TBTA Tutorial Lesson 12:
Genitival Noun-Noun Relationships
and Theta Grid Adjustment Rules

(video: TBTA-12A Genitival Noun-Noun Relationships)
(video: TBTA-12B Theta Grid Adjustment Rules)
(video: TBTA-12C Theta Grid Adjustment Rules)
(video: TBTA-12D Theta Grid Adjustment Rules)

12.0 Introduction

In this lesson we're going to learn how to use two more types of rules in TBTA's transfer grammar: the genitival noun-noun relationship rules and the Theta Grid Adjustment rules.

12.1 Genitival Noun-Noun Relationships

In the tutorial that described the ontology, several very specific noun-noun relationships were mentioned. For example, the relation NAME is always used in situations such as [MAN [NAME DAVID]], which is realized in English as *man named David*. For another example, the relation KINSHIP is always used in constructions such as [BROTHER [KINSHIP JOHN]], which is realized in English as *John's brother*. There are eleven relations in the ontology which mark very specific noun-noun relationships:

1) BODYPART (e.g., *John's hand*)
2) COMPOSED-OF (e.g., *lake of fire*)
3) KINSHIP (e.g., *John's brother*)
4) MADE-OF (e.g., *brick house*)
5) NAME (e.g., *man named David*)
6) NATIONALITY (e.g., *Egyptian man*)
7) OWNER (e.g., *John's book*)
8) PART-WHOLE (e.g., *front of the boat*)
9) QUANTITY (e.g., *loaf of bread*)
10) REGION-OF-AUTHORITY (e.g., *King of Israel*)
11) TITLE (e.g., *Jesus Christ*)

However, there are an infinite number of noun-noun relationships (e.g., *John's boss, John's prayers, John's work, John's interests, John's life, John's friends,* etc.). It is impractical to identify a very specific relation for each of these genitival relationships. Therefore, in order to deal with the many different categories of noun-noun relationships that occur in the semantic representations, TBTA uses a single generic relation called GENERIC-GENITIVE. This relation is used for all noun-noun relationships that occur in the semantic representations which do not fit into one of the eleven well defined categories listed above. For example, *John's life* is represented as [LIFE [GENERIC-

GENITIVE JOHN]]. To see an example of GENERIC-GENITIVE, please go to Adpositions 1:4 which produces *John saw Mary's servant.*

Let's begin the process of generating Adpositions 1:4. Begin by linking SERVANT to *servant*. You'll see in the semantic representation window that there are three question marks below GENERIC-GENITIVE. This is an indication that you haven't yet dealt with this particular noun-noun relationship. In order to deal with this relationship, double click on GENERIC-GENITIVE, and you'll see the dialog that is shown below in Figure 12-1.
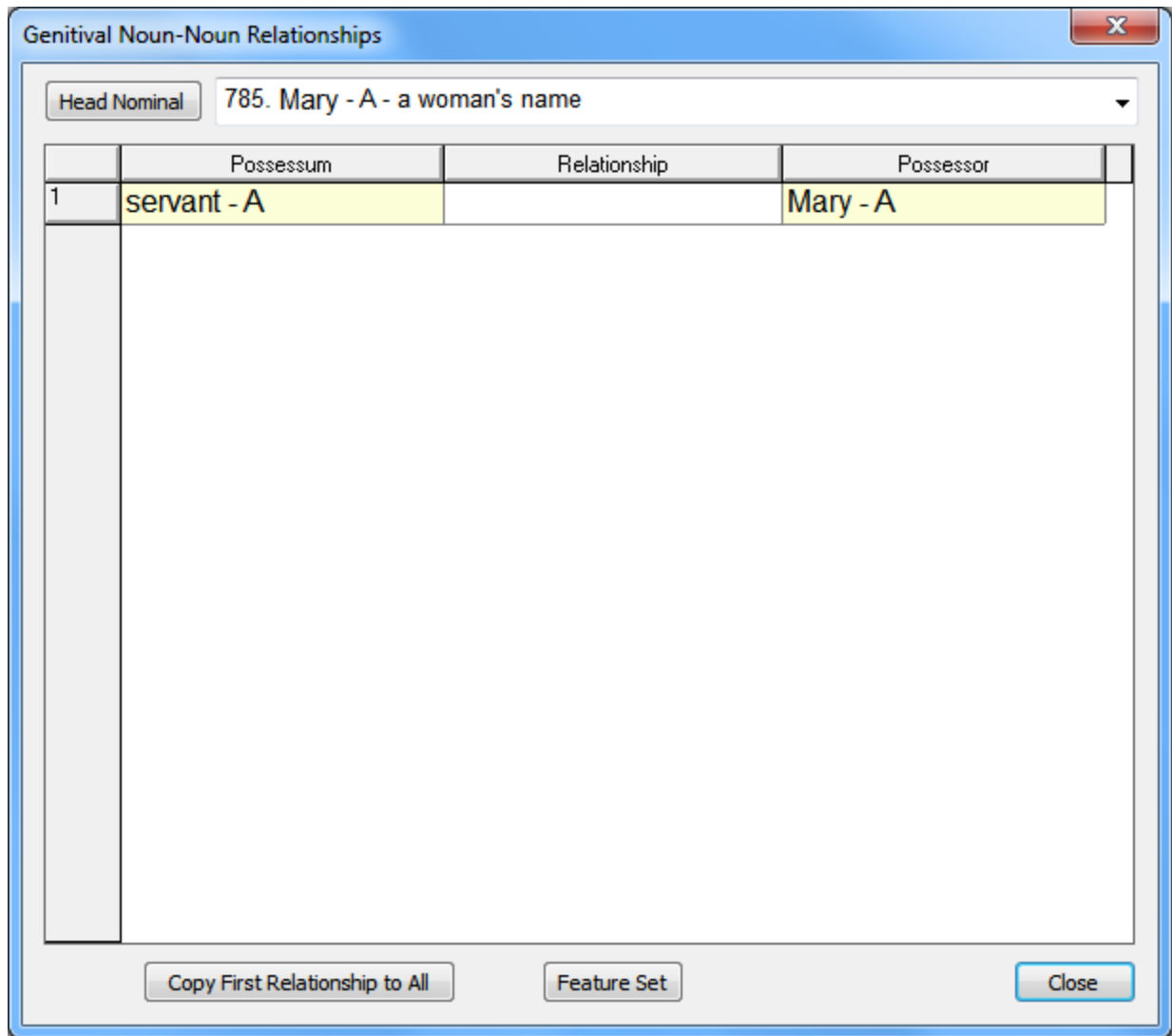

Figure 12-1. Generic-Genitive Dialog

This dialog lets you specify how the relationship between these two nominals will be encoded. If you click on the cell in the Relationship column, you'll see a dropdown and it will contain just two values: Unspecified and Not Applicable. We need to add the methods of encoding these types of relationships that are used in our language, so click on the button at the bottom of the dialog labeled Feature Set. You'll see the same dialog where we defined feature values for 'Speech Style' and 'Target Tense & Form' in

previous tutorials. This time select Noun Phrases in the dropdown on the left, and select 'Thing-Thing Relationship' in the dropdown on the right. We'll enter values that are pertinent to our language in the left column of the table. English encodes most genitival noun-noun relationships with a Saxon Genitive (e.g., *the man's hat*); English encodes Saxon genitives with *'s*. But there are additional encodings for other genitival noun-noun relationships. For example, some relationships are encoded with a Norman genitive (e.g., *the roof of the house*), and others are encoded with a bare stem prenominal modifier (e.g., *the palace garden*). Let's enter those three values into the left column of the table, and enter examples into the right column of the table. After you've finished entering these values, your dialog should look like the one shown below in Figure 12-2.
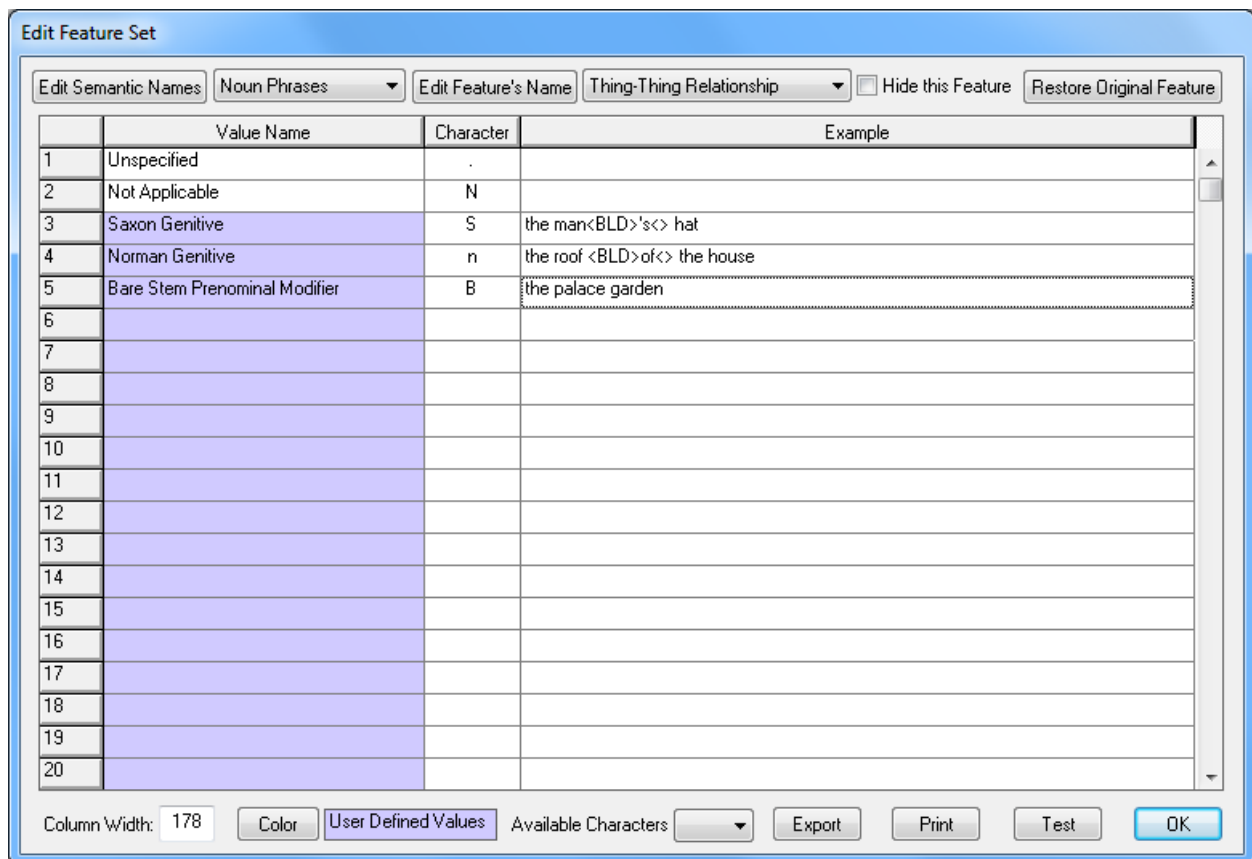

