

# The HypeDyn Hypertext Fiction Editor

## Tutorial 2: Links with Multiple Rules, Conditional Text and Anywhere Nodes

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## 1 Introduction

In this tutorial, we will introduce some new features to HypeDyn:

- links with *multiple rules*, which allows for different actions to be taken depending on which conditions are satisfied;
- *conditional text*, which can be displayed *instead of* the original text in a link; and

- *anywhere nodes*, which are nodes that can be linked to from any other nodes in the story based on conditions.

In this tutorial, we will be creating a variation of the “Little Red Riding Hood” hypertext fiction which you created in tutorial 1. We will change the story such that the reader is able to choose whether Red is naive or street-smart, which will have consequences as to how the story ends, and will also cause some of the text in the story to change. We will also add a “summary” node, reachable from all other nodes, which shows an up-to-date summary of the story so far.

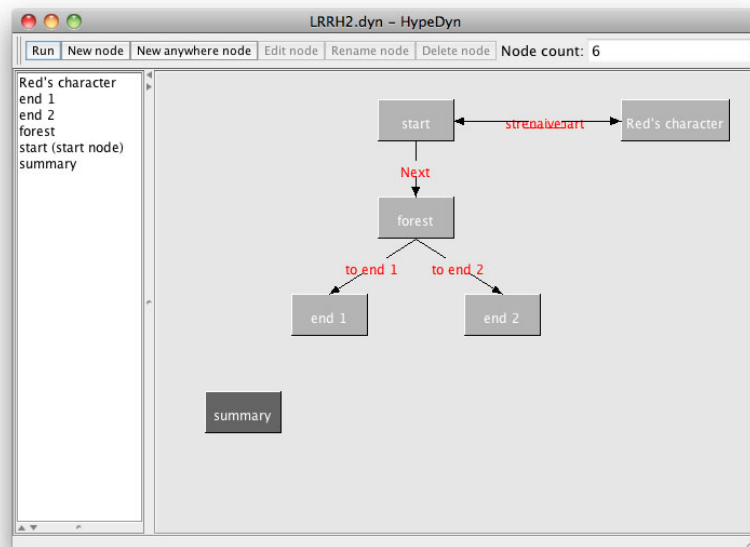


Figure 1: The completed “Little Red Riding Hood” story.

The nodes and links in the final story are shown in Figure 1.

*Note: HypeDyn is a work-in-progress. If you encounter any errors, please report them as bugs on our Github site: <https://github.com/narrativeandplay/hypedyn>.*

## 2 Getting started

First, open HypeDyn by double-clicking on the file **HypeDyn.exe** (in Windows) or **HypeDyn.app** (in MacOS).

We will continue from the story that you created in tutorial 1. If you don’t have the story, you can start from the file LRRH.DYN in the EXAMPLES folder. HypeDyn files always end with a **.dyn** extension.

We no longer need the “Hood details” node, so delete this node by clicking on the node in either the node list on the left of the main window, or in the map view on the right of the main window, and then clicking the “Delete node” button. Then go into the “start” node, and delete the link “more about the hood” which previously led to the “Hood details” node. Save the resulting file under a different name.

### 3 Links with multiple rules

The first new feature we will introduce is the use of multiple rules on a link. This feature allows you to have different sets of actions which will be triggered when different conditions are satisfied.

For our story, we want to provide two different endings: one ending if Red is naive, and a second ending if she is street-smart. We will provide one link for the reader to click on and, depending on the choice that the reader made at the start of the story, the link will lead to either the first or the second ending.

#### 3.1 Letting the reader make a choice

To let the reader make a choice, we will create a node named “Red’s character”, which contains two links, one named “naive” and another named “street-smart”. Both links lead back to the start node. HypeDyn will keep track of which link was followed. Later in the story, we can check which of these two links the reader chose, and use this to make a decision. We will do this by creating a rule on the “to the end” link in the “forest” node which leads to node “end1” if link “naive” was followed, and a second rule which goes to node “end2” if link “street-smart” was followed.

Now we will create the node “Red’s character” to let the reader make a choice.

1. Create a new node named “Red’s character”. In the new node, enter the following text:

Is Red naive or street-smart?
2. Make a link on the text “naive”.
3. Create one rule in the link, and also name the rule “naive”.
4. Recall that the *Edit rule* dialogue contains a list of conditions (initially empty), plus a list of actions. The actions will be performed if the rule defined by the conditions is satisfied.

