A Sample Document

Author's Name
Author's Affiliation and E-mail Address

Abstract: This is a sample input file. Comparing it with the output it generates can show you how to produce a simple document of your own.

Keywords: sample, Word

1. Ordinary Text

All ordinary text is in Times New Roman, 11-point type (style "Normal"). Text for the table and figure is in Times New Roman, 9-point type. The ends of words and sentences are marked by a single space. Paper size is A4. **Please do not put page numbers. Please follow the template closely and do not do any adjustment to the template. Please submit source and PDF files. The paper is strictly limited to a maximum of 16 pages. But it should not be shorter than 8 pages.**

One or more blank lines denote the end of a paragraph. With the exception of the first paragraph, subsequent paragraphs in each section are indented .25".

Dashes come in three sizes: an intra-word dash, a medium dash for number ranges like 1–2, (en dash) and a punctuation dash— like this (em dash).

Text that needs special emphasis should be in an *italic* type style. *A long segment of text can also be emphasized in this way. Text within such a segment may be given additional emphasis with* Roman *type. Italic type loses its ability to emphasize and become simply distracting when used excessively.*

It is sometimes necessary to prevent text from breaking a line where it might otherwise do so.

This may be at a space, as between the "Mr." and "Jones" in "Mr. Jones", or within a word.

2. Notes

Footnotes[1] may be included. Endnotes[i] may be included as well.

3. Displayed Text

In addition to the "normal" type style, you may use "quotation" style when appropriate. There are short quotations:

This is a short quotation. It consists of a single paragraph of text. The entire paragraph is indented.

[1] An example of a footnote.

and longer ones.

> This is a longer quotation. It consists of two paragraphs of text. The beginning of each paragraph is indicated by an extra indentation.
>
> This is the second paragraph of the quotation. It is just as dull as the first paragraph.

Another frequently-displayed structure is a list. The following is an example of an itemized list.

- This is the first item of an itemized list. Each item in the list is marked with a bullet. The document style determines which bullet is used.

- This is the second item of the list. It contains another list nested inside it. The three inner lists are an itemized list.

  - This is the first item of an enumerated list that is nested within the itemized list.
  - This is the second item of the inner list. Word allows you to nest lists deeper than you really should.

This is the rest of the second item of the outer list. It is no more interesting than any other part of the item.

- This is the third item of the list.

The following is an example of an enumerated list.

1. This is the first item of an enumerated list. Each item in the list is marked with a number.

2. This is the second item of the list. It contains another list nested inside it.

   a) This is the first item of an enumerated list that is nested within the enumerated list.
   b) This is the second item of the inner list.

   This is the rest of the second item of the outer list. It is no more interesting than any other part of the item.

3. This is the third item of the list.

The following is an example of a description list.

Cow Highly intelligent animal that can produce milk out of grass

Horse Less intelligent animal renowned for its legs.

Human being Not so intelligent animal that thinks that it can think.

You can even display poetry.

There is an environment for verse
Whose features some poets will curse.

For instead of making
Them do *all* line breaking,
It allows them to put too many words on a line when they'd rather be forced to be terse.

Mathematical formulas may also be displayed. A displayed formula is one-line long; multiline formulas require special formatting instructions.

$$x' + y^2 = z_i^2$$

Don't start a paragraph with a displayed equation, nor make one a paragraph by itself.

Example of a theorem:

Conjecture 1. All conjectures are interesting, but some conjectures are more interesting than others.

Table I. Parameter set used in the model of (1990)

Qs,max	[g/g DM h]	0.18
Ks	[g/L]	1.0
Yx/s	[g DM/g]	0.5
Yp/s	[g/g]	0.854
Qp,max	[g/g DM h]	0.0045
μcrit	[h^{-1}]	0.01
kh	[h^{-1}]	0.002
ms	[g/g DM h]	0.025

Table II. The spherical case (*I*1 = 0, *I*2 = 0).

Equil. points	x	y	z	C	S
*L*1	-0.485252241	0.000000000	0.017100631	8.230711648	U
*L*2	0.000000000	0.000000000	3.068883732	0.000000000	S
*L*3	0.009869059	0.000000000	4.756386544	-0.000057922	U
*L*4	0.210589855	0.000000000	-0.007021459	9.440510897	U
*L*5	0.455926604	0.000000000	-0.212446624	7.586126667	U
*L*6	0.667031314	0.000000000	0.529879957	3.497660052	U
*L*7	2.164386674	0.000000000	-0.169308438	6.866562449	U
*L*8	0.560414471	0.421735658	-0.093667445	9.241525367	U
*L*9	0.560414471	-0.421735658	-0.093667445	9.241525367	U
*L*10	1.472523232	1.393484549	-0.083801333	6.733436505	U
*L*11	1.472523232	-1.393484549	-0.083801333	6.733436505	U

4. Tables and Figures

Cross reference to labeled table: As you can see in Table II on page 4 and also in Table I on page 3.