Figure 12-2. Feature Set Dialog with methods of encoding Thing-Thing Relationships

After you've defined the values shown above, close the dialog by clicking the OK button. Now when you click on the cell in the Relationship column, you'll see all of the values that you just defined for Thing-Thing Relationship in the dropdown. Select Saxon Genitive in the dropdown because that's how English encodes *Mary's servant*, and then click the Close button in the lower right corner of the Genitival Noun-Noun Relationship dialog. In the semantic representation for Adpositions 1:4, you can rest your cursor on the features associated with the NP containing GENERIC-GENITIVE, and you'll see that the Thing-Thing Relationship feature has been set to Saxon Genitive (you don't

need to click the Generate button; the Thing-Thing Relationship rules are executed before the semantic representations are displayed).

In order to eliminate the three question marks below GENERIC-GENITIVE, right click on it and select the menu option Map This Concept to Target Words. Click the New Target Stem button on the Mappings dialog, and then enter a blank space for the new word (push the space bar once). Then close the Mappings dialog, and you'll see that there are no longer any question marks below GENERIC-GENITIVE.

Now let's write a rule that will insert the post-clitic *'s* into the text whenever Thing-Thing Relationship is set to Saxon Genitive. Click the Grammar Wizard button and select 'Clitic Rule: add postclitic.' Enter `s[1] for the clitic, and enter **Saxon Genitive** for the clitic's tag. Then select Noun Phrases for the syntactic category. You'll then see a clitic rule dialog. For the group, you can enter a new group name and call it something like **Possession**. For the grammar topic, select Possession. Since this clitic rule should only apply to NPs that have the Thing-Thing Relationship feature set to 'Saxon Genitive,' click on the NP opening phrase boundary in the structure, and then select 'Saxon Genitive' in the Thing-Thing Relationship column. Your finished rule should look like the one shown below in Figure 12-3.

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[1] You cannot enter an apostrophe into the rule because apostrophes have special significance to the software. So you should enter some other character such as ` (on the same key as the tilde) into the rule, and then later a Find/Replace rule can change the ` to a '. If you enter an apostrophe into the rule, you'll see a warning message when you try to close the rule. If you enter a `, you'll be asked to specify where this character should be inserted into the alphabetical sequence. You can check the box that says "Ignore this Character."
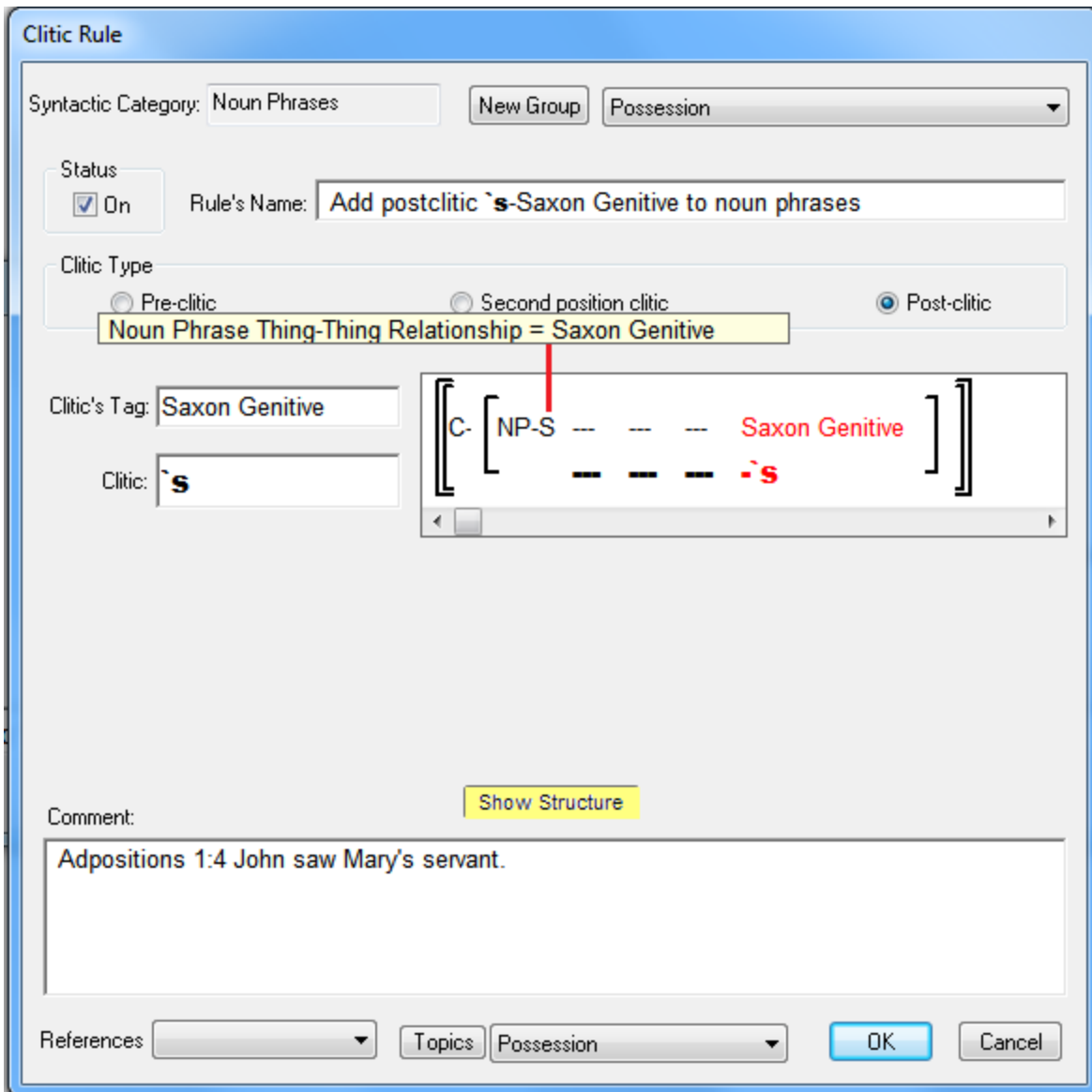
Figure 12-3. A Clitic Rule that adds `s to NPs marked as Saxon Genitive

