OPERATOR
00DIR.CMD.1;P777752          1 2171(7)
            21-Aug-90 07:21:07 OPERATOR
00DIR.LST.1;P777752          5 11116(7)
            21-Aug-90 07:20:59 OPERATOR
00INVERTED-INDEX.TXT.15;P777752 6 15360(7)
            19-Aug-90 18:42:54 OPERATOR
...
```

Here is how to dissect one of these entries:

`00LAST30DAYS.TXT`	file name
`.15`	generation number
`;P777752`	protection bits
`6`	count of disk pages (512 36-bit words)
`15360`	count of bytes
`(7)`	byte size
`19-Aug-90 18:42:54`	time of last write
`OPERATOR`	user who last wrote the file

Unlike the UNIX file system, the TOPS-20 file system is case-*insensitive*; file names are conventionally spelled in upper-case, but you can write them in lower-case, or even mixed-case. Text files are normally stored with 7-bit bytes, which is sufficient for the ASCII character set; TEX binary files, and files intended for use on other systems, have 8-bit bytes; native binary files have 36-bit bytes. You can always omit the generation number, since the default is to return the highest existing generation. We could fetch the sample file by a request of the form `send 00last30days.txt from tex`.

While it would be possible to generate these directory listing files from the UNIX host, doing so would lose the byte-size information, which is needed for correct `ftp` access, so I prefer to generate them on the TOPS-20 host instead.

5 Finding files

With the large number of directories, and the limited directory listing access provided by `tuglib`, finding your way around a file tree as big as the TEX one can be a daunting task. To that end, batch jobs that run at regular intervals produce other helpful indexes:

`00inverted-index.txt`	inverted index giving, for each unique file name in the tree, a list of directories that contain it
`00last30days.txt`	a verbose directory listing of files changed in the last 30 days anywhere in the TEX tree
`00last7days.txt`	a verbose directory listing of files changed in the last 7 days anywhere in the TEX tree

Some directories will contain a file named `00readme.txt` which gives an overview of the directory contents. The `00` prefixes on these files are to make them come near the beginning of directory listings, where they are more likely to be noticed. On a case-sensitive file system like UNIX, they would probably be named entirely in upper-case letters, which, in ASCII, collate before the lower-case letters normally used for file names.

The large number of files available in an archive such as the one at Utah makes it rather difficult for external users to find desired files, since they are not able to login directly and use directory listing commands. The `tuglib find` command helps to remedy this problem. It searches two standard files, one of which is prepared by the `tuglib` maintainer and contains one-line summaries of the contents of every file directory, and the other is the `00inverted-index.txt` file described above.

A request like `find latex.tex` will produce a response with the names of all the file directories that contain the file `latex.tex`. Similarly, the request `find music` will list not only the name of the directory containing music fonts, but also all of the files found in that directory, because every line in `00inverted-index.txt` containing the text 'music' is matched.

6 Large files and binary files

Compared to `ftp`, electronic mail places some severe restrictions on file transfers:

- Message lengths are limited. 32 kilobytes is a reasonable upper bound; larger messages may be delayed, or returned to the sender, by some mail gateways.
- Messages may contain only printable characters; binary files cannot be sent without further encoding.
- Some IBM mainframe mail gateways corrupt mail that passes through them by having inconsistent inbound and outbound translations between ASCII and EBCDIC character sets. These may result in unrepairable many-to-one mappings; for example, curly braces are often mapped into the letters E and L, which is a disaster for TEX and C files.
- File names and file attributes cannot be automatically attached to e-mail messages.
- `ftp` is based on reliable network protocols like TCP/IP, and `ftp` transfers are always between pairs of machines, with no intermediaries, so file transfers do not corrupt files. E-mail often goes through intermediate machines that alter characters, truncate long messages, trim long lines or trailing blanks, or just discard the message altogether.
  These problems do not exist for Internet-to-Internet electronic mail, since it too is based on point-to-point reliable protocols, but they often occur in e-mail between an Internet site and one on some other network, like Bitnet or Usenet.
- A line beginning with a period terminates the mail message on some systems.

To deal with the message length limitation, `tuglib` automatically splits large files into parts which are mailed separately with distinctive headers, like `latex.tex (3 of 18)`.

File splitting is desirable even for `ftp` access, because long transfers may suffer timeouts that terminate the connection. A simple utility, `bsplit.c`, is available in the `support` directory, for splitting binary files into smaller parts. To avoid destructive padding with garbage characters on record-oriented file systems like VAX VMS, the sizes of each part (except possibly the last) are chosen to be a multiple of common file system block sizes, typically 512 bytes. For example, the command

```
bsplit -32768 fonts.tar
```

would split the file into 32KB parts named `fonts.tar-001`, `fonts.tar-002`, and so on. The original file can be recovered by appending the pieces in order; on a reasonable file system that provides alphabetically-sorted directories (or at least the illusion thereof) this can often by done by a single command using wildcard pattern matching, as in UNIX:

```
cat fonts.tar-??? >fonts.tar
```

Users on deficient file systems, like that of PC DOS, may have to work a little harder to reconstruct the original file.

`tuglib` normally refuses to mail very large files; this limitation is removed by making such files available in split parts.

Binary files are automatically recognized by `tuglib`, and are sent as *xxencoded* files. A file is regarded as 'binary' if it contains any non-printable characters other than carriage return or line feed, or if it has lines longer than 72 characters.

Because xxencoding is a new scheme developed for `tuglib`, a header is appended to the response to describe the encoding in sufficient detail to allow

the recipient to write a program to decode the message. Of course, decoding programs are available from the `tuglib support` directory, so in practice, few `tuglib` users will ever have to write their own decoder.

Xxencoding is a generalization of UNIX uuencoding, and the `xxencode` and `xxdecode` programs will handle uuencoding as well. Xxencoding was developed to deal with e-mail corruption, and to facilitate reassembly of large messages that have been sent in parts. Both encoding schemes represent three 8-bit bytes as four 6-bit bytes, and output is assembled into lines less than 65 characters in length, so as to avoid destructive truncation of long lines by anti-social mailing software.

Uuencoding biases the 6-bit bytes by 32, to move them into the range of printable ASCII characters. One variant of `uuencode` remaps the encoded blank (ASCII 32) to back accent (ASCII 96), which is the same character to `uudecode` (it only looks at the lower six bits in a character). This change removes blanks from the output encoding, and avoids damage from blank-trimming mailers.

Xxencoding instead maps a 6-bit byte into plus, minus, digits, upper-case letters, or lower-case letters, which is a 64-character set that is more likely to be immune to translation corruption. The translation table is included in the output, and will be used by `xxdecode`, so the encoding can survive one-to-one character remappings. `xxencode` also prefixes each line with a two-character sequence, 'xX', and on completion of encoding, appends a byte count and a CRC-16 checksum to the output.

Cyclic redundancy checksums are superior to simple checksums obtained by adding or exclusive-OR'ing data byte sequences. Such methods cannot detect bytes out of sequence, and can fail to detect even two single-bit errors, such as in two consecutive bytes with an inverted bit in the same position.

By contrast, the CRC-CCITT checksum used by the ANSI X.25, ADCCP, HDLC, and IBM SDLC protocols detects error bursts up to 16 bits in length, and 99 percent of error bursts greater than 12 bits. The CRC-16 checksum used by DDCMP and Bisync, and by `xxencode` and `xxdecode`, detects error bursts up to 16 bits, and 99 percent of bursts greater than 16 bits in length.

`xxdecode` ignores any line without the 'xX' prefix, allowing input to consist of a concatenation of several mail messages without the necessity of stripping mail headers and trailers. `xxdecode` also validates the byte count and checksum so as to detect corruption. Regrettably, `uudecode` has no comparable facility; it will happily produce garbage from corrupted input with no warning to the user.

Differences in end-of-line terminators on various operating systems are a minor nuisance; carriage return (Apple Macintosh), line feed (UNIX), and carriage return followed by linefeed (TOPS-20 and PC DOS) are all in use. All of these, and more, are supported on VAX VMS. As long as files can be transferred as plain text, `ftp` and e-mail handle 'lines', and line terminators appropriate to the receiving system will automatically be supplied. When files are encoded however, the line terminators are encoded with them. Thus, transfer of a file from one of the directories residing on TOPS-20 to a UNIX system will result in a non-native carriage return at the end of each line.

To deal with most of this problem, two utilities, `dos2ux` and `ux2dos`, are provided in a single shell bundle, `dos2ux.shar`, in the `support` directory. They take a list of files on the command line, and convert CR LF to LF or LF to CR LF, and also preserve the last write date of the original file. I've not yet written the `mac2ux` and `ux2mac` variants to handle conversion between CR and LF terminators, but they could be easily generated from the `dos2ux` and `ux2dos` code. Since the operations are so similar, it would probably make sense to merge them into a single utility whose operation was controlled by a command line option, or by the name of the file it was stored in.

Retrieval of a complete directory having many small files is painful because of the many `tuglib` requests needed. The solution is to make directory contents available in a single archive file, such as the `.arc` format widely used on PC DOS, or the UNIX `.tar` and compressed `.tar.Z` formats. Besides allowing a group of files to be retrieved in one request, the archive file preserves exact file names and importantly, file time stamps. We have made several large collections, including all of our public fonts, available this way.

Public-domain implementations of the `arc`, `compress`, and `tar` utilities are available for several operating systems, including PC DOS, TOPS-20, UNIX, and VAX VMS, so the use of these archive formats should not pose a problem for most `tuglib` clients.

7 TUG membership query

The TUG address data base is kept in a specially-formatted secret file in the `/tuglib` tree, inaccessible to anyone but the super-user (UNIX `root` login) or the `tuglib` daemon. A multi-line address like

> Nelson H. F. Beebe
> Center for Scientific Computing
> Department of Mathematics
> 220 South Physics Building
> University of Utah
> Salt Lake City, UT 84112

Tel: (801) 581-5254
FAX: (801) 581-4148
E-mail: Internet: beebe@science.utah.edu
TUG Board of Directors

is reformatted into a single-line entry with unprintable control characters separating the original lines.

The `whois` (or `who is`) command uses a shell script to invoke the UNIX `grep` command to find matching lines in the address file (ignoring letter case and punctuation), and then converts the magic separator characters back into normal newline characters. Thus, the above entry could be retrieved by any of several different commands:

```
whois nelson beebe
whois beebe
whois 581-5254
whois SALT laKe CiTy
```

Each word in the `whois` query is matched separately against the *entire* address entry. You need not remember people's initials, and you can use `whois` on parts of the address other than the personal name.

Of course, `tuglib` is still just a stupid computer program: if you send `who is Dave Kellerman`, it will not understand that `Dave` is short for `David` and it will fail to match `David Kellerman`. Personal names can be abbreviated to a leading prefix, however: `whois Don Knuth` will find Donald E. Knuth's address.

It is quite possible that multiple addresses match a `whois` query: `whois sweden` potentially can list the addresses of all TUG members in Sweden. However, organizations, including TUG, guard their membership lists with care, partly because such lists have commercial value, and partly out of concern for privacy. Germany, for example, has laws that severely restrict the use of address data bases. Consequently, `tuglib` will refuse to send more than a small number of addresses in response to a `whois` command, and it makes no provision for restarting a `whois` search. You cannot retrieve the entire list by a command like `whois *` (for the UNIX `grep` utility, the `*` matches zero or more of anything, that is, everything).

My original intent in setting up `tuglib` was to augment it with a mail forwarding service, such that electronic mail sent to an address like `malcolm.clark@science.utah.edu` would automatically be mapped to that member's real Internet address and forwarded. Such a forwarding list is maintained for the numerical analysis community on the machine `na-net.stanford.edu`; mail to `moler@na-net.stanford.edu` will always get to Cleve Moler, no matter where he is. This is a very convenient service, since a community of researchers can easily keep in touch, even though they may be moving often.

Consultation with the maintainers of `na-net` revealed that a surprising load is caused by this forwarding service, and at times, several CPUs are kept busy just handling the mail forwarding. Since the machines on which `tuglib` currently runs have many other duties as well, and provide `tuglib` as a free community service in their spare time, I abandoned further ideas for automatic mail forwarding.

The `whois` command eliminates mail forwarding overhead, since presumably an address will be looked up once, and then e-mail correspondence will be initiated directly by the users themselves. `whois` provides the additional service of supplying postal addresses, telephone numbers, TUG committee affiliations, and any other relevant information that happens to be recorded in the complete address entries.

There is nothing magic about the address data base handling. If you wanted to, you could easily eliminate the restriction on the number of matches returned, and then implement a recipe data base lookup to answer queries like `who is garlic`. A code change to accept the alternate request form `what has garlic` would then be desirable.

8 Future extensions

Since it built upon the lessons of `netlib`, I feel confident that `tuglib` is quite satisfactory in its current configuration. There are a few things that I would like to add, if time permits.

While automatic xxencoding of binary files avoids the e-mail problems noted earlier, for files that only happen to have tab characters and form feeds, encoding is unnecessary on Internet-to-Internet connections. On the other hand, perfectly normal TEX files sent in e-mail that goes through brace-corrupting gateways will be damaged, and may not be encoded by `tuglib`. These situations suggest that the remote user should be able to control whether encoding is applied, and if so, what form of encoding.

When `uuencode` can be used safely, it would probably be more convenient than `xxencode` for UNIX users, because `uuencode` is already available on UNIX. Other encoding schemes are available as well, including `atob` and `btoa`, and `bencode` and `bdecode`. This suggests an addition of new command verbs to augment the `send` command.

Directory listings are currently only available through the prior creation of the `00dir.lst` and `00tdir.lst` files in each directory. Perhaps it would be advisable to generate these dynamically in response to a `tuglib` command; they would then be guaranteed to be up-to-date, and disk space would not be used to store them. However, those files are also useful for anonymous `ftp` retrievals, because it is not always possible to get more than a bare list of file names from an `ftp dir` command; very often, the file sizes and time stamps are of interest too.

It might also be helpful to have a command like `sizeof tex/latex` to return the disk space requirements of a directory.

9 Acknowledgements

This work was carried out by the author with the support of facilities at the Department of Mathematics at the University of Utah.

My deepest thanks go to Eric Grosse and Jack Dongarra for having written the `netlib` system and published a paper about it [1]. I also want to thank Eric Grosse for making the `netlib` software available to TUG for modifications to create `tuglib`, and for keeping a record of everyone who has received `netlib` so they can get bug fixes.

Thanks also go to the TUG Board of Directors for helping in the testing of `tuglib`, and to Don Hosek and Joachim Lammarsch for many useful conversations and electronic exchanges.

Finally, we owe an enormous debt to the people who support and develop the Internet and make it freely available to a worldwide community connecting hundreds of thousands of machines, and perhaps over a million users. Without their foresight, many collaborative efforts the world over would be effectively impossible.

References

[1] Jack Dongarra, Eric Grosse, 1987. *Distribution of Mathematical Software via Electronic Mail*. CACM, 30(5), 403–407.

Self-replicating macros[1]

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The problem of writing a program that gives its source as its output is one of the oldest conundrums of computer science. (An extended discussion can for instance be found in [1]) The basic idea of any solution is probably to write (in meta-language):

```
Initial_operations;
Print_Twice(Initial_operations;
Close_off;);
Close_off;
```

Of course there is the problem that the procedure '`Print_twice`' has to be defined, and its call printed, but that's a minor point . . .

Here are two solutions to this problem in plain TEX, first one that print itself, in typewriter type, and on an otherwise blank page.

