

Teach Yourself Economic Evaluation

0. Start Here

**The purpose of this free website is to
'teach yourself economic evaluation'.**

**It may contain errors so always check your own work
and have it audited by a competent person**

Spend only a few seconds on each slide

Economic Evaluation is ...

If you work in a company, a government body, own your own business, have a project or an idea or make investments then economic evaluation is a well established activity to continuously understand, assess and steer your activity.

It works in manufacturing, health, mining, education, tradesmen, investors, financing, environment, utilities, inventors, service industries, research, catering, retail, Internet, shops, cafes, etc.

This website focusses on mining but applies universally.

1. You create an easy-to-understand Excel model of the activity – which can be as simple or as detailed/complex as you want.
2. You and your colleagues compare your basic plan with other possible scenarios and ideas to identify the strengths and weaknesses of each
3. The decision-makers select the best way into the future.
4. You and your colleagues keep updating your model and interact to decide if changes in direction are wise.

This website is all about being fast, easy-to-follow, transparent, collaborative and correct. It rejects advanced Excel and complex algorithms but uses simple small steps that are quick for everyone to understand.

Economic Evaluation is ...

Economic evaluation was devised about fifty years ago to bridge the gap between operations/engineering and accounting.

In its early years it was all about using a calculator to compute economic returns like NPV, IRR and payback for projects and businesses. As computing power increased so did the computations. In the 1990's people started taking pride in sophisticated workbooks ("models") with complex algorithms and advanced Excel functions. They focussed on computing NPV and IRR. There are relics of this era who persist with convoluted and sophisticated model today – especially amongst immature analysts. Many people called this work “financial modelling” or “financial analysis” – which you can read later is a misnomer.

Today, Economic Evaluation is a profession where the modelling is open, transparent and easy-to-follow, even when the underlying complex business requires a long and detailed model. But more importantly it recognises that modelling for NPV and IRR is no longer the focus, but is a tool for higher level intellectual work.

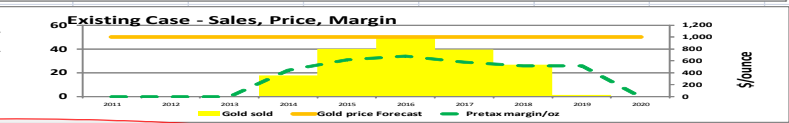
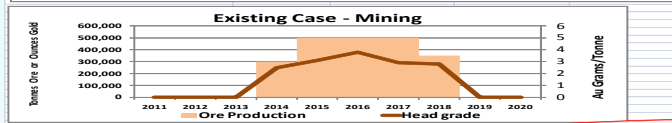
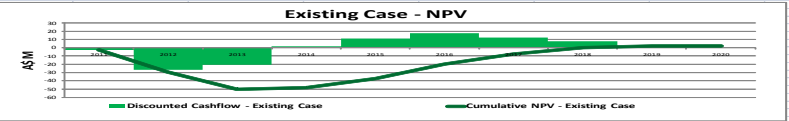
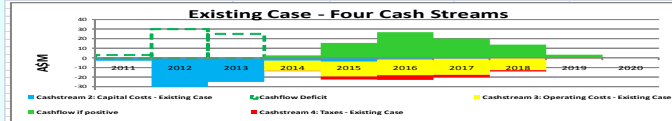
Existing case