Since we don’t want the reader to be able to change their choice, we will put a condition on this link: the link can only be followed if the reader *hasn’t* followed both the link “naive” and the link “street-smart”. Do this by adding 2 conditions to the rule, as shown in Figure 2.



Figure 2: Adding conditions on the link to “Red is naive”.

In Tutorial 1, we used conditions which checked whether or not a *node* had been *visited*. Here, we are using conditions which check whether or not a *link* has been *followed*. HypeDyn also provides conditions which can check the state of *facts*. We will cover facts in Tutorial 3.

5. Do the same to create a link from the text “street-smart” to the “start” node, with the same conditions as the “naive” link.
6. Finally, edit the node “start”, and make a link from the text “Little Red Riding Hood” to the node “Red’s character”. Name the link “Red’s character”. We don’t want the reader to be able to go into “Red’s Character” if they have already made a choice, so create the same conditions on this link as you did on “naive” and “street-smart”.

Note that even though we put this condition on the link to “Red’s character”, we still need the conditions on the two links in the “Red’s character” node, just in case the reader presses the “back” button and tries to change their choice. Also, we can’t just check whether or not the reader has visited the node “Red’s character”, as they may not have actually made a choice.

Now we have the mechanism in place to let the reader choose what sort of

person Red is: naive or street-smart. Now we can check which of the two links were followed, “naive” or “street-smart”, whenever we want to make a decision which is influenced by Red’s character. This is an example of using the *followed state* of a link as a way of representing some information about the state of the storyworld. Similarly, we could use the *visited state* of a node to represent some information. This is a very useful technique which can be generalized to allow for more complex, dynamic behaviour.

### 3.2 Following a link based on the reader’s choice

Now we will create the link to the two different endings, and set up the rules so that the reader will follow the link to the appropriate ending based on the reader’s earlier choice about Red’s character.

1. First, rename the current “end” node to “end 1” by selecting the node in the map view, and clicking on the “Rename node” button. Type in the new name, and click “Ok”.
2. Edit the node “end 1”, and delete the text “back to start”. Notice that the link to the “start” node is deleted when you delete the text.
3. Next, replace the text in the node “end 1” with the following text:

Quickly the wolf ran ahead to Grandma’s house, swallowed  
Grandma whole, and disguised himself as the poor old lady.  
When Red arrived, he finished her off too. Yum!

\*\*\* The End \*\*\*

4. Now create a new node, named “end 2”, and enter the following text:

Frustrated, the wolf snuck off to try his luck at the mall instead.

\*\*\* The End \*\*\*

5. Now that we have the two endings in place, we need to make sure that the link from the text “next” in node “forest” takes the reader to “end 1” if Red is naive. Otherwise (ie. if Red is street-smart), the link should take the reader to “end 2”. To do this, we will add conditions to the current rule, and then add a second rule to the “to the end” link.

Edit the “to the end” link on the text “next” in node “forest”. The original link, from the previous version of the story, has a single rule, “to the end”, which has no conditions and contains a single “follow link to” action, leading to the original end node, now renamed “end 1”.

6. We are going to change this rule so that it only takes the reader to “end 1” if Red is naive. To help us remember this, we can rename the rule to reflect what it does. Rename the rule as “to end 1”. This is the label which will appear in the map view.

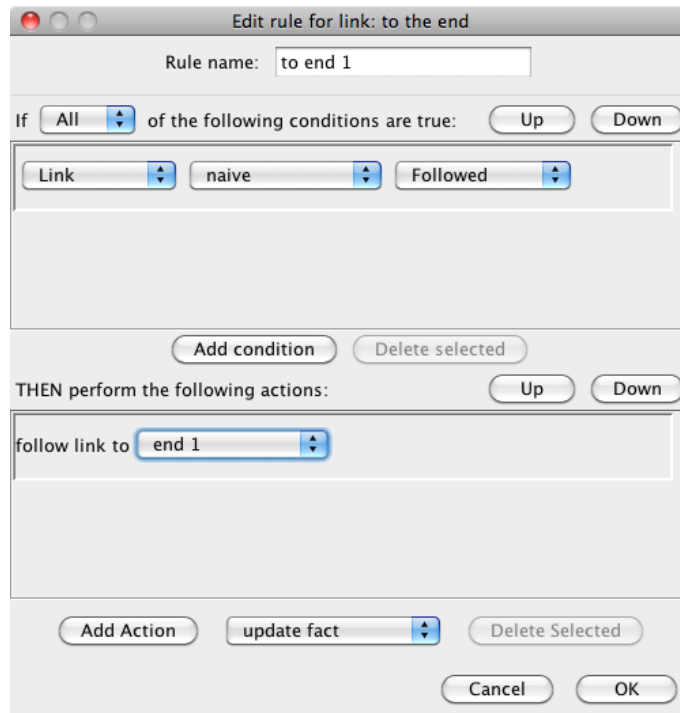


Figure 3: Condition on the rule leading to “end 1”.