```
\output{}\def\do#1{\catcode‘#112}
\def\t{\dospecials\obeylines\tt~}
\def~#1^^:{#1#1^^:\end}\t
\output{}\def\do#1{\catcode‘#112}
\def\t{\dospecials\obeylines\tt~}
\def~#1^^:{#1#1^^:\end}\tz
```

The following solution is a variation on the original theme: it gives the source as message on the screen.

```
\catcode 13=12 \newlinechar 13
\def \a #1{\let \#\relax \let \a \relax
     \newlinechar 13\immediate \write 16{#1
\catcode ‘\#=12 \a {#1}}\end }
\catcode ‘\#=12 \a {\catcode 13=12
     \newlinechar 13
\def \a #1{\let \#\relax \let \a \relax
     \newlinechar 13\immediate \write 16{#1
\catcode ‘\#=12 \a {#1}}\end }}
```

The reader may enjoy coming up with more variations, for instance a LATEX document that produces itself, or a plain TEX document that produces its LATEX source, or . . .

References

[1] Douglas Hofstadter, Gödel, Escher, Bach, an eternal golden braid. New York 1979.

[1] To be published in TUGboat, © 1991, TEX Users Group.

New books on TEX[1]

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Even though English seems to be understood by just about everyone nowadays[2], TEX books in other languages still serve a useful purpose. Sometimes it looks as if the whole of Germany learned LATEX from Helmut Kopka instead of from Leslie Lamport, and in France Raymond Seroul's *un petit livre de TEX* is very popular. In both cases, the rest of the world is getting a chance to see what it's been missing. Kopka's introductory volume (see elsewhere in this issue) is being translated, and Seroul's book has just appeared, under joint authorship with its translator, Silvio Levy.

A Beginner's Book of TEX (Springer Verlag, New York, 1991, ISBN 0-387-97562-4) is more than just a translation of the earlier book[3]. Levy is described as 'translator-turned-coauthor', and the most visible difference is the incorporation of the features of TEX version 3. The result is a rather handsome volume. For one, the text is very well-written, never feeling like a translation. The worst errors that I found were the misspelling 'wierd' which appears twice; the idiom 'head over heels' is used where something like 'topsy-turvy' was meant, and the reader is told once that by finding an error in TEX 'you'll earn your prize and a place in the official listing of TEX's (former) bugs'. In general, the style of writing is the type of 'dialogue with the reader' that characterizes the TEXbook.

Another good point about the book is the rather open layout. The typefaces used are Times Roman and (its inevitable companion) Helvetica. Choosing these typefaces instead Computer Modern, while in itself not too adventurous, removes the book immediately from the spheres of 'yet another book done with the TEX font'. The Computer Modern family is used to show examples of TEX output. A nice idea, although the effect is sometimes rather subtle, if just a single word of Computer Modern appears in a paragraph of Times.

My only criticism of the layout is that the book itself uses `\parindent=0pt`, so the output of some of the examples is different from what the ordinary user (who sticks to the default value of the indentation) will get. The authors should have made a remark about this, or have prevented this from happening altogether.

The structure of the book is as follows. Chapter 1 is an introduction, chapter 13 is the 'Dictionary and Index', and in between are chapters that each treat an aspect of TEX, for instance modes, glue, paragraphs, math, or TEX programming. Although the final chapter is at 90 pages a generous one, and, well-stocked with examples, more than a mere index, I was most impressed with the expository chapters. They are meant for careful reading through them, rather than for easy reference (although the index refers back to the them), but they contain an amount of information that is very respectable for an introductory book. It pleased me particularly to read the section on modes, a subject that is shunned by all other introductory books on TEX so far. The book contains many examples that illustrate their point well.

Of course, this book doesn't treat everything about TEX. The chapter on page layout has many examples, but, understandable, doesn't go very deep into output routines. The control sequence `\expandafter` appears only in the Dictionary, and even there the reader is told that 'this subtle primitive is not for beginners'.

I have one comment about the Index/Dictionary, and that is that it contains too many irrelevant entries for my taste. It was the authors' idea to make the index refer to the examples 'by content', but it irritates me finding the likes of Humpty Dumpty and Bilbo Baggins

[1] To be published in TUGboat, © 1991, TEX Users Group.

[2] Maybe excepting the American students who just scored an all-time low for their language abilities on the Scholarly Aptitude Test.

[3] In this reviewers opinion, however, the title has suffered from the translation. The original title had more of a *je ne sais quoi*.

all over the place.

In general, however, I found little to complain about in this book. There are hardly any TEX errors, and the ones that I found are not very serious. The worst error was that the authors claim that the keywords `height`, `depth`, and `width` have to appear in that order, whereas they may appear in any order. A case of misleading information is that the authors repeatedly recommend `\vglue` where the plain format of TEX version 3 has `\topglue`. Some other comments: the authors talk about 'the family `\fam1`' as if it were an identifier like 'the font `\MyFont`', whereas it is an assignment; calling `$` with category 12 an 'active character' because it prints as a dollar (page 173) is an unfortunate choice of words; and the reason that there are 18 `mu` to a quad may be an obscure one, but it is not 'only known to Knuth' as the authors state: the division of a quad in 18 basic units has been the standard for Monotype equipment for ages (this fact also appears in the space of the computer modern fonts: for the roman font the space is 1/3em plus 1/6em minus 1/9em).

All of this is minor squabbling. This book does an admirable job of bringing together in single chapters enough information about topics in TEX for a starting TEXer to be able to 'typeset just about any document'. It is superb as an introductory reading text, and the Dictionary/Index can be used for reference later on.

Impression INRSTEX, and some more

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1 Prelude

Hi Michael,
Thank you very much for the INRSTEX materials: the soft bound syllabus and floppy with the system. At the moment I can't read these high-density floppies but I trust it contains the INRSTEX manual, while the syllabus reflects the reference book. I read the reference book and in order not to let my energy go into thin air, and feeling obliged to you, I decided to comment the manual and with your consent publish this 'Impression', adopted to MAPS style, in next NTG's MAPS.
Kees

2 Impression of INRSTEX

INRSTEX is a macro collection on top of plain TEX developed by Michael J. Ferguson. The version I received was dated 1986/4/8. So the most simple observation is that it does not reflect TEX version π. INRSTEX has similar functionalities as LATEX. The reference book is quite elaborate on how to use INRSTEX and well-done. For inclusion of figures TEXgraph is used. TEXgraph is built upon the graphic primitives of the QMS laser printer. The latter approach is outdated because most people use nowadays encapsulated PostScript for that purpose. Moreover, other more recent graphic capabilities —like PiCTEX or Capture— are not mentioned. The mentioning of similar work is in general lacking in the syllabus. The syllabus I read contained page 137 and 138 in wrong order.

With respect to TEX and INRSTEX my general impression is that the syllabus is thorough and well-done. Personally, I would have liked references to the pages in the TEXbook to be included, for explanation of more details. Despite this positive impresssion I have the following critics, though.

2.1 Fonts

The fonts chapter needs adaptation with respect to: virtual fonts, font selection schemes, and cmr instead of amr usage.

2.2 Math