carbon in pulp technology

NPV - Existing Case

IRR - Existing Case

AS\$ 2,007,342
9.1%



Today, Economic Evaluation is much, much more than creating a 'clever' model to compute NPV.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Cashstream 1: Revenue - Existing Case										
Gold price Forecast	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Gold Revenue	3,000,000	4,000,000	2,000,000	1,000,000	0	0	0	0	0	0
Debtors - Closing										
Debtors - Closing	156,856	3,293,033	4,123,438	3,237,585	2,209,151	0	0	0	0	0
Cashstream 2: Capital Costs - Existing Case										
Initial Capital Costs	3,000,000	4,000,000	2,000,000	1,000,000	0	0	0	0	0	0
Ongoing Capital Costs	3,000,000	4,000,000	2,000,000	1,000,000	0	0	0	0	0	0
Tax deductions for Capital Expenditure										
Tax Deduction for Capital Expenditure	6,858,601	15,502,975	19,412,366	15,241,935	10,400,262	583,860	0	0	0	0
Cashstream 3: Operating Costs										
mining cost per tonne	31	31	6	7	8	0	0	0	0	0
processing cost per tonne	13,300,000	2,500,000	3,000,000	3,500,000	2,800,000	0	0	0	0	0
fixed costs	43,000,000	6,000,000	10,000,000	10,000,000	7,000,000	0	0	0	0	0
Cashstream 3: Operating Costs - Existing Case										
Operating Costs	10,500,000	15,500,000	16,000,000	16,500,000	12,800,000	0	0	0	0	0
Cashstream 4: Taxes - Government Royalties										
State Royalty	177,251	400,652	501,685	393,906	268,780	15,089	0	0	0	0
Company Income Tax										
Income Tax	56,768	2,598,483	4,276,335	2,176,432	1,022,687	272,986	0	0	0	0
Cashflow and NPV										
Cashflow - Existing Case										
Cashflow - Existing Case	2,007,342	-2,886,751	-26,729,179	-20,624,367	1,935,792	11,125,505	17,393,968	12,252,613	7,756,605	1,783,157
Discounting										
Discount Rate	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
Discount Factor	0.89	0.82	0.76	0.71	0.65	0.61	0.56	0.52	0.48	0.48
Cumulative NPV - Existing Case										
Cumulative NPV - Existing Case	2,007,342	-2,886,751	-29,615,930	-50,240,297	-48,304,505	-37,179,000	-19,785,033	-7,532,420	224,185	2,007,342

Economic evaluation has three levels ...

Level 3: Decision making

Level 2: Evaluating the business/project

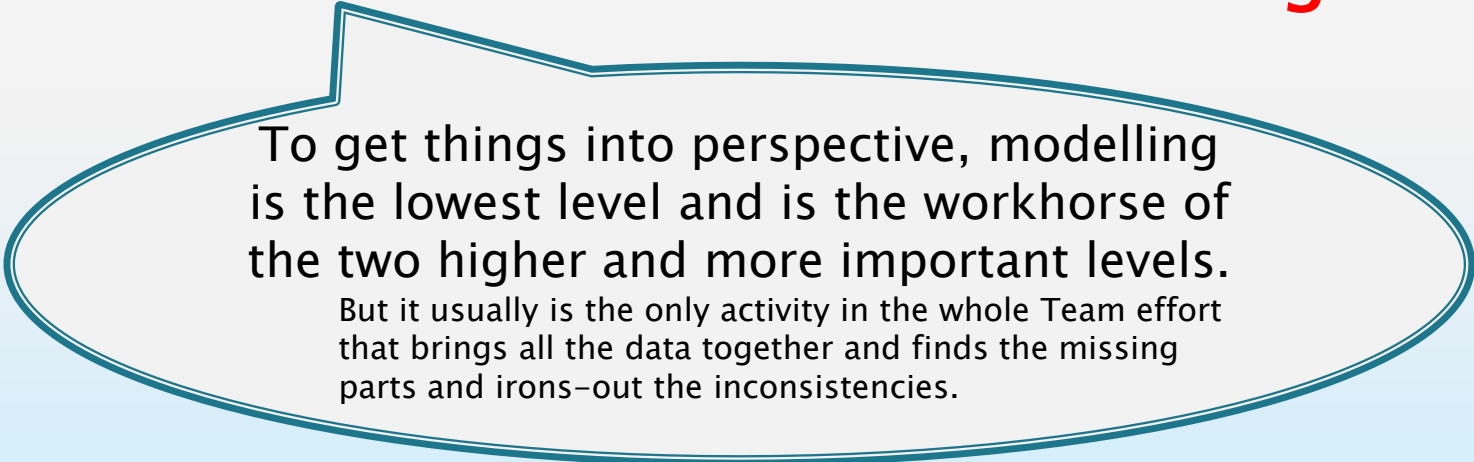
Level 1: Hands-on economic modelling

Economic evaluation has three levels ...

Level 3: Decision making

Level 2: Evaluating the business/project

Level 1: Hands-on economic modelling



To get things into perspective, modelling is the lowest level and is the workhorse of the two higher and more important levels.

But it usually is the only activity in the whole Team effort that brings all the data together and finds the missing parts and irons-out the inconsistencies.

Financial Modelling & Financial Analysis...

Level 3: Decision making

Level 2: Evaluating the business/project

Level 1: Hands-on economic modelling

Some people mistakenly call this lowest level “financial modelling” or “financial analysis”

which is a later, subsidiary, parallel modelling to work out how to finance the investment, including debt and equity.