After saving the clitic rule, click the Generate button, and you'll see *John saw servant Mary`s*. So the clitic rule inserted the clitic correctly, but the constituents aren't in their proper order. Let's update our NP Phrase Structure rule (PSR) so that NPs with a Thing-Thing Relationship value of 'Saxon Genitive' precede the head nominal. In the NP PSR, insert a new NP and specify that it must be a 'Saxon Genitive'. Then position that NP between the Article and the Adjective Phrase because the Saxon Genitive NP must follow articles and precede adjective phrases (e.g., *the man's three hats*). Your NP PSR should now look like the one in Figure 12-4.
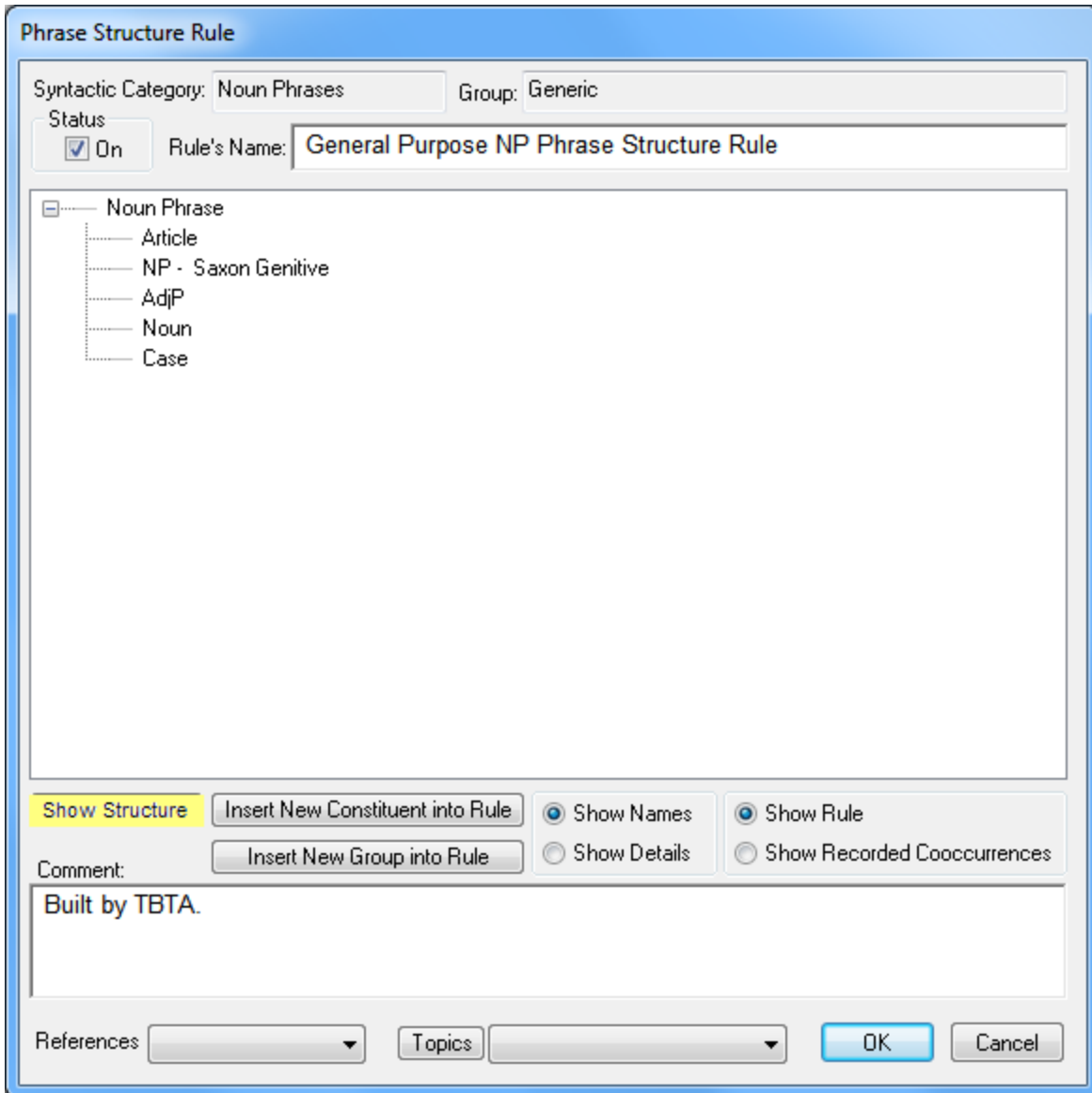
Figure 12-4. Noun Phrase PSR with embedded NP marked as Saxon Genitive

After saving the PSR, click the Generate button again, and you'll see *John saw Mary`s servant*. Now all of the constituents are in their proper order.

Let's write a Find/Replace rule that will convert the ` to '. You can write that rule using Grammar Wizard. Put that rule in the group called Punctuation. That rule should look like the one shown in Figure 12-5.
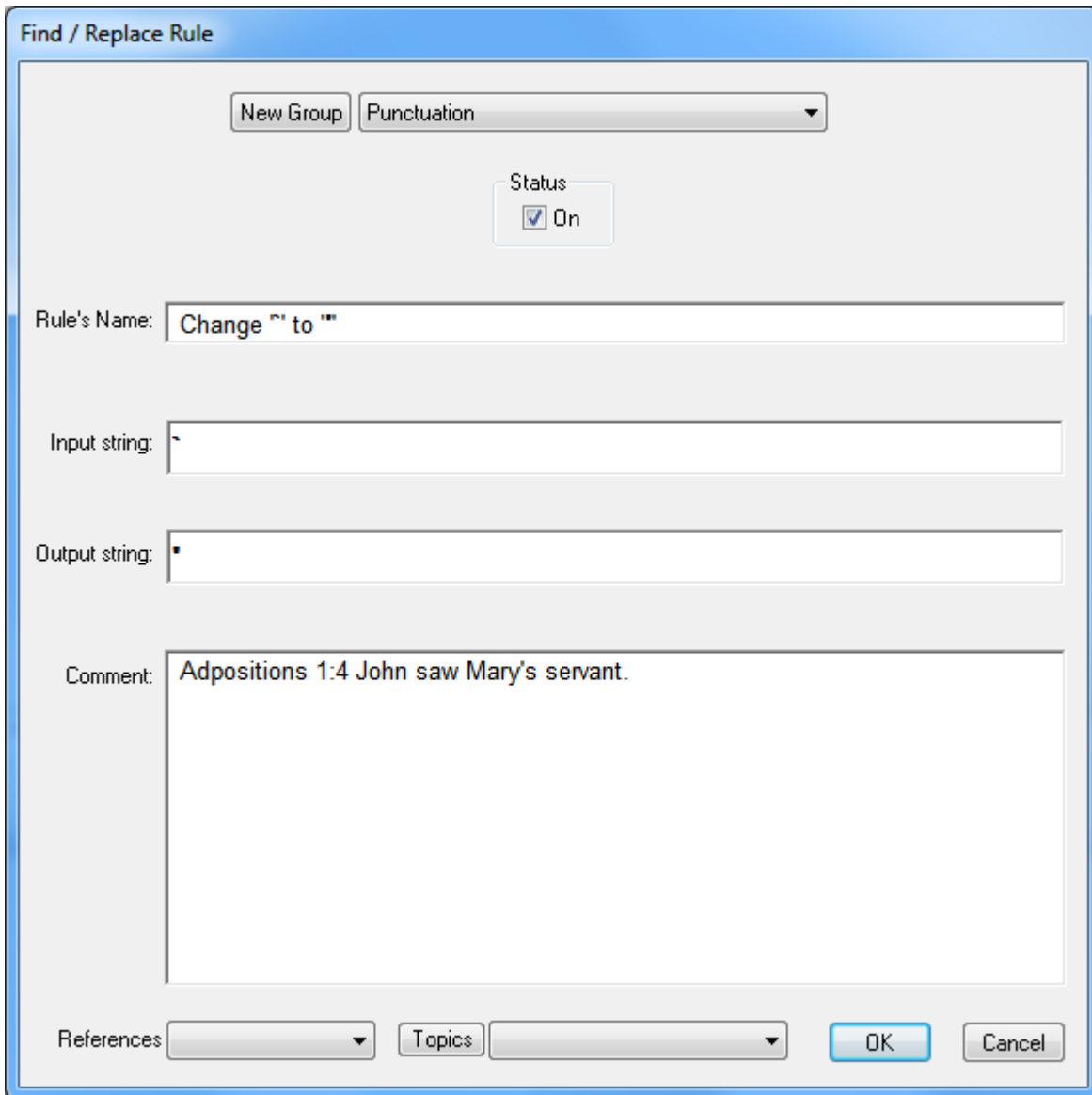
Figure 12-5. Find/Replace Rule that changes ` to ʼ

After saving the Find/Replace rule, click the Generate button again, and this time you'll see *John saw Mary's servant*.

Now let's generate Adpositions 1:8 which produces *John saw the people of Egypt.* Begin by linking EGYPT to *Egypt*. Then double click on GENERIC-GENITIVE, and you'll again see the dialog that's shown in Figure 12-1, but this time the Possessor is EGYPT, and the Possessum is PERSON. Since English encodes this particular relationship with a Norman Genitive (i.e., *people of Egypt*), click in the Relationship cell and select 'Norman Genitive' from the dropdown. Then click the OK button to close the dialog, and rest the cursor on the NP containing GENERIC-GENITIVE. You'll see that the feature called Thing-Thing Relationship has been set to 'Norman Genitive.' If you click the Generate button now, you'll see *John saw the people Egypt.* In order to insert the preposition *of* into the NP that's marked as a Norman Genitive, let's write a spellout rule for NPs. Open the Spellout Rule node in the grammar tree, and then double click

on the Noun Phrases node. You'll be prompted to enter a group name, so enter something like **Genitives**. Then double click on that group name, and you'll see an empty spellout rule. This will be a Simple spellout rule because it will insert just the word *of*. In the dropdown labeled Word's Tag, select Adpositions. Then the New Word text box will change to a dropdown that contains all of the target adpositions in the lexicon. If you open that dropdown, you'll see that we haven't yet entered *of* into the lexicon, so click the New Word button. You'll then be able to enter *of* into the target lexicon. To specify which NPs this rule should apply to, click on the Features button, and specify 'Norman Genitive' in the Thing-Thing Relationship column. Give the rule a name such as **Insert *of* into NPs marked as Norman Genitive**. For the Grammar Topic, select Possession. Your rule should look like the one shown in Figure 12-6.