The math chapters can be improved by adapting the macroscopic and microscopic viewpoints: how is the math entity positioned within the surrounded text, and how are the math commands combined in order to obtain the entity proper. Furthermore, I would like the list of math symbols to be structured into the different symbol classes similar to the way it is done in appendix F of the TEXbook. I missed how to obtain correct sizing of newly created operators dependent upon the context of usage. Agreed the use of `\buildrel` is mentioned, but that is not enough. With respect to automatic equation numbering, I pity that parentheses around the equation number to be part of the copy and not a result of the used format. The `\smash` command is not accompanied by a (practical) example, nor is the empty formula concept introduced, which is sometimes handy in multi-line math alignments. Not to speak about the effect of a pair of braces around an operator. (Changing a formula class into class 0.) The hyphenation of long math formulas, and how to achieve that with (INRS)TEX, is not mentioned either.

2.3 Table making

For table making the complicated example on page 106/107 consists of one header row and two contents rows, with the header row substructured. The (INRS)TEX encoding needed something like 11 rows. An unnecessary and unwanted discrepancy between the (descriptive) structure and the TEX encoding. Provide one headerrow, and two contents rows with the text in the first column appropriately placed in a `\vbox` with suitable `\hsize`, vertically centered for each row.[1]

2.4 TEX example book?

The publication made me curious with respect to the TEX Example Book, which was alluded to, without a concrete reference. I'm also curious to the INRSTEX

[1] In the Dedham preprints Michael Downes mentions Cowan's work —tables.sty— which has the unique feature that you don't have to type the preamble line setting up the format of the columns in the table. The format is determined automatically by the contents of the table! (Michael has used it for simple examples and it worked well. Interesting).

manual with all the macros listed and programming decisions explained. From the way the complicated example about table making was encoded, I expect the TEXniques 2 issue: Table making - the INRSTEX method, not structural simpler than plain's facilicities, nor do I expect table encoding to be guided by the descriptive approach.

2.5 Bi-linguality

But, . . . the bi-lingual aspect, an issue Michael has paid attention to for so long a time, is a strong point, further elaborated in MLTEX.

3 Michael's comments

3.1 INRSTEX

I have a brand new package with an updated Reference book. It now includes the graphics and is based on cm fonts rather than am. The font selection mechanisms of LATEX are not terribly important because INRSTEX font families, eg `\tenpoint`, . . . automatically choose the correct fonts for section headings, etc.

3.1.1 Description

INRSTEX is a complete document preparation package, including graphics for document preparation. It was designed from the beginning for use in a bi-lingual (French/English) environment. The system, excluding its graphics component, is usable with any TEX system but is most useful, when using ordinary 'cm' fonts with an MLTEX system. TEXGraph will work with any reasonable PostScript driver ans has been specialized here to work with a modified modified version of Nelson Beebe's DVIALW on the IBM PC and uses Tom Rokiki's DVIPS on the UNIX workstations. The PC Version of the package includes an MSDOS version of the modified DVIALW.

The INRSTEX macro package kernel is built on top of PLAIN. All the facilities of plain are left intact and available. Additional facilities are included for

- section and chapter heads,
- lists,
- easy tables,
- floating figure and table insertions,
- footnotes,
- automatic generation of table of contents, list of figures, and list of tables,
- automatic numbering of equations, section heads, etc.,
- symbolic referencing of equations, sections, etc.,
- optional margin notes to aid in keeping track of symbolic references,
- automatic generation of citation lists (IEEE style only),
- a subdocument feature for building large documents in pieces,
- a verbatim style using `typewriter` fonts for such things as program listings,
- a several document styles including a paperstyle and bookstyle,
- TEXgraph,[2]
- slide making including graphics for letterhead.

3.1.2 FTP availability

I am making the INRSTEX document preparation package available over the network. There is both a unix and a pc version available. These differ only in the way they handle auxiliary files and graphics.

It is available from:
`aldebaran.insl.mcgill.ca` (132.206.94.5)
`/pub/inrstex/pc` (directory for the pc)
`/pub/inrstex/unix` (directory for the unix version).

3.2 MLTEX, Oct. 1991

Next to INRSTEX information, Michael also provided information about MLTEX.

3.2.1 Description

MLTEX is modification of TEX3.+ that allows hyphenation of words with accented letters using ordinary "cm" fonts. It does this by translating TEX's internal code, following the TEX EC standard, into an equivalent ⟨accent⟩⟨letter⟩ just before the character is sent out to the .dvi file. These modifications have been called, internally "charsubdef".

In order to use it, you must merge the `char_sub.ch` file with the appropriate change file for your port. This `char_sub.ch` change file is essentially system independent.

3.2.2 FTP availability

The change files for MLTEX are available on
`aldebaran.insl.mcgill.ca` (132.206.94.5)
`/pub/mltex` (directory).
The files included in both `mltex.zip` and `mltex.tar.Z` are as follows:

1. `char_sub.doc` —charsubdef documentation.
2. `char_sub.ch` —change file for charsubdef, modified May 1991, missing characters in sub list.
3. `extdef.tex` —an essentially ISO-Latin 1 definition of charsubdef . . . including uccodes (Mar 91).
4. `compatible.tex` —a set of macros to translate accent sequences into internal 8 bit codes. This set also includes inverses for the characters.

[2] A graphics system for drawing figures and inserting external figures. This uses the graphics primitives of PostScript. It is inside rather than outside the TEX system.

5. `masthyph.tex` —a master hyphenation control file that allows pattern files with accented letters to be input with the accented letters given by TEX's backslash codes eg `\'e` for . . . ,
6. `frhyph.tex` —a (the?) French hyphenation file illustrating the \. . . coding in the patterns.
7. `ctex_csb.ch` —The Unix change file for converting TEX 3.14 to Big MLTEX.

Yours,

Michael J. Ferguson
`mike@inrs-telecom.uquebec.ca`

$\mathcal{AMS}$-TEX

Ralph Youngen

I wish to thank everyone who has used the recent versions of the $\mathcal{AMS}$ products and reported bugs or suggestions to the $\mathcal{AMS}$ Technical Support group. The purpose of this mail is to announce an incremental posting of new versions of several files in our TEX distribution on `e-MATH.ams.com`, subsequent to our major upgrades which were posted on July 2. The version numbers for the products themselves will remain unchanged: $\mathcal{AMS}$Fonts and $\mathcal{AMS}$-TEX are version 2.1, and $\mathcal{AMS}$-LATEX is version 1.1. However, the version numbers embedded into any updated files (listed below) have been incremented by adding a letter to the version number. For example, `ams/amsfonts/doc/userdoc.tex` is at version 2.1a, but `ams/amslatex/doc/amslatex.tex` is at version 1.1b because it has been updated twice since version 1.1 of $\mathcal{AMS}$-LATEX was released.

Changes to $\mathcal{AMS}$Fonts 2.1 are in the documentation only. Changes to $\mathcal{AMS}$-LATEX 1.1 are in the documentation, as well as a some bug fixes. See the amslatex.bug file for details. Changes to $\mathcal{AMS}$-TEX 2.1 are in the documentation, as well as a few bug fixes. See the amstex.bug file for details. Changed to files in the author-info area are bug fixes which caused TEX errors to occur in previous versions.

Additionally, at the request of several people, we have made tar archives of the $\mathcal{AMS}$Fonts pk files available for retrieval by FTP. These tar archives are broken down by resolution and can be found in the main `/ams` area where the other tar archives live. See the `ams/READ.ME` file for more details.

Below is a list of all files that have changed on `e-MATH` since the major posting on July 2, 1991 (excluding tar archives). We ask that archive maintainers please consult this list and retrieve these files from `e-MATH` to update the ams area on your own archive.

Archive maintainers should feel free to report any problems or questions concerning this update directly to me at `rey@math.ams.com`. Bug reports, general questions, or suggestions should continue to be sent to `tech-support@math.ams.com`.

Thank you.

Ralph Youngen
Supervisor, Technical Support
American Mathematical Society
Internet: `rey@math.ams.com`