This website has a set of “teach yourself” modules for each of these three levels...

Level 3: Decision making

Level 2: Evaluating the business/project

Level 1: Hands-on economic modelling

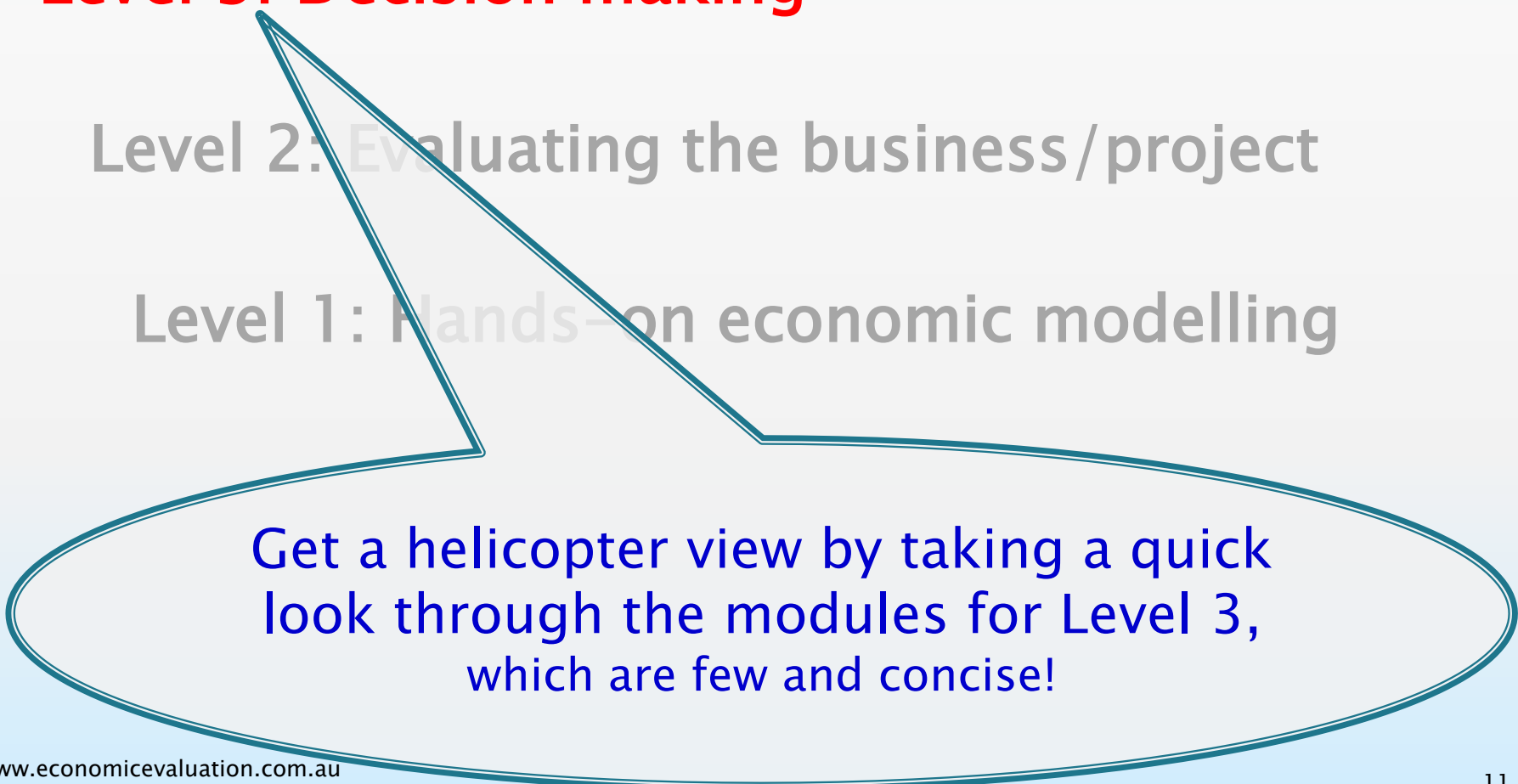
**... plus worked examples in Excel
and modules on planning, marketing, prices**

Where to start using this website?