Figure 12-6. Spellout Rule that inserts *of* into Norman Genitive NPs

After you've closed this spellout rule, you'll be prompted to modify your first NP phrase structure rule because the new spellout rule inserts an unknown constituent into NPs. Say Yes, and you'll see your NP phrase structure rule, and Adposition will be entered at the top of the list of constituents. We want the adposition at the beginning of the NP, so you don't need to move it; just click OK to save the phrase structure rule. Now generate this verse again, and you'll see *John saw the people of Egypt.* That's the correct form, but if you rest your cursor near the bottom of the opening NP boundary that contains GENERIC-GENITIVE, you'll see that the embedded NP was inserted at the end of the matrix NP because the NP phrase structure rule didn't know where to put this embedded NP. We should always specify in the PSRs where the various constituents should be positioned, so open the NP phrase structure rule and click the 'Insert New Constituent into Rule' button. Then select Noun Phrases from the Constituent dropdown, and then specify that the NP must have a Thing-Thing Relationship value of 'Norman Genitive.' You'll then see NP – Norman Genitive inserted at the top of the tree. Drag that constituent down so that it immediately follows Noun. Then save the PSR and generate this verse again. This time you'll see that the embedded NP containing GENERIC-GENITIVE was positioned by the NP phrase structure rule rather than being inserted at the end.

12.2 Theta Grid Adjustment Rules

Linguists use the term "theta grid" when talking about a verb's argument structure. For example, the theta grid for the English verb *to walk* is shown below in Table 12-1.

Agent	(Source)	(Destination)

Table 12-1. Theta Grid for English Verb "to walk"

As seen in the table, there is an obligatory Agent, an optional Source, and an optional Destination. English speakers can say things like *John walked, John walked from his house, John walked to school, John walked from his house to school,* etc. Optionality is indicated in the theta grid by putting parentheses around an argument.

These tutorials have mentioned several times that the semantic representations are significantly influenced by English. The events in the ontology are events that have been lexicalized by English, and the theta grids for these events generally correspond with the English perspective of the events. The purpose of the Theta Grid Adjustment rules is to change the theta grids of the events in the semantic representations so that they correspond with the theta grids of the corresponding target verbs. Every event in the ontology has a specified theta grid; some arguments are obligatory, while others are optional. Whenever you start a new language project in TBTA, Theta Grid Adjustment rules are automatically created for each event in the ontology. You can see these rules by going to the grammar tree and opening the Theta Grid Adjustment Rules node. In that node you'll see numerous groups, and if you open a group node, you'll see many Theta Grid Adjustment rules. TBTA knows the argument structure of each event in the ontology, and it knows whether a particular argument is obligatory or optional, so it's able to create the input structure for each event's Theta Grid Adjustment rule. All you need to do is specify the pertinent changes in the output structure. These rules are

used so frequently that a special section was added to the Grammar Introduction in order to help you develop them.

Let's begin by going to Grammar Introduction, Theta Grids 1:214. This particular proposition illustrates the theta grid for WAIT-C, which is used whenever one person waits for another person to come or arrive. Begin by linking WAIT-C to *wait*. After you've linked WAIT-C to *wait*, you'll see that WAIT-C is still highlighted in purple. That's an indication that you haven't yet modified the Theta Grid Adjustment rule for WAIT-C. In order to edit this event's Theta Grid Adjustment rule, right click on WAIT-C, and select the menu option 'Edit this Verb's Theta Grid Adjustment Rule.' In the Theta Grid Adjustment rule, you'll see that WAIT-C takes two arguments, an Agent and a Patient, and both arguments are obligatory (optional arguments are indicated with purple cross-hatching; you'll see an example later in this tutorial). For the vast majority of the Theta Grid Adjustment rules, all you'll need to do is specify the grammatical relation of each argument, and insert the appropriate adpositions into the arguments. For some of the events, you'll need the Theta Grid Adjustment rule to significantly restructure the proposition. However, for WAIT-C, all we need to do for English is insert the preposition *for* into the patient NP, and mark that NP's grammatical relation. When you don't need the Theta Grid Adjustment rule to significantly restructure the proposition, you can just click the Simple Output button located between the rule's input and output structures. When you click the Simple Output button, you'll see a small dialog with two rows, and a column for each argument. The top row is used to specify the grammatical relation of each argument. You may remember that there's a rule which we activated earlier during the discussion of the Feature Adjustment rules, and that rule sets the grammatical relations generically (i.e., agents in active propositions are set to Subject, patients in active propositions are set to Object, etc.). In fact if you close the Simple Output dialog and then rest the cursor on the agent NP containing MARY in the semantic representation (you don't need to close the Theta Grid Adjustment rule for WAIT-C), you'll see that the Grammatical Relation has already been set to Subject. Similarly if you rest the cursor on the opening bracket of the NP containing JOHN, you'll see that the Grammatical Relation has been set to Object. If the grammatical relation values produced by that generic rule are correct for your language, then you don't need to enter any grammatical relations into the Simple Output dialog. But in English, we want the patient NP of WAIT-C to be an oblique that includes the preposition *for*, so open the Simple Output dialog again. Click in the cell under 'Most Patient-like' in the Grammatical Relation row, and you'll see a dialog listing all of the defined values for Grammatical Relation. Select 'Oblique 1' and click OK. You'll then see 'Oblique 1' appear in that cell. Since we want the Agent of WAIT-C to be marked as a Subject, and since the generic rule already did that for us, we don't need to specify the grammatical relation for the agent. In the second row labeled Adposition, click in the cell under 'Most Patient-like,' and you'll see a dialog prompting you to enter an adposition. Enter *for*, and you'll see a message indicating that this adposition has not yet been entered into the lexicon, and you'll be asked if you want to add it to the lexicon now. Answer Yes, and you'll be prompted to enter a gloss. We don't want to enter an adposition into the agent NP, so we're now finished with the Simple Output dialog. Your dialog should now look like the one shown in Figure 12-7.
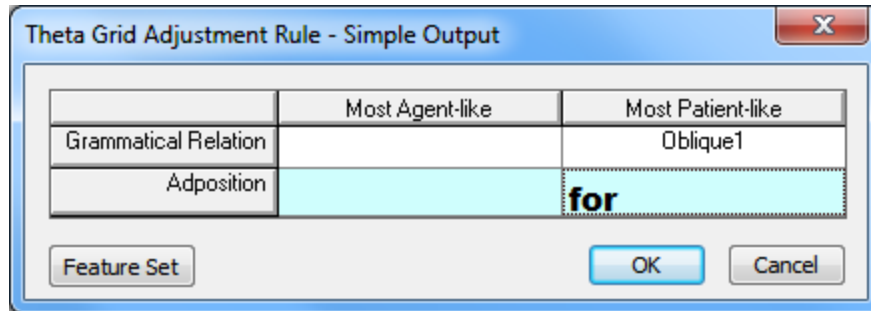
Figure 12-7. Simple Output dialog for Theta Grid Adjustment Rule