```
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ams/amsfonts:
        6495 Sep 13 15:18 READ.ME
ams/amsfonts/doc:
       20351 Sep 13 15:17 userdoc.def
       29498 Sep 13 15:17 userdoc.ins
       53989 Sep 13 15:17 userdoc.tex
ams/amslatex:
       19887 Sep 13 15:20 amslatex.bug
ams/amslatex/doc:
       62362 Aug  7 09:45 amsart.doc
       15660 Aug  7 09:45 amsbook.doc
       16643 Sep 13 15:19 amslatex.aux
      158726 Sep 13 15:20 amslatex.tex
        8853 Sep 13 15:20 amslatex.toc
       88056 Aug  7 09:48 testart.tex
ams/amslatex/inputs:
       25709 Aug  7 10:03 amsart.sty
        9575 Aug  7 10:03 amsbook.sty
        9431 Sep 13 15:19 amsfonts.sty
       11304 Sep 13 15:21 fontdef.ams
ams/amstex:
        5112 Aug  7 10:31 amsppt1.tex
        7115 Sep 13 15:23 amstex.bug
ams/amstex/doc:
       73452 Sep 13 15:22 amsguide.tex
       21688 Sep 13 15:22 amstinst.tex
ams/author-info/guidelines:
       19695 Aug  7 10:14 amsl-art.tex
       17716 Aug  7 10:14 amst-art.tex
       63170 Aug  7 10:14 amst-gid.tex
       12113 Aug  7 10:14 amst-mon.tex
ams/author-info/sty-files:
       28478 Sep 13 15:23 memo.pkg-amstex