Level 3: Decision making

Level 2: Evaluating the business/project

Level 1: Hands-on economic modelling



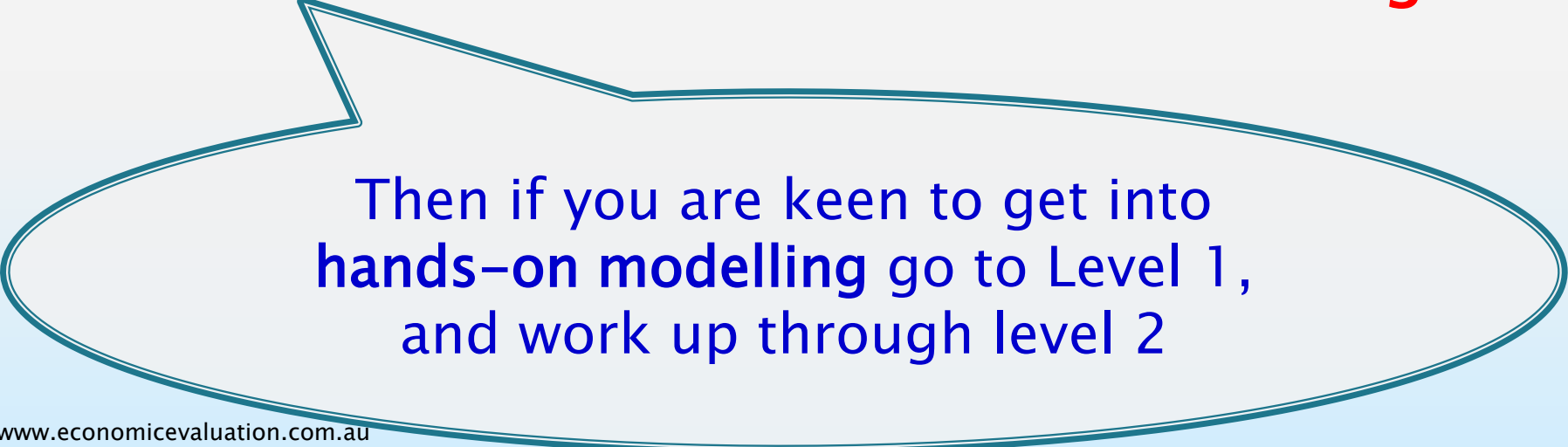
Get a helicopter view by taking a quick look through the modules for Level 3, which are few and concise!

Where to start using this website?

Level 3: Decision making

Level 2: Evaluating the business/project

Level 1: Hands-on economic modelling



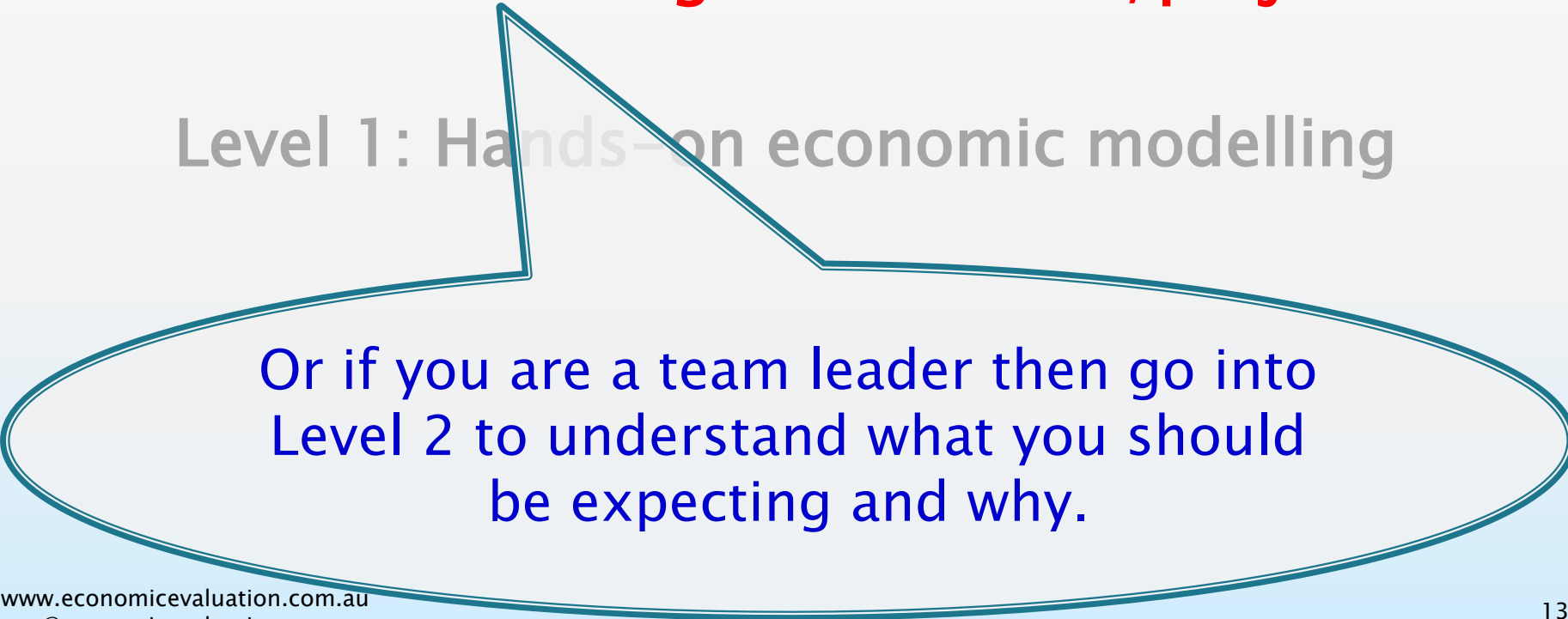
Then if you are keen to get into
hands-on modelling go to Level 1,
and work up through level 2