A major point of difference lies in the value of the specific production rate π for large values of the specific growth rate μ. Already in the early publications (Falzon, 1987) it appeared that high glucose concentrations in the production phase are well correlated with a low penicillin yield (the ‘glucose effect’). It has been confirmed recently (Bunt, 1990; Cahour, 1988; Brown and Burton, 1978; Carr and Goldstein, 1977) that high glucose concentrations inhibit the synthesis of the enzymes of the penicillin pathway, but not the actual pencillin biosynthesis. In other words, glucose represses (and not inhibits) the penicillin biosynthesis.

These findings do not contradict the results of China (on which (1990) based their production kinetics) and of 1987 which were obtained for continuous culture fermentations. Because for high of the specific growth rate μ it is most likely (as shall be discussed below) that maintenance metabolism occurs, it can be shown that in steady state continuous culture conditions, and with μ described by a Monod kinetics

$$C_S = K_M \frac{\mu/\mu_x}{1 - \mu/\mu_x} \tag{1}$$

Pirt & Rhigelato determined π for μ between 0.023 and 0.086 h^{-1}. They also reported a value $\mu_x \approx 0.095$ h^{-1}, so that for their experiments μ/μ_x is in the range of 0.24 to 0.9. Substituting K_M in Eq. (1) by the value K_M = 1 g/L as used by (Bunt, 1990), one finds with the above equation $0.3 < C_s < 9$ g/L. This agrees well with the work of (1990), who reported that penicillin biosynthesis repression only occurs at glucose concentration from C_s = 10 g/L on. The conclusion is that the glucose

Table III. Parameter sets used by Bajpai & Reu			
Parameter		*Set 1*	*Set 2*
μx	[h^{-1}]	0.092	0.11
kx	[g/g DM]	0.15	0.006
μp	[g/g DM h]	0.005	0.004
Kp	[g/L]	0.0002	0.0001
Ki	[g/L]	0.1	0.1
Yx/s	[g DM/g]	0.45	0.47
Yp/s	[g/g]	0.9	1.2
kh	[h^{-1}]	0.04	0.01
Ms	[g/g DM h]	0.014	0.029

concentrations in the experiment of Pirt & Rhigelato probably were too low for glucose repression to be detected. The experiment data published by Ryu & Hospodka are not detailed sufficiently to permit a similar analysis.

Bajpai & Reuβ decided to disregard the differences between time constants for the two regulation mechanisms (glucose repression or inhibition) because of the relatively very long fermentation times, and therefore proposed a Haldane expression for π.

It is interesting that simulations with the (Bunt, 1990) model for the initial conditions given by these authors indicate that, when the remaining substrate is fed at a constant rate, a considerable and unrealistic amount of penicillin is produced when the glucose concentration is still very high (Carberry, 1988) Simulations with the Bajpai & Reuß model correctly predict almost no penicillin production in similar conditions.

The maintenance coefficient used by (Bunt, 1990) (m_s = 0.025 g/g DM h) corresponds well to the value m_s = 0.029 g/g DM h (Set 2 of (Buchanan, 1984)), to the value m_s = 0.024 g/g DM h reported by Chappel and Cahour, and to the value used by ((in press)) m_s = 0.022 g/g DM h) (1983). However, these values differ from the value in Set 1 of (Buchanan, 1984) (m_s = 0.014 g/g DM h). It is not clear where this difference originated from. Simulations indicated that the dynamic behavior of the model is rather sensitive with respect to the value of m_s.

Figure 1. Figure captions should be left-aligned.

Text after captions should continue in the "normal" mode.

In the model van (1990), at severe substrate limitation conditions, and thus most probably corresponding to endogenous metabolic behavior, the biomass consumption due to maintenance and production requirements may exceed the conversion of substrate into biomass and μ eventually may become negative. This situation may occur at the end of the growth phase during a fed-batch fermentation. For these conditions π is not defined. A straightforward extension of the π(μ) kinetics (10) could be $\pi(\mu \leq 0) = 0$, but there are some biochemical indications that the penicillin biosynthesis actually does not stop in that case.

Sample of cross-reference to figure. Figure 1 shows that is not easy to get something on paper.

5. Headings

5.1. Subsection

The text for the subsection is inserted here, in the "normal" formatting. (Carr and Goldstein, 1977; Cohen and Jones, 1989) based their model on balancing methods and biochemical knowledge. The original model (1980) contained an equation for the oxygen dynamics which has been omitted in a second paper (1981). This simplified model shall be discussed here.

5.1.1. *Subsubsection*

The text for the subsubsection is inserted here. (Carr and Goldstein, 1977; Cohen and Jones, 1989) based their model on balancing methods and biochemical knowledge. The original model (1980) contained an equation for the oxygen dynamics which has been omitted in a second paper (1981). This simplified model shall be discussed here.