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```

LAMS-TEX

Michael Spivak

spivak@rice.edu

1 The Software

LAMS-TEX (version 2.01) is now public domain.

The MS-DOS version is available by anonymous ftp at
`math.berkeley.edu`
in `/pub/lamstex`.

A UNIX version, a compressed tar file, is available by anonymous ftp at
`june.cs.washington.edu`
in `~ftp/tex`.

You might also try
The TEX Users Group (TUG)
P. O. Box 9506
Providence, RI 02940-9506
Phone 401/751-7760
FAX: 401/751-1071
Internet: tug@math.AMS.com

I do not know of any MAC source at the present time.

2 The Documentation

The LAMS-TEXManual, 'LAMS-TEX, The Synthesis', approximately 300 pages, wire-bound, is $30.00, including postage (book rate, surface mail). For first class mail in the United States add $1.50. For air mail to Europe, Canada and Mexico, add $7.50. For air mail elsewhere add $9.50.

'The LAMS-TEX Wizard's Manual', presumably of very limited interest, is printed on demand. It explains the code of LAMS-TEX in thorough, complete, and nauseating detail.

It is 600 pages, printed by laser printer, on (both sides of) 3-hole punched paper (or regular paper, if you prefer). The cost is $40.00, including postage (again book rate). For first class mail in the United States add $2.50. For air mail to Europe, Canada and Mexico, add $15.00. For air mail elsewhere add $20.00.

This is actually only Volume I, and covers the material in Part I of 'LAMS-TEX, The Synthesis'. Volume II will not appear for quite a while, if at all. It should be noted that the material in Volume I covers virtually anything needed by style file designers, because commutative diagrams and tables already allow customization, as explained in 'LAMS-TEX, The Synthesis'.

'The LAMS-TEX Style File Designer's Manual' is still being written. It is essentially a considerable condensation of the 'Wizard's Manual', covering only the parts that are of importance to style file designers, although with some elaboration on those parts. It will probably be about 200 pages, wire-bound, and probably be sold for some bargain price.

The TEXplorators Corporation
3701 W. Alabama, Suite 450-273
Houston, TX 77027
713-524-5515
FAX: 713-523-6743

ScholarTEX

Yannis Haralambous

ScholarTEX is a collection of fonts, macros, preprocessor, hyphenation patterns, other related software and a 150-pages manual with many illustrations, exemples, exercises and mottos. It's purpose is to allow the use of TEX in the following alphabets:

- **Greek:**
  ancient as well as modern; input in 8-bit mode or entirely in 7-bit mode through ligatures; special Oxford symbols for epigraphical texts; hyphenation patterns in 7 or 8 bit mode. End-of-word ligature used for the final sigma.
- **Epigraphical Greek & Latin:**
  over 200 glyphs of letters coming from ancient inscriptions; two fonts: the second being the mirror-image of the first is used for automatic boustrophedon typesetting; simplified input in an active uppercase letters environment.
- **Armenian:**
  calligraphic or plain; slanted or straight; lowercase letter ligatures; input in 8-bit mode or entirely in 7-bit mode, through input ligatures; hyphenation patterns in 7 or 8 bit mode.
- **Arabic:**
  for Arabic, Persian, Ottoman, Urdu, Pashto, Malaysian; input encoding user-defined; possibility of transliterated output; insertions and marginal notes; compatibility with LATEX and TEX–XET; unpointed letters for old manuscripts.
- **Hebrew:**
  Hebrew and Yiddish; input encoding user-defined; possibility of transliterated output; insertions and marginal notes; compatibility with LATEX and TEX–XET.
- **Syriac:**
  Estrangelo; input encoding user-defined; possibility of transliterated output; insertions and marginal notes; compatibility with LATEX and TEX–XET.
- **Saxon**
- **Old German:**
  Fraktur and Schwabacher; end-of-word ligature used for the short s; hyphenation patterns adapted.
- **Phonetic alphabet:**
  the WSUIPA fonts (public domain) compiled and their original documentation reproduced.