Close the Simple Output dialog, and in the Theta Grid Adjustment rule you'll see that the Grammatical Relation of the patient NP has been set to Oblique 1, and *for* has been inserted into that NP. Activate this rule by checking the Status box in the upper left corner, and enter a comment such as **Theta Grids 1:214 Mary waited for John**. Your completed Theta Grid Adjustment rule should look like the one shown in Figure 12-8.
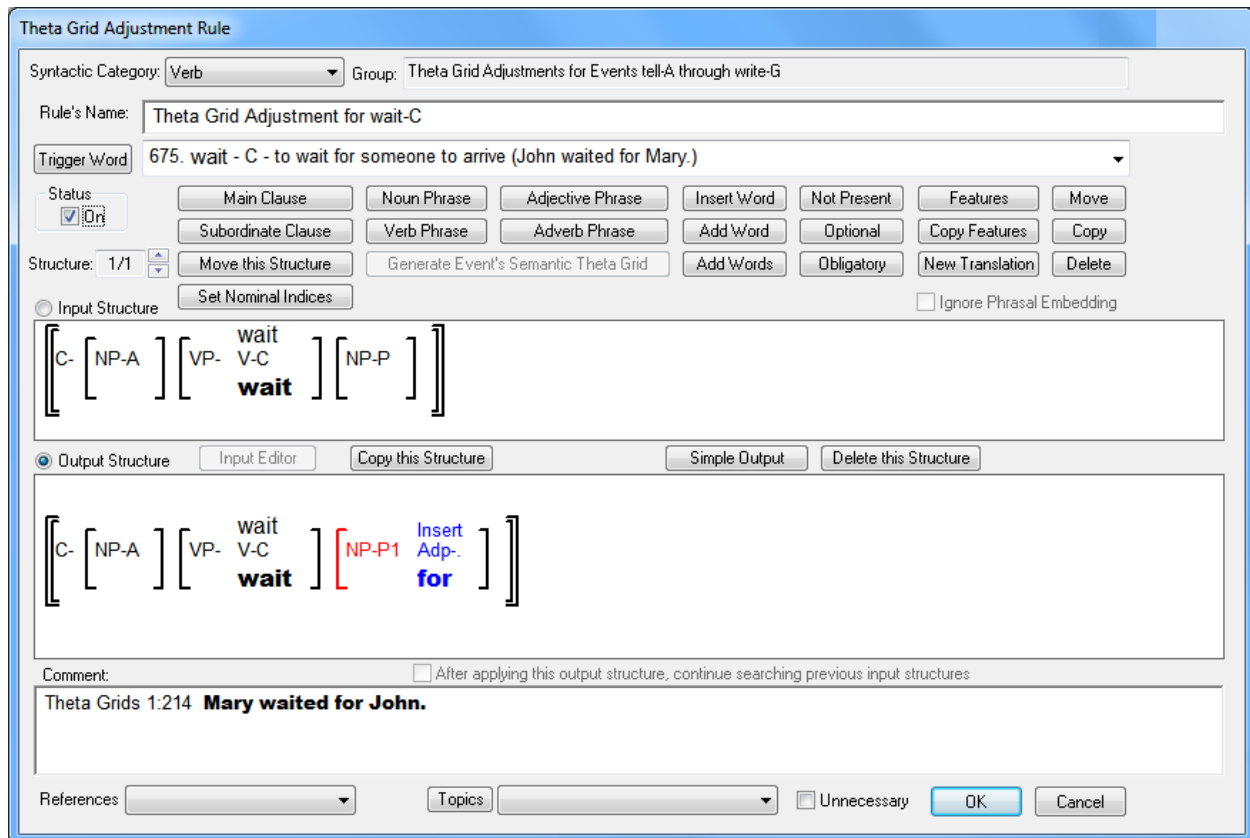

Figure 12-8 Theta Grid Adjustment Rule for WAIT-C

Close the rule by clicking OK, and then generate this verse. You'll see *Mary waited for John.*

Now let's edit the Theta Grid Adjustment rule for WALK-A. Go to Noun Phrases 1:5 which produces *John walked from Jerusalem.* Link JERUSALEM to *Jerusalem.* You'll notice that WALK-A is highlighted in purple indicating that we haven't yet dealt

with its Theta Grid Adjustment rule. Right click on WALK-A, and select the menu option to edit the Theta Grid Adjustment rule. In the rule you'll see that WALK-A takes an obligatory agent, an optional source, and an optional destination. If you rest the cursor on the agent NP in the semantic representation, you'll see that the agent NP's Grammatical Relation has already been set to Subject by the generic rule, so we don't need this Theta Grid Adjustment rule to change that. Click the Simple Output button, and you'll again see the Simple Output dialog. If both the Source and Destination NPs are present, English speakers will most likely put the Source NP before the Destination NP (e.g., "*John walked from his house to the store.*" rather than "*John walked to the store from his house,*" but either order is fine.), so let's set the Grammatical Relation of the Source NP to 'Oblique 1,' and the Grammatical Relation of the Destination NP to 'Oblique 2.' Then in the Adposition row, enter *from* into the Source NP, and *to* into the Destination NP. Your Simple Output dialog should now look like the one shown in Figure 12-9 below.
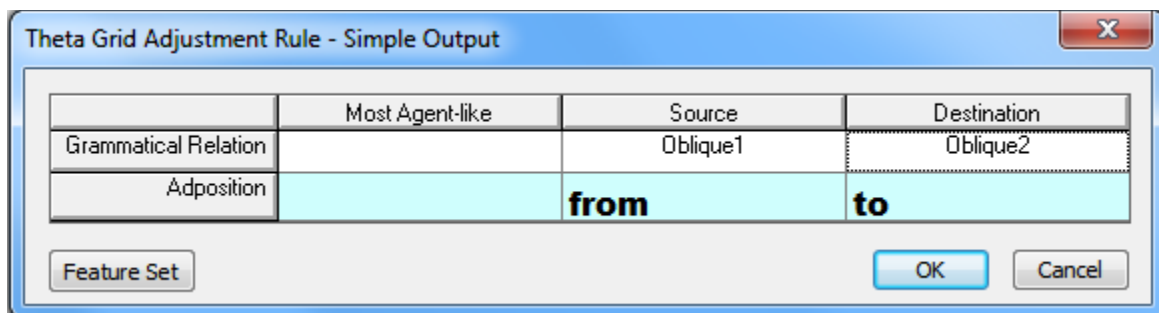

Figure 12-9. Simple Output Dialog for WALK-A

Close the Simple Output dialog, activate the Theta Grid Adjustment rule by clicking the Status box, and enter a comment. Your Theta Grid Adjustment rule should now look like the one shown in Figure 12-10.
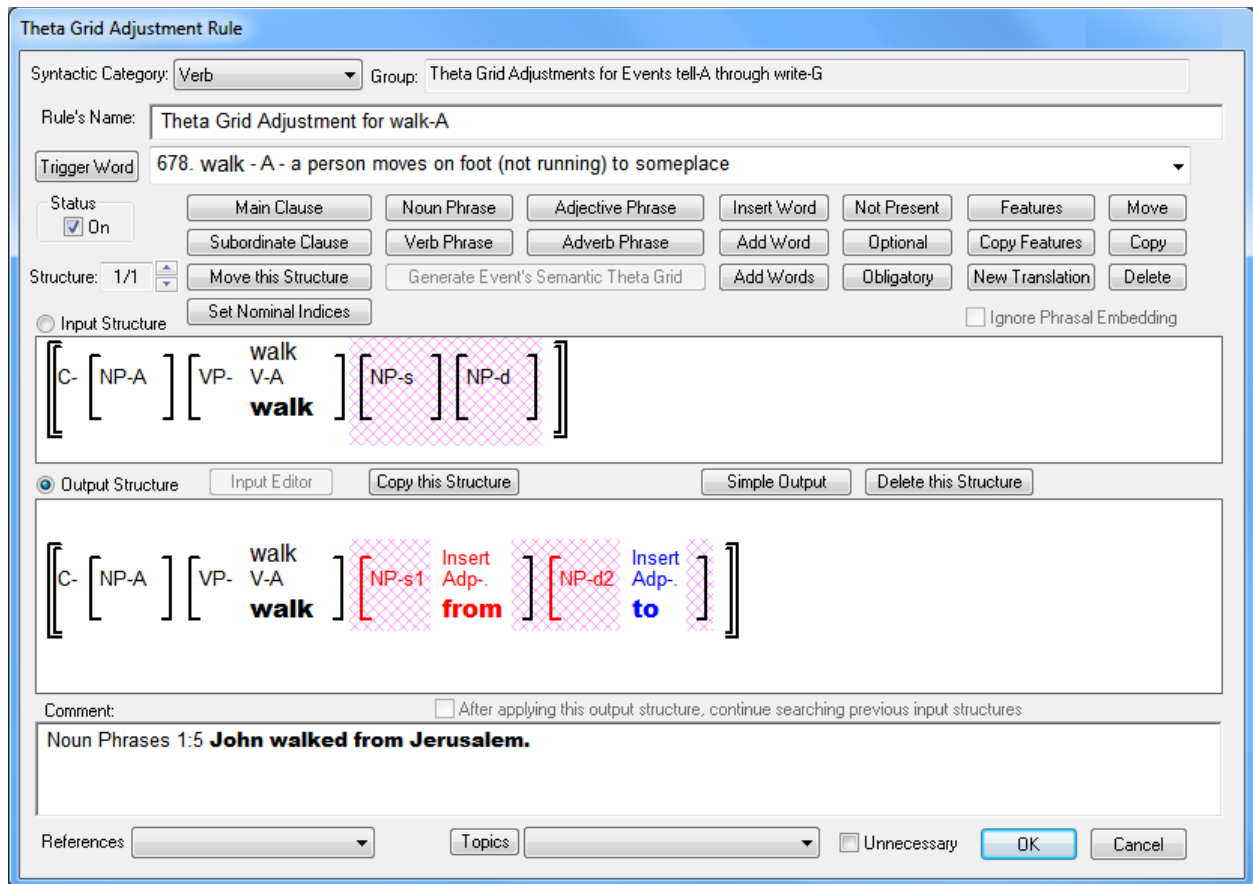
Figure 12-10. Theta Grid Adjustment Rule for WALK-A

Close the Theta Grid Adjustment rule and click the Generate button. You'll see *John walked. From Jerusalem.* If you rest the cursor on the Source NP, you'll see that it was inserted at the end by the clause PSR. Let's edit the clause PSR so that it uses Grammatical Relations rather than Semantic Roles, and so that it includes the Oblique grammatical relations. So open the clause PSR, change the Agent NP to Subject, the Patient NP to Object, the Instrument NP to 'Oblique 1,' and add another NP and specify its Grammatical Relation as 'Oblique 2.' Your revised clause PSR should like the one in Figure 12-11.