7. Now add a condition that link “naive” is followed (see Figure 3).
8. This gives us the required behaviour for a naive Red. However, if the conditions are *not* satisfied, ie. if Red is street-smart, the link won’t go anywhere. Next we need to use the same link, but now specify what should happen in this case. To do this, we will create a second rule.  
Exit the *Edit rule* dialog by clicking on “Ok”. You should now be at the *Edit link* dialog, which contains one rule (see Figure 4).

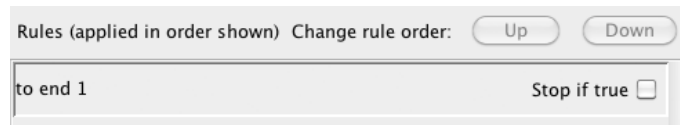


Figure 4: One rule leading to “end 1”.

9. Add a second rule by clicking on the “Add Rule” button. You should now see a second rule beneath the “to end 1” rule, named “new rule”.
10. Now edit the new rule by selecting the rule and clicking on the “Edit Rule” button.

11. Change the name of the rule to “to end 2”. This will remind us that this rule contains the action to follow the link to “end 2”.
12. Add a “follow link to” action, and set its pulldown menu to “end 2”.
13. Close the *Edit rule* dialog by clicking on the “Ok” button. You will be taken back to the *Edit link* dialog, where you should see 2 rules: “to end 1” and “to end 2” (see Figure 5).

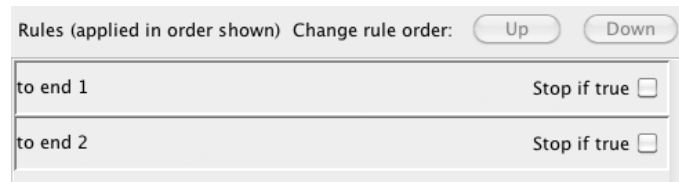


Figure 5: *Adding a second rule.*

14. At this point, we have two rules, one which leads to “end 1” if the link “naive” was followed, and the other which always leads to “end 2”. This is not quite right – what will happen if you try reading the story now? First try choosing Red’s character to be naive, and then restart the story and try making her street-smart.

As you will have noticed, the link always goes to “end 2”, whichever link you choose in “Red’s character”. To understand why this is, we need to look at how HypeDyn evaluates rules.

When the reader clicks on a link, HypeDyn looks at the rules in a link one by one, from the top of the list of rules. For each rule, it determines whether the conditions are satisfied. If the conditions are *not* satisfied, it goes to the next rule, and again checks this rule’s conditions. It keeps doing this until it finds a rule for which the conditions are satisfied. Once this happens, it carries out the actions in that rule.

After the actions have been carried out, HypeDyn looks to see whether or not the “Stop if true” option has been checked for the current rule. If it has been checked, then it stops. Otherwise, it continues on to the next rule, and repeats the process of checking conditions and carrying out actions.

So in our case, HypeDyn first looks at the “to end 1” rule. In the case where the reader has chosen “street-smart”, HypeDyn will check the conditions for “to end 1”, see that they are not satisfied, and then move on to the second rule. Since there are no conditions on the second rule, HypeDyn carries out its actions, taking the reader to node “end 2”. This is what we want.

If the “naive” link has been followed, HypeDyn checks the conditions for the “to end 1” rule, sees that they *are* satisfied, and carries out the action,

taking the reader to node “end 1”. It then looks at the “Stop if true” option, which is not checked, and moves on to the second rule, “to end 2”. Since there are no conditions on the second rule, HypeDyn carries out its actions, taking the reader to node “end 2”. This is *not* what we want!

15. To fix this, the easiest solution is to check the “Stop if true” option on the “to end 1” rule. This will tell HypeDyn not to continue to the next rule if the first rule has been satisfied. Do this now (see Figure 6).