The aim of ScholarTEX is to provide scholars the tools needed to typeset classical texts like the Bible (Hebrew, Syriac, Greek, Armenian), the Coran (Arabic), Homer's Poems (Greek), the Anglo-Saxon Chronicle (Saxon), Goethe's Faust (Old German) etc. ScholarTEX is an evolutive package: according to the specific needs of users, new glyphs can be added or the existing modified.

ScholarTEX is available in three versions, all three featuring bitmap (magstep 0 to 5), PostScript Type 1, EPSF and TrueType fonts, as follows:

Version	**Mac-Textures**	**Mac-OzTeX**	**PC**
Bitmap fonts	Mac Suitcase	PK & TFM files	
PostScript	Macintosh Type 1 Format (Type 1 font, suitcase and AMS file)		PC Type 1 (AFM, PFM, PFB)
TrueType	Macintosh TrueType suitcase		PC TrueType (TTF)

PostScript Type 1 fonts are also available for the NeXT device.

ScholarTEX also serves as a platform for the distribution of related public domain software after kindly permission of their authors; in all cases the original documentation is reproduced and the software is ready-for-use. For this release of ScholarTEX are included:

- the WSUIPA fonts, as already mentionned,
- the SB32 implementation of TEX–XET and ivd2dvi (in the PC version).

The price of ScholarTEX is $200 for individual users (please specify the version required); add $100 to obtain the sources (metafont, Pascal-WEB, PostScript). The price for Academic Institutions and Publishers is $500 (sources included).

For orders or information please contact:

Yannis Haralambous
101/11, rue Breughel
59650 Villeneuve d'Ascq, France
Bitnet: YANNIS@FRCITL81
Fax: (33) 20910564

Table of Contents TUGboat

Volume 12.1 and 12.2

March/June 1991

TUGboat tables of contents files are on `math.utah.edu` in `~ftp/pub/tex/pub/tugboat`, also accessible via `tuglib@math.utah.edu` server by "send index from tex/pub/tugboat".

1 TUGboat 12.1 (March 1991)

2 TUGboat 12.2 (June 1991)

'Insights in TEX' course

preliminary announcement

by David Salomon

Abstract

This course, with no hands-on, is aimed at TEX and LATEX users who are ready for to acquire more insights into the TEXnigma. For those who are still working at the 'book' level an extra one-day introductory course can be organized if need for that is large enough.

1 Course outline

Day 1: Introduction to TEX. The cm fonts. Tables (examples). Math typesetting (some advanced features). Modes of TEX.

Day 2: Boxes & glue. Paragraphs & Horizontal mode.

Day 3: Macros (advanced features & examples). Leaders. Tokens & \toks registers.

Day 4: File I/O in TEX. Examples of two-pass jobs. Output routines.

Day 5: Insertions. The line break algorithm (in detail). The page break algorithm (in general). The last afternoon can be spent to capita brought in by the participants.

2 Who? When? Where? How much?

Who? TEX and LATEX users.[1]

When? It is aimed at early June, 8–12th. The date is not completely fixed yet.

Where? Probably at the CWI, Amsterdam.

How much? For NTG members and member of similar user groups a flat Fl 100,– (no lunches and refreshments are comprised).
For non-NTG members Fl 500,–.[2]

The teacher is David Salomon, a well-known TUG teacher, and famous for among others his lucid tutorials in TUGboat. He is also a pedagogical gifted teacher, as I (Kees van der Laan) can tell from experience, attending his Dedham class.

3 How to subscribe?

Via snail Send a note, mentioning 'Insights in TEX'-course subscription along with name, complete address, phone number and email, to

> Kees van der Laan
> Hunzeweg 57, 9893PB
> Garnwerd, The Netherlands
> 05941–1525

Mentioning of topics for the capita afternoon is very much appreciated.

Via email Send a subscription note, mentioning 'Insights in TEX'-course along with name, complete address, phone number and email, to

> `cgl@rug.nl`.

Payment Along with the subscription, payment of the fee has to made to

> Penningmeester NTG,
> Giro: 1306238
> mentioning 'Insights in TEX' course.

There is always the (improbable) possibilty that the course might be cancelled.

[1] For those who have no experience with TEX or LATEX an introductory one-day course can be organized, at additional costs, assuming enough participants.

[2] For those who don't believe in a quality course for that fee, it must be explained that NTG subsidizes the project. So it is a unique opportunity. NTG's philosophy is to provide the opportunity for members to increase their general TEXnowledge in one stroke.