Phrase Structure Rule

Syntactic Category: Clauses   Group: Generic

Status
☑ On   Rule's Name: General Purpose Clause Phrase Structure Rule

```
⊟──── Clause
    ├──── Relativizer
    ├──── Adposition
    ├──── NP - Noun: Interrogative
    ├──── Tense Auxiliary
    ├──── NP - Subject
    ├──── VP
    ├──── NP - Object
    ├──── NP - Oblique1
    ├──── NP - Oblique2
    ├──── Clause - Patient
    ├──── Clause - Event Modifier
    ├──── Question Mark
    └──── period
```

Show Structure | Insert New Constituent into Rule | ⦿ Show Names   ⦿ Show Rule

           | Insert New Group into Rule | ○ Show Details   ○ Show Recorded Cooccurrences

Comment:

Built by TBTA.

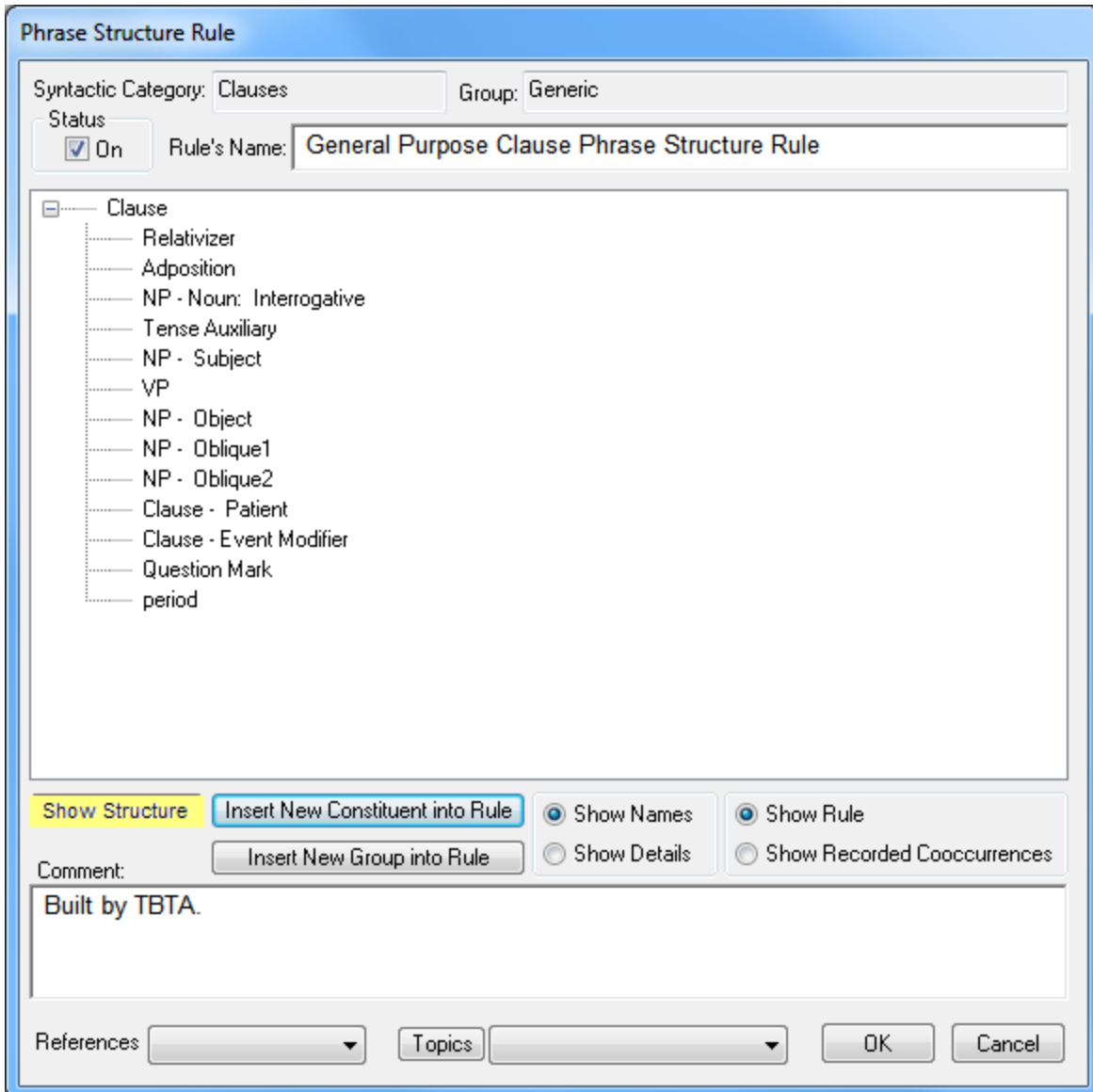References [▾]   [Topics] [▾]   [OK] [Cancel]

Figure 12-11. Clause PSR with Grammatical Relations rather than Semantic Roles

Close the clause PSR and generate this verse again. You'll now see *John walked from Jerusalem.* Go to Noun Phrases 1:6 and click the Generate button. You'll see *John walked to Jerusalem.* You don't need to make any changes to this verse because the Theta Grid Adjustment rule for WALK-A already knows what to do with Destination NPs.

Now let's go to Clauses 1:41 which produces *John wanted to read a book.* Link WANT-B to *want*, and then open the Theta Grid Adjustment rule for WANT-B. WANT-B always has an object complement clause, so you'll see a patient proposition in the Theta Grid Adjustment rule's input structure. Typological research indicates that there are three constituents that must be examined when encoding an object complement clause: 1) the complementizer, 2) the subject nominal in the complement clause, and 3) the verb in the complement clause. Some events require their object complements to include a complementizer (e.g., *Mary thought that John read a book.*), while other events don't allow a complementizer (e.g., *Mary made John read a book.*). Some

events raise the subject of the object complement so that it becomes the object of the matrix verb (e.g., *Mary told him to read a book.* Notice that *him* is in the object form rather than the subject form *he.*), while others don't (e.g., *Mary thinks that he read a book.*). Some events permit their object complements to take fully inflected verbs (e.g., *Mary thinks that John might have read a book.*), while others require their object complements to have non-finite verbs (e.g., *Mary made him read a book.*). Therefore, whenever an event takes a patient proposition as one of its arguments, the Simple Output dialog includes a section that deals with the object complement clause. Click the Simple Output button on the Theta Grid Adjustment rule for WANT-B, and you'll see the same Simple Output dialog that you saw previously. This dialog includes just one column for the agent NP. We don't need to change anything for the agent NP, so click OK. Now you'll see the Simple Output dialog again, but this time it has a table which enables us to specify the three pertinent components in the object complement clause. For WANT-B we don't need a complementizer, so leave the Complementizer cell empty. WANT-B is used throughout the semantic representations whenever the agent of the matrix proposition and the agent of the patient proposition are coreferential (i.e., the same nominal). Therefore we want the agent of the patient proposition to have no surface realization. When a nominal in a construction such as this one has no surface realization, linguists call that PRO (read as "big pro"). PRO is used whenever a nominal is syntactically active but phonetically null. In order to accomplish this in TBTA, click on the cell in the 'Subject Noun's Surface Realization' column, and you'll see a dialog listing all of the feature values for that feature. We haven't yet entered a surface realization value of PRO, so close this dialog, and click on the Feature Set button in the lower left corner of the Simple Output dialog. Select Nouns in the dropdown on the left, and select 'Surface Realization' in the dropdown on the right. Then enter PRO into the left column of the first empty row. Then close that dialog and click on the 'Subject Noun's Surface Realization' cell again, and this time the dialog will include the value PRO. Select that value, and then close the Surface Realization dialog. Now click in the 'Verb's Target Tense & Form' cell, and select '"to" Infinitive.' The Simple Output dialog should now look like the one in Figure 12-12.

