

L^AT_EX Demo

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1 Basic Math Stuff

Many of the common math symbols you use in reports have very intuitive commands from within L^AT_EX. Also, all of the Greek letters can be used by prefacing the name of the letter with a slash. Here is how some of them look.

```
\[ \int_0^{2\pi} \sin \theta d\theta \]
```

```
\[ F(x) = \sum_{t=0}^x \left( \begin{array}{c} n \\ t \end{array} \right) p^t (1-p)^{n-t} \]
```

```
% in this case we want an array with only one column
```

```
% that is aligned in the center 'c'
```

```
\begin{array}{c}
```

```
n \\ % end first row
```

```
t \\ % end second row
```

```
\end{array}
```

```
\right) p^t (1-p)^{n-t}
```

```
{\mathrm{ \ \ \ \ }} % a clunky way to insert some space in math mode
```

```
x = 0, 1, 2, \ldots, n \]
```

$$\int_0^{2\pi} \sin \theta d\theta$$

$$F(x) = \sum_{t=0}^x \binom{n}{t} p^t (1-p)^{n-t} \quad x = 0, 1, 2, \dots, n$$

$$\frac{x}{x+1}$$

In this Section 1 we showed a couple quick examples of inserting math in a document. In Section 2 we will expand on this to show multiline equations, and in Section 3 we will show how to include figures and tables in your documents. And just for kicks I will cite a couple references from Kirlik [1] and Erev [2].

2 More advanced math stuff

2.1 Matrices

Matrices are commonly used in all kinds of applications, and they are easy to include in a L^AT_EX document by wrapping an array inside of square brackets.

$$\hat{\mathbf{B}} = \begin{bmatrix} -3.0638 & 0.6750/2 & -0.5250/2 \\ 0.6750/2 & -1.2138 & 1.4250/2 \\ -0.5250/2 & 1.4250/2 & -2.1638 \end{bmatrix}$$

*I would like to thanks Jimmy John's for bringing tasty sandwiches

2.2 Multi-line Equations and Derivations: eqnarray

$$f_{R|\mathcal{H}_2}(r|\mathcal{H}_2) = f_N * f_S = \int_0^r f_N(\rho) f_S(r - \rho) d\rho \quad (1)$$

$$= \int_0^r b e^{-b\rho} \cdot a e^{-a(r-\rho)} d\rho \quad (2)$$

$$= ba \int_0^r e^{-(b-a)\rho - ar} d\rho \quad (3)$$

$$= ba e^{-ar} \int_0^r e^{-(b-a)\rho} d\rho \quad (4)$$

$$= ba e^{-ar} \left[-\frac{1}{b-a} e^{-(b-a)\rho} \Big|_{\rho=0}^r \right] \quad (5)$$

$$= -\frac{ba e^{-ar}}{b-a} \left[e^{-(b-a)r} - 1 \right] \quad (6)$$

$$= \frac{ba}{b-a} \left[e^{-ar} - e^{-br} \right] \quad (7)$$

$$(8)$$

3 Inserting Figures and Tables

In Figure 3 I show a decision region for a recognition problem.

