

# OWL to ASP Translator

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## Abstract

This project is about translating OWL ontologies to an Answer Set Programming Language like f2lp, so that reasoning can be done on the ontology. In this project we investigate the possible uses of representing an OWL ontology as an ASP program and, query this knowledge base and compare it to other OWL reasoners like FaCT.

## Introduction

Semantic web initiative is a plan to revolutionize the World Wide Web by representing Web content in more machine-processable form. This will make tasks such as information retrieval and information integration much easier and more efficient. The Web Ontology Language is one such representation that aims to make Web content more machine understandable. OWL is a family of knowledge representation or ontology languages to represent knowledge bases. OWL was built as an extra layer over another knowledge representation language, RDF (Resource Description Framework). Though RDF served a wide variety of purposes it had certain features missing such as, expressing disjointness of classes, cardinality restrictions, and capability to define local scope of object properties. OWL was created as an ontology language to overcome these shortcomings of RDF. OWL has been very wisely applied to tasks such as information integration and metadata management. There are also several reasoners such as Pellet, and FaCT+, which have been built to reason over these ontologies.

OWL is actually a family of three sublanguages – OWL-Lite, OWL-DL, and OWL-Full, each with different levels

of expressiveness. Every OWL sublanguage is upward compatible, meaning every OWL-Lite ontology is a legal OWL-DL ontology, every OWL-DL ontology is a legal OWL-Full ontology.

OWL-Full uses all the OWL language primitives and is fully upward compatible, semantically and syntactically, with RDF and RDFS. OWL-Full is expressive to the extent of being undecidable, hence the reasoning support is less efficient. OWL-DL is a sublanguage of OWL-Full, is computationally complete and decidable. It has all the OWL constructs but they can be used only under certain restrictions, such as the cardinality rule can only be used with object property. OWL-DL is also not fully compatible with RDF. OWL-Lite is a further restriction of expressivity compared to OWL-DL. It does not support disjoint statements and enumerated classes. This high restriction of expressivity makes reasoning over OWL-Lite ontologies very simple and easy.

In this project we deal with OWL ontologies built with OWL-DL language, based on Description Logics. Despite the wide range of expressivity of OWL language, it does have certain shortcomings, such as, it does not allow closed-world reasoning, and introducing integrity constraints and finding possible Herbrand models given the constraints in the ontology.

Adding a layer of Answer Set Program over an OWL ontology or representing the OWL ontology as an Answer

Set Program can fix these shortcomings of OWL language. In this project we tried to address this issue by investigating these use cases which would be hard to handle with OWL-DL alone.

By trying to combine OWL-DL semantics with Answer Set Programming, we tried to come up with a knowledge representation model that is compatible with both logic programs and OWL-DL semantics, and we try to address some of the situations, where OWL reasoners fail, as mentioned earlier.

## OWL – Description Logic

OWL-DL is based on Description Logics (DL), a knowledge representation method based on first-order logic.

An OWL-DL knowledge base consists of - owl classes, representing sets of objects, object or data property representing the different roles of the owl classes and the relationships between them, and individuals, representing specific objects.

Using a rich set of owl classes and object properties, we can construct complex concepts, which describe the conditions for concept membership. For example, the concept  $\exists \text{hasBase.PizzaBase}$  describes those objects that are related through the `hasBase` role with an object from the concept `PizzaBase`.

An OWL-DL knowledge base KB typically consists of a TBox T and an ABox A. A TBox contains axioms about the general structure of all owl classes, and is therefore lays the constraints as to what sort of relationships different owl classes can have amongst themselves. For example, the TBox axiom

$\text{Pizza} \sqsubseteq \exists \text{hasBase.PizzaBase}$

States that every instance of class `Pizza` will be related to some instance of class `PizzaBase` by the role `hasBase`

An ABox contains axioms about the structure and relationships of particular instances of different owl classes. For example, the below DL rules mean that,

`Person(Peter )`  
`hasBrother (Peter ,Paul )`

The individual `Peter` belongs to the owl class `Person`. The second rule says that the individuals `Peter` and `Paul` are related by the relationship `hasBrother`.

## Answer Set Programming

Logic programming is a Knowledge Representation system where a particular domain is described using logical rules and facts. A logical rule is of the form:

$H \leftarrow B_1, B_2, \dots, B_n, \text{not } C_1, C_2, \dots, C_n$

Where `H` is the head of the rule and the RHS of the equation is the body of the rule.

A set of such rules `R` can have any number of stable models, and such rules with a combination of disjunctions in the rule heads and extensions with classical negation is called an Answer Set Programming.

Answer Set Program typically deals with query answering over a finite data set, and it is often used in data-intensive applications. Answer Set programming is very useful for representing computationally hard problems.

## Translating DL Rules to Answer Set Program

The logic rules in an Answer Set Program follow First Order Logic semantics and OWL-DL ontologies can be represented using Description Logic rules. So the task of translating an OWL ontology into an ASP program is that of translating DL rules into their corresponding first order logic rules.

The logic rules in an ASP program require to be grounded. The grounding in this translation is provided by the individuals of the OWL ontology, so the reasoning over the OWL ontology happens over the individuals of the ontology.

Also each owl class is represented as a unary predicate. For instance, if we have to denote that `PepperoniPizza` belongs to class `Pizza` then we write

$t(\top, x) \mapsto$	true	$t(\neg C, x) \mapsto$	$\neg t(C, x)$
$t(\perp, x) \mapsto$	false	$t(\exists R.C, x) \mapsto$	$\exists y. R(x, y) \wedge t(C, y)$
$t(A, x) \mapsto$	$A(x)$	$t(\forall R.C, x) \mapsto$	$\forall y. R(x, y) \Rightarrow t(C, y)$
$t(C_1 \sqcap C_2, x) \mapsto$	$t(C_1, x) \wedge t(C_2, x)$	$t(C \sqsubseteq D) \mapsto$	$\forall x. t(C, x) \Rightarrow t(D, x)$
$t(C_1 \sqcup C_2, x) \mapsto$	$t(C_1, x) \vee t(C_2, x)$	$t(a:C) \mapsto$	$t(C, a)$
		$t((a, b):R) \mapsto$	$R(a, b)$
		$\geq nP$	$\left  \begin{array}{c} \exists y_1 \dots y_n. \bigwedge_{k=1}^n P(x, y_k) \wedge \bigwedge_{i < j} y_i \neq y_j \end{array} \right $
		$\leq nP$	$\left  \begin{array}{c} \forall y_1 \dots y_{n+1}. \bigwedge_{k=1}^{n+1} P(x, y_k) \supset \bigvee_{i < j} y_i = y_j \end{array} \right $

● Example:

$$t(\text{HappyFather} \sqsubseteq \text{Man} \sqcap \exists \text{hasChild.Female}) = \\ \forall x. \text{HappyFather}(x) \Rightarrow (\text{Man}(x) \wedge (\exists y. \text{hasChild}(x, y) \wedge \text{Female}(y)))$$

Figure 1: Conversion from DL Rules to First Order Logic

Pizza(PepperoniPizza).

Every Object Property is represented as a binary predicate. For example, if we have to represent that Pepperoni