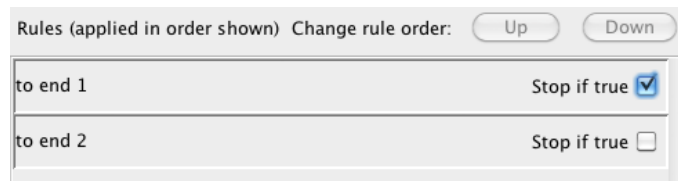


Figure 6: *Stopping if the first rule is satisfied.*

16. Now try running the story again. It should behave as we intended – if we choose that Red is naive, we will see the first ending, and if we choose that she is street-smart, we will see the second ending.

Note that there is another way to fix this problem. Instead of checking the “Stop if true” option on the “to end 1” rule, we could have put a condition on the “to end 2” rule stating that the rule’s actions should only be carried out if the “street-smart” link was followed. However, this would mean that every time the reader chooses the “naive” link, the second rule’s conditions are checked. For such a simple rule this is not a problem, but if the rule becomes more complex, this can slow down your story.

### 3.3 Forcing the reader to make a choice

At this point we seem to have everything in place for the reader to make a choice which impacts the end of the story. However, with our current implementation, if the reader ignores the link on the text “Little Red Riding Hood” in the “start” node, and goes through to the end of the story, she will always end up with the second ending.

To fix this, we need to force the reader to make the choice about Red’s character *before* we let her move on to the “forest” node. We can do this by putting a condition on the link from “start” to “forest” such that the link can only be followed if *either* link “naive” *or* link “street-smart” have been followed.

1. Edit the rule “Next” in the link “Next” in node “start”.
2. Add the following condition: link “naive” was followed.
3. Add the following condition: link “street-smart” was followed.



- Now change the pulldown menu to the right of “IF” to show “Any” (see Figure 7).

Figure 7: *Specifying two conditions where **any** can be satisfied.*

This means that the link will be followed if *any* of the listed conditions are satisfied, which is what we want.

### 3.4 Testing the story

Now that we have our story in place, we can test the story. You can do this by clicking the “Run” button. The “Run” button will read the story starting at the node which was set as the *start* node, which will be indicated by the text “(start)” to the right of the node name in the node list.

Try clicking through the story. You should be able to choose Red’s character, and then see a different ending based on your choice. You can stop reading by closing the “Reader” window in your browser.

## 4 Specifying conditional text

As you read through the story, you probably realized that there’s a problem: the story doesn’t really make sense. There’s no explanation as to why the wolf was unable to eat Red if she’s street-smart. It also doesn’t seem reasonable that, as a street-smart little girl, she would have told the wolf that she was going to Grandma’s house.

So, it would be good if we could change what Red says to the wolf depending on what choice the reader made regarding Red’s character. This is where *conditional text* is useful.

What we want to do is set a condition so that, if the reader has chosen for Red to be street-smart, the text “I’m off to see my sick granny” in the “forest” node will automatically be changed to “I’m not supposed to talk to strangers.”

- Edit the node “forest”.
- Select the text “I’m off to see my sick granny”, and click on “New link”.
- In the “New link” dialogue, name the link “response”, and click “ok”. You should see the “Edit link” dialogue.

4. In the “Edit link” dialogue, create a new rule.
5. Edit the new rule, and rename it “street-smart”.
6. Add a condition, and set the following condition: link “street-smart” is followed.
7. Now add an “update text using” action. Make sure the action’s pulldown menu reads “alternative text”, and type the following text into the action’s text field (see Figure 8):

“I’m not supposed to talk to strangers.”

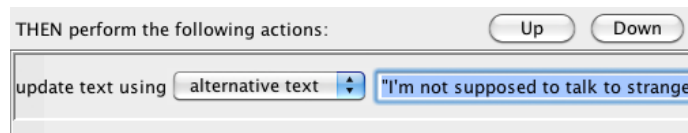


Figure 8: *Specifying alternative text.*

Since we don’t want the reader to actually be able to click on this link, we won’t add a “follow link to” action. Without a “follow link to” action, the link will not be underlined or bold.

8. Click on “ok” to close the “Edit rule” dialog, and then on the “Close” button to close the “Edit link” dialog.

That’s it! Now test the story by clicking on the “Run” button. You should see the appropriate text in the “forest” node, depending on which personality you chose for Red.

This is a simple feature, but it is a major addition to what can be done in HypeDyn. Text is no longer fixed - the author can procedurally alter/generate text within a node, based on the reader’s actions.

Note that we could get the same effect (from the reader’s perspective) by creating 2 nodes – one with the original text, and one with the “street-smart” text. This is a reasonable solution when there is one change, such as in our simple story for this tutorial. However, if there are many nodes which need to be changed based on the choice of Red’s character, it will quickly become difficult for the author to keep track of the text. It gets even more complicated if there are more than one choices which the reader can make. Using conditional text is a much more appropriate and manageable approach.

## 5 Anywhere nodes

The last thing we are going to do is to add in an “anywhere” node. This is a node which is automatically linked from all the nodes in the story. This feature is useful as a way to create, for example, a summary of the story so far, or a list of the decisions that the reader has made.

## 5.1 Adding the anywhere node

In our case, we will create a summary of the story so far using an anywhere node.

1. Click on “New anywhere node”, and name the new node “summary”. Notice that the new node is a darker grey than regular nodes. The difference in colour is used to indicate anywhere nodes. Note that an anywhere node is almost the same as a regular node, with the exception of a special action that is added automatically to the “node rules”. Removing this action turns an anywhere node into a regular node. We will discuss node rules in Tutorial 3.
2. Edit the node by selecting it and clicking on “Edit node”, as with a regular node.
3. In the node, enter the following text:

The story has begun.

Red’s character has been decided.

Red has met the wolf.

The end.

If you run the story now, you will see a link with the text “summary” has been added to the bottom of every node. Clicking on this link will take you to the node which we just created.

## 5.2 Adding some conditional text

We want the second line to be displayed only after the reader has decided on Red’s character, the third line after the “forest” node has been visited, and the last line once the reader has reached the end of the story. We can do this using conditional text, as shown in the previous section.

1. Select the second line of text, and click on “New link”. Name the link “character” and click “ok”.
2. Create a new rule, edit the rule, and also name it “character”.
3. We want the text under this link to only be shown after the reader has decided on Red’s character. So first what we need to do is create an action to *remove* the text. Add an “update text using” action, and leave the text blank. This will blank out the link text when this rule’s conditions are met.

4. Now we want to set the conditions for when the text is blanked. Since we want the first line to show after the reader has chosen Red's character, we need two conditions: the link "naive" has *not* been followed, and the link "street-smart" has *not* been followed. Add these two conditions.
5. Since we want the text to show when both of these links have not been followed, make sure the type of the rule is set to "All".
6. Click "Ok" to close the "Edit rule" dialog, and then close the "Edit link" dialog.

### 5.3 Adding the remaining conditional text

Now do the same for the third and final lines:

1. Add a link, named "forest", on the third line.
2. Add a rule, also named "forest", to the "forest" link.
3. Add one condition, that the "forest" node has not been visited.
4. Add an "update text using" action, leave the text blank, then click "Ok", and close the "Edit link" dialog.
5. Add a link, named "end", on the final line.
6. Create a rule, and also name it "end".
7. Add two conditions, that the "end 1" node has *not* been visited, and that the "end 2" node has *not* been visited.
8. Finally, add an "update text using" action, leave the text blank, then click "Ok", and close the "Edit link" dialog.

This completes the "summary" node. Try running the story, and go through the two story. There should now be a "summary" link at the bottom of all regular nodes. If you click on the link, you should see a node with the summary of the story. The text in the summary node should gradually be revealed as you move through the story.

## 6 Next steps

We have created a simple story, with a choice at the start which changes what happens in the story, including the ending. The completed version of this story can be found in the file LRRH2.DYN.

There are several things that you could try to enhance the story. For example, you could change the description of Red in the "start" node, depending on whether she is naive or street-smart. You could also customize the summary of the story depending on which personality the reader chose. One way of adding these enhancements can be found in LRRH3.DYN.

## 7 Conclusion

In this tutorial, we have created a simple hypertext fiction which includes a choice for the reader regarding Red Riding Hood's character. We have seen how to make use of multiple rules and conditional text to adapt the story to the reader's choice. This functionality provides the basis for moving away from stories which make use of predetermined content and branches, towards more procedural hypertext. In tutorial 3, we explore more extensive use of procedural hypertext, introducing “node rules” and “facts”.