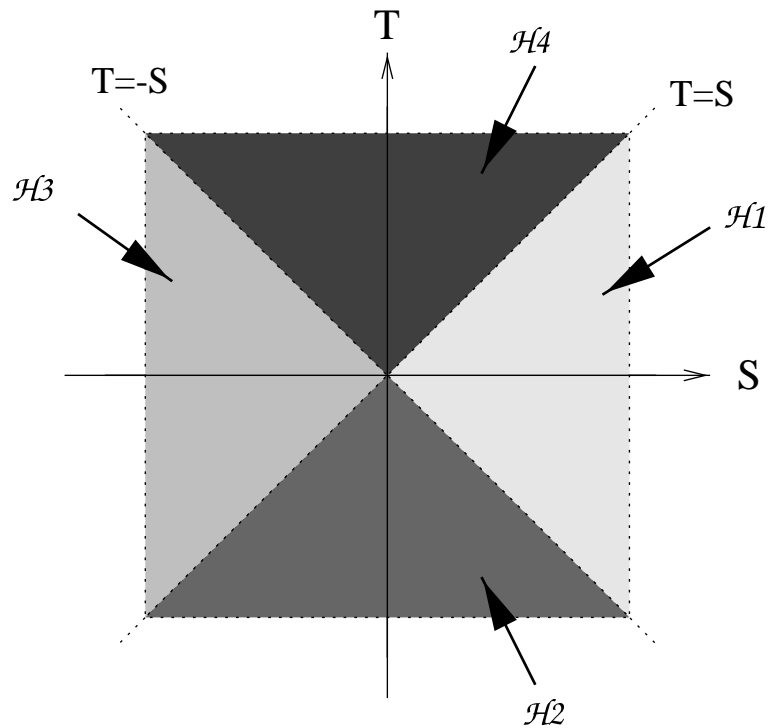


Figure 1: Decision regions for the recognition problem in the $S - T$ plane

3.1 An Array of Figures

3.2 Data Tables: Tabular

I find the tabular environment to be helpful when I want to line up a bunch of data in a table and have careful control over the alignment of individual columns and where lines are placed relative to the cells. An example of this is in Table 3.2.

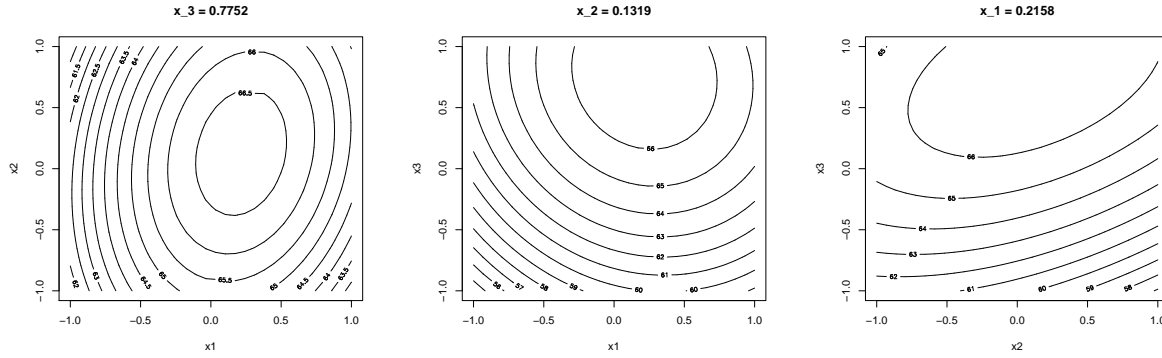


Figure 2: Pairwise contour plots of the response surface with the third variable set at its value in the stationary point

Pair k	$a_{k,1}$	$a_{k,2}$	$v(a_{k,1}, a_{k,2})$	Direct Ranking	Ranking with v	$b_{k,1}$	$b_{k,2}$	$v(b_{k,1}, b_{k,2})$
1	10	4	0.39153	λ	λ	45	10	0.79159
2	50	6	0.72223	λ	λ	60	25	0.90443
3	20	6	0.57132	λ	λ	80	13	0.92496
4	30	12	0.74108	Υ	Υ	70	4	0.69144
5	5	15	0.43278	Υ	λ	20	3	0.44843
6	2	5	0.16634	λ	λ	4	15	0.39173
7	70	20	0.9278	Υ	Υ	5	5	0.316
8	80	20	0.95224	Υ	Υ	10	8	0.49909
9	45	11	0.8038	Υ	Υ	10	4	0.39153
10	7	6	0.39774	λ	λ	35	12	0.76866
11	15	4	0.45419	λ	λ	40	18	0.8215
12	15	6	0.52386	λ	λ	50	13	0.84046
13	15	8	0.56891	λ	λ	15	20	0.64535
14	15	10	0.59805	Υ	Υ	17	5	0.51286
15	15	15	0.63345	Υ	Υ	3	25	0.35049
16	20	3	0.44843	λ	λ	25	12	0.70844
17	35	20	0.80083	λ	λ	40	25	0.8299
18	90	20	0.97381	Υ	Υ	30	15	0.7594
19	70	10	0.86931	Υ	Υ	20	4	0.49857
20	60	7	0.78251	Υ	Υ	15	7	0.54883

References

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