Where to start using this website?

Level 3: Decision making

Level 2: Evaluating the business/project

Level 1: Hands-on economic modelling



Or if you are a team leader then go into Level 2 to understand what you should be expecting and why.

Making yourself relevant ...

‘Economic Evaluation’ is no longer the task of creating a ‘financial model’ and churning out an NPV.

It now is a Profession where you use an economic evaluation model with your colleagues as a tool to evaluate the full range of possibilities so as to fully understand the project, the business and the opportunity.

It is about working directly with colleagues to analyse, synthesise, create, test, discuss, understand and decide.

It is assessing your project within your business, and assessing your business within your industry.

It is thinking laterally with colleagues to create a better project and a better business

It is about earning yourself a position amongst those people who will be making the final decision.

It is all about hard work, competency, rigour and presentation

so that decision makers act with their ‘eyes wide open’

The excitement of modelling: –

When you get assigned an evaluation task, you probably will want to jump straight into the detailed hands-on economic modelling. (This is fine as long as you retain a helicopter view of the business.)

As you get to understand the business/project more and more you will want to incorporate lots of your knowledge into your model. Some people love to create a sophisticated model with a myriad of detail, lots of complex interactions and lots of ‘clever’ Excel functions. They know how to use Excel to its limits and they focus on getting recalculations done quickly with draw-down menus, complex algorithms and sophisticated functions.

This sort of modelling will prove very rewarding for them at an intellectual level. They will go home at night feeling proud of their state-of-the-art **‘trophy’ model** and be pleased with what they can do with the click of a draw-down menu. They have the full range of results in one magical Table. Wow!

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Use your brains in a better way...

Firstly ...

If you work with others, this model will be a failure. If colleagues and managers find your model challenging to understand then you will lose your own relevance. You will degrade yourself to an old fashioned, 'backroom', 'spreadsheet jockey' churning out numbers for a document.

Instead, clever evaluation experts use their intellect and expertise to make complexity and detail in an economic model flow intuitively. So colleagues can see the detail and complexity but readily understand the big picture and readily follow the project/business from beginning to end.

'Easy-to-follow' modelling does not mean 'simplistic', 'small' and 'naive'. → Some of your models will become very long, very detailed and complex. But you must create models so others can easily understand the flow and visually understand the inputs, computations and outcomes: completely intuitively!

Use your brains in a better way...

Secondly ...

The model is a workhorse. It is a tool. *Much more important is the work to be done at Level 2 with that model.*

Do not get lost in 'advanced' Excel.

Level 2 is where you add value, where you can make your mark, and earn a key position in the project team or business management team.

We suggest that you follow the guidelines for model creation in the modules for Level 1 modelling **without fussing about their colours and their details**. Then work through Level 2 to make a difference to the business outcome and set yourself up to be amongst the decision makers.

Economic evaluation has three levels ...

Level 3: Decision making

Level 2: Evaluating the business/project

Level 1: Hands-on economic modelling

Always think:

Level 2 is where I do my most important work
The model created in Level 1 is simply my tool
(not my trophy!)

Tell colleagues:

“If you do not intuitively understand
my model and my evaluation work
then you do not have a problem,
but I do!”

End