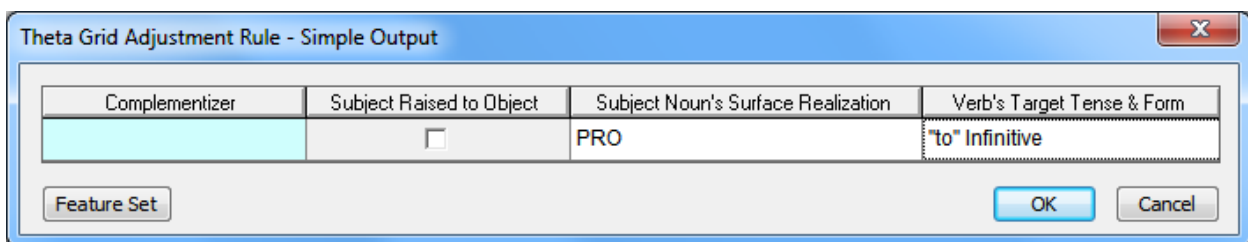| Complementizer	Subject Raised to Object	Subject Noun's Surface Realization	Verb's Target Tense & Form
	☐	PRO	"to" Infinitive

Figure 12-12. Simple Output Dialog for Complement Clause of WANT-B

Close the Simple Output dialog, and enter a comment into the Theta Grid Adjustment rule such as **Clauses 1:41 John wanted to read a book**. Also be sure to activate the rule by checking the Status box. The Theta Grid Adjustment rule should now look like the one shown in Figure 12-13.
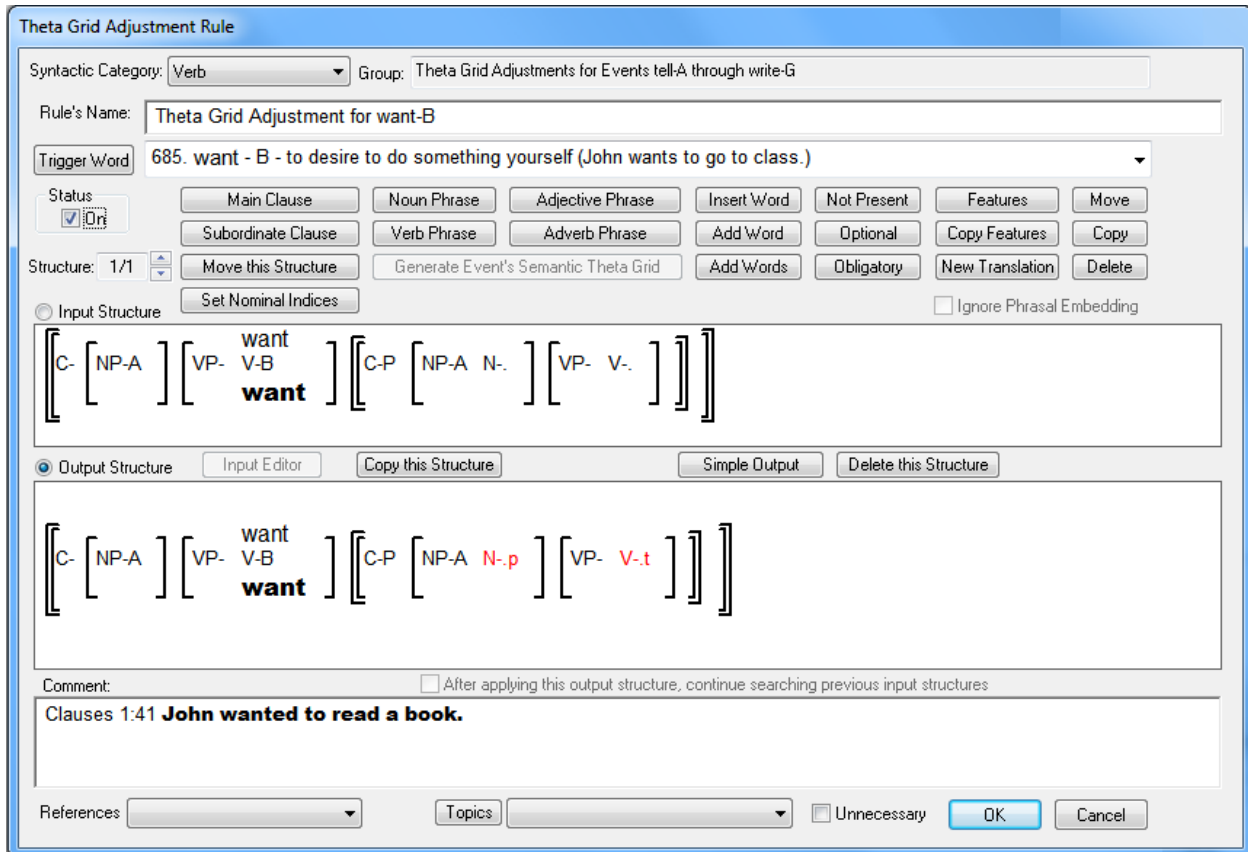
Figure 12-13. Theta Grid Adjustment Rule for WANT-B

If you rest the cursor on the noun in the complement clause's subject NP, you'll see that the Surface Realization will be set to PRO. If you rest the cursor on the object complement's verb's features, you'll see that the 'Target Tense & Form' feature will be set to '"to" Infinitive.' Close this rule and click the Generate button. You'll see *John wanted John read a book*. If you rest the cursor on the features under JOHN in the complement clause, you'll see that its Surface Realization value is PRO. And if you rest the cursor on the features under READ, you'll see that its 'Target Tense & Form' is '"to" Infinitive.'

Let's write a rule that will delete the surface content of a nominal whose Surface Realization value is PRO. In the grammar tree, open the node called 'Pronoun and Switch Reference Rules,' and then open the node called 'Spellout Rules.' Under Nouns enter a new group called Pronouns. Then double click on that group name and you'll see an empty spellout rule. Give this rule a name such as **Nouns marked with PRO are deleted**. For the Type of Modification, select New Translation. Click the Features button, and specify that the Surface Realization feature must be PRO. Be sure to leave the Translation text box empty; by leaving this text box empty, we're telling TBTA to translate this word with nothing. Your final rule should look like the one shown in Figure 12-14.
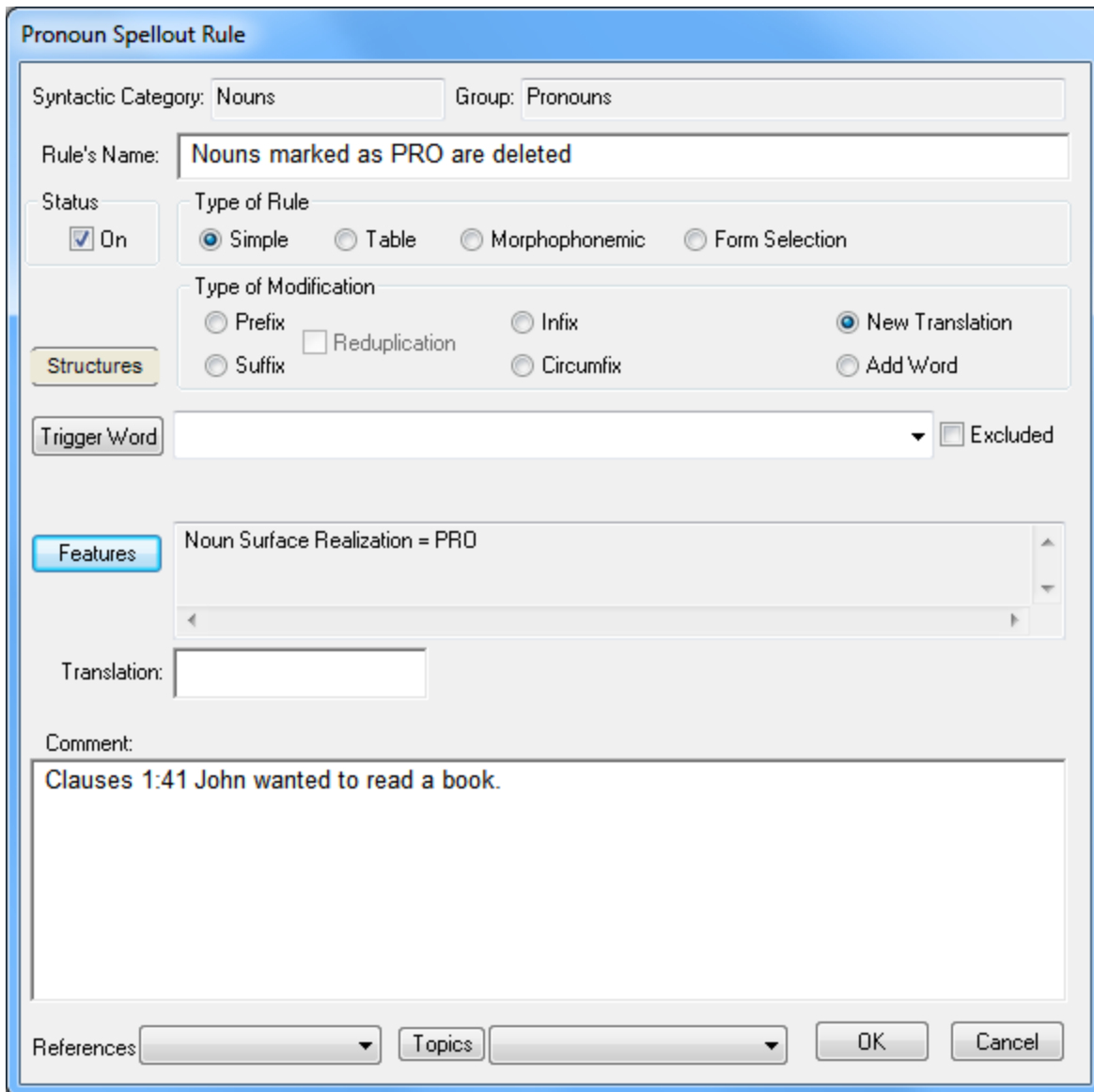
Figure 12-14. Spellout Rule for Nouns with a Surface Realization Value of PRO

Close this dialog and click the Generate button. You'll see *John wanted read a book*. So the spellout rule correctly deleted the subject nominal in the object complement clause. Now write a spellout rule for verbs that will insert *to* and select the stem from the lexicon whenever a verbs 'Target Tense & Form' value is '"to" Infinitive.' Put this rule in the group called Tense which we defined during an earlier tutorial. That rule should look like the one shown in Figure 12-15. Notice that the Base Form dropdown selects the Stem from the lexicon.

Figure 12-15. Spellout Rule for Verbs marked as "to" Infinitive

Save this rule and click the Generate button again. This time you'll see *John wanted to read a book*.

Let's write one more Theta Grid Adjustment rule. Go to Clauses 1:50 which produces *John wanted Mary to read a book*. Right click on WANT-A, and select the menu option to edit the Theta Grid Adjustment rule. WANT-A is used whenever the matrix agent and the complement clause agent are different nominals. In constructions such as these, English raises the subject of the complement clause so that it becomes the object of *want* (e.g., *John wants her to read a book*. Notice that we use *her*, which is the object form, rather than *she*, which is the subject form.). Click on the Simple Output button and you'll see the same dialog. We don't need to change anything for the matrix agent nominal, so just click the OK button. You'll then see the Simple Output dialog again for the object complement clause. We don't need a complementizer, so leave that cell blank. Click the 'Subject Raised to Object' cell, and you'll then see the

'Surface Realization' cell go black meaning that we can't specify a value. Whenever the subject of the complement clause is raised to the object of the matrix clause, we don't need to set the 'Surface Realization' feature, so that cell is blocked. In the 'Target Tense & Form' cell, select the '"to" Infinitive' option. The Simple Output dialog should now look like the one in Figure 12-16.
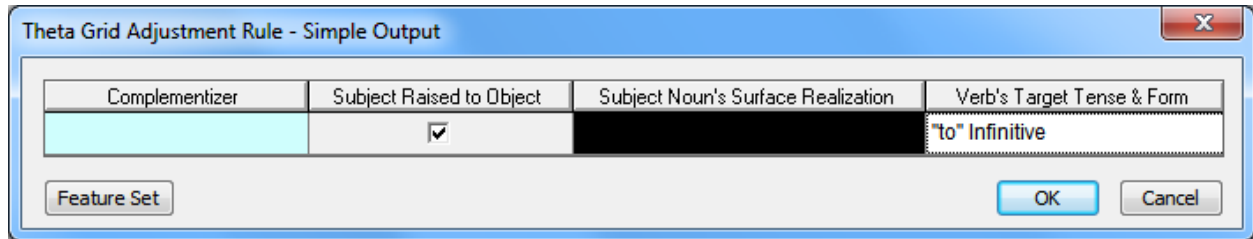

Figure 12-16. Simple Output Dialog for Complement Clause of WANT-A

Close the Simple Output dialog, and you'll see that in the Theta Grid Adjustment rule, the subject NP of the complement clause will be moved to the matrix clause. This movement is indicated by a long red arrow near the bottom of the output structure. That NP will also be marked with a Grammatical Relation value of Object. Activate the rule and enter a comment. Your Theta Grid Adjustment rule for WANT-A should now look like the one in Figure 12-17.
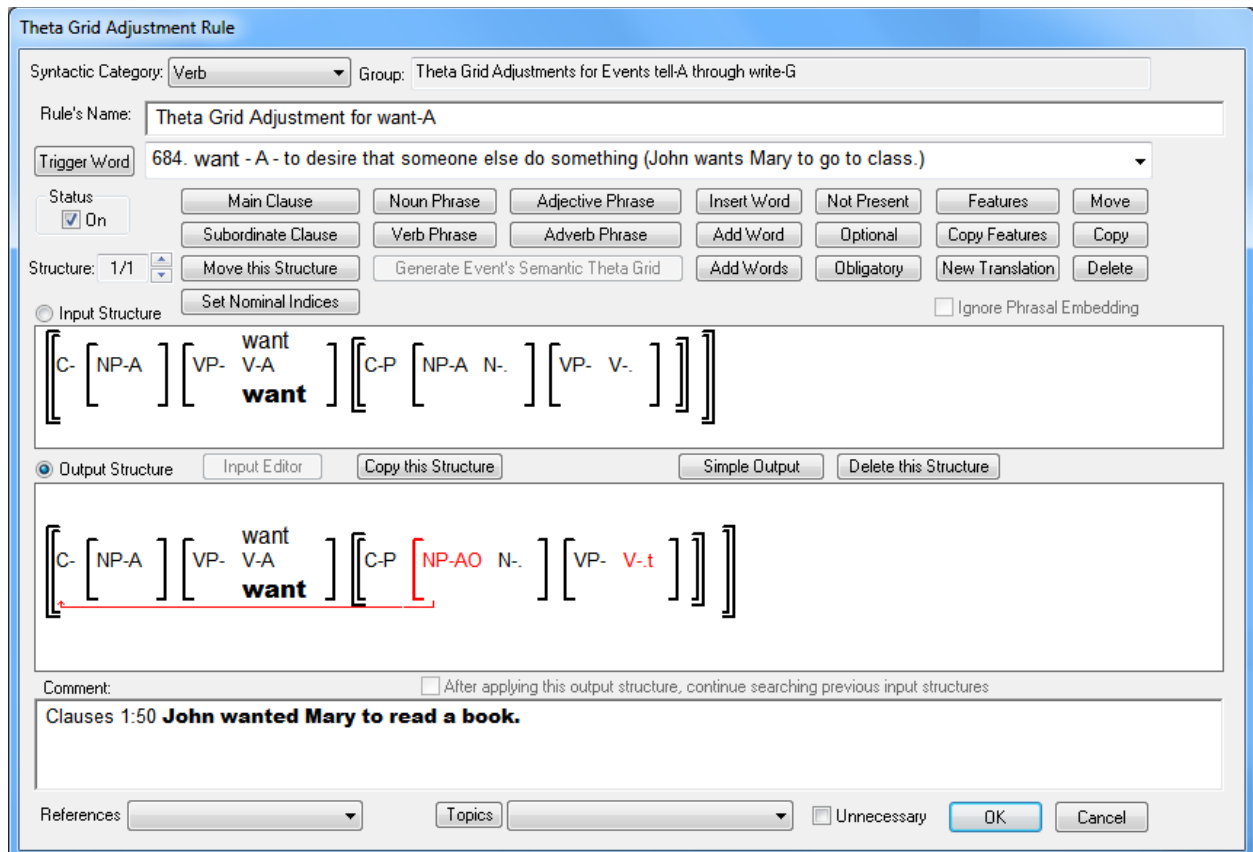

Figure 12-17. Theta Grid Adjustment Rule for WANT-A

Close the Theta Grid Adjustment rule and click the Generate button. You'll see *John wanted Mary to read a book*. In the semantic representation window, you'll see that the NP containing MARY has been moved out of the complement clause and into the matrix clause.

There may be cases where you don't need an event's Theta Grid Adjustment rule to do anything. If that's the case, there's a checkbox near the bottom of the rule labeled Unnecessary. You can check that box, and then close the rule. Then the event will no longer be highlighted in purple in the semantic representation window. For example, go to Community Documents, Infected Eye 1:2. The first proposition produces *One day a girl named Melissa was sitting outside her house*. Link SIT-A to *sit*. SIT-A is still highlighted in purple indicating that you need to do something with its Theta Grid Adjustment rule. Right click on SIT-A, and select the menu option to edit the Theta Grid Adjustment rule. The rule indicates that SIT-A only takes an agent; it never has any other arguments. Therefore you probably won't need this Theta Grid Adjustment rule to do anything. When that's the case, simply click the box labeled Unnecessary down at the bottom of the rule, and then click OK. Now SIT-A is no longer highlighted in purple in the semantic representation window; SIT-A is highlighted in red right now, but that's only because you clicked on it. Click on some other word in the semantic representation window, and you'll see that SIT-A is in black rather than purple.

12.3 Conclusions

In this tutorial you learned how to specify the various noun-noun relationships that occur in the semantic representations. You begin by defining the various methods of encoding noun-noun relationships in your language (e.g., Saxon Genitive, Norman Genitive, Bare Stem Genitive, etc.), and then you set a feature which specifies the appropriate relationship for each noun-noun pair. Then you write spellout rules or clitic rules to encode each type of relationship.

You also learned how to modify the Theta Grid Adjustment rules that were written for you when you started this language project. For many of the events in the ontology, you can simply click the Simple Output button, and then fill in the appropriate values. There will certainly be cases where you'll need a Theta Grid Adjustment rule to significantly restructure the proposition. When that's the case, you can't use the Simple Output dialog; you'll need to specify those changes yourself in the rule's output structure. That can get complicated, but that will be the topic in the next tutorial. The next tutorial discusses the Structural Adjustment rules, but the dialog for those rules is identical to the dialog for the Theta Grid Adjustment rules.