5.1.1.1. *Paragraph.* The text for the paragraph section is inserted here. (Carr and Goldstein, 1977; Cohen and Jones, 1989) based their model on balancing methods and biochemical knowledge. The original model (1980) contained an equation for the oxygen dynamics which has been omitted in a second paper (1981). This simplified model shall be discussed here.

Subparagraph. The text for the subparagraph is inserted here. (Carr and Goldstein, 1977; Cohen and Jones, 1989) based their model on balancing methods and biochemical knowledge. The original model (1980) contained an equation for the oxygen dynamics which has been omitted in a second paper (1981). This simplified model shall be discussed here.

6. Equations and the Like

Two equations:

$$C_S = K_M \frac{\mu/\mu_x}{1 - \mu/\mu_x} \tag{2}$$

and

$$G = \frac{P_{opt} - P_{ref}}{P_{ref}} 100(\%) \tag{3}$$

Two equation arrays:

$$\frac{dS}{dt} = -\sigma X + s_F F \tag{4}$$

$$\frac{dX}{dt} = \mu X \tag{5}$$

$$\frac{dP}{dt} = \pi X - k_h P \tag{6}$$

$$\frac{dV}{dt} = F \tag{7}$$

and,

$$\mu_{substr} = \mu_x \frac{C_s}{K_x C_x + C_s} \tag{8}$$

$$\mu = \mu substr - Yx/s\ (1 - H(Cs))(ms + \pi / Yp/s) \tag{9}$$

$$\sigma = \mu substr / Yx/s + H(Cs)(ms + \pi / Yp/s) \tag{10}$$

Acknowledgements

Thanks to everyone for all of their help.

End Notes

[i] An example of an endnote.

References

Brown, J. S. and R. R. Burton. Diagnostic Models for Procedural Bugs in Basic Mathematical Skills. *Cognitive Science*, 2(2):155{192, 1978.

Buchanan, B. G. and E. H. Shortliffe. *Rule-Based Expert Systems: The MYCIN Experiments of the Stanford Heuristic Programming Project*. Addison-Wesley Publishing Company, 1984.

Bunt, H. C. Modular Incremental Modelling of Belief and Intention. In *Proceedings of the Second International Workshop on User Modeling*, 1990.

Cahour, B. Competence Modelling in Consultation Dialogs. In L. Berlinguet and D. Berthelette, editors, *Proceedings of the International Congress, Work With Dispay Units' 89*, Montreal, Canada, September 1990. North Holland, Amsterdam.

Cahour, B. *La Modélisation de l'Interlocuteur: Elaboration du Modèle et Effets au Cours de Dialogues de Consultation*. PhD thesis, Université Paris 8, France, 1991. Cognitive psychology PhD.

Carberry, S. M. Modeling the User's Plans and Goals. *Computational Linguistics* 14(3):23-37, September 1988.

Carbonell, J. R. AI in CAI: An Artificial Intelligence Approach to Computer-Aided Instruction. *IEEE Transactions on Man-Machine Systems*, 11:190-202, 1970.

Carr, B. and I. Goldstein. Overlays: A Theory of Modelling for Computed Aided Instruction. AI Memo 406, 1977.

Cawsey, A. Planning Interactive Explanations. *International Journal of Man-Machine Studies*, in press.

Chandrasekaran, B. and W. Swartout. Explanations in Knowledge Systems: The Role of Explicit Representation of Design Knowledge. *IEEE Expert*, 6(3):47-50, June 1991.

Chappel, H. and B. Cahour. User Modeling for Multi-Modal Co-Operative Dialogue with KBS. Deliverable D3, Esprit Project P2474, 1991.

Chin, D. N. *Intelligent Agents as a Basis for Natural Language Interfaces*. PhD thesis, University of California at Berkeley, 1987.

Chin, D. N. KNOME: Modeling What the User Knows in UC. In A. Kobsa and W. Wahlster, editors, *User Models in Dialog Systems*. Springer-Verlag, Symbolic Computation Series, Berlin Heidelberg New York Tokyo, 1989.

Cohen, R. and M. Jones. Incorporating User Models into Expert Systems for Educational Diagnosis. In A. Kobsa and W. Wahlster, editors, *User Models in Dialog Systems*, pages 35-51. Springer-Verlag, Symbolic Computation Series, Berlin Heidelberg New York Tokyo, 1989.

Falzon, P. Les Dialogues de Diagnostic: L'évaluation des Connaissances de l'Interlocuteur. Technical Report 747, INRIA, Rocquencourt, France, 1987.

Finin, T. W., A. K. Joshi, and B. L. Webber. Natural Language Interactions with Artificial Experts. *Proceedings of the IEEE*, 74(7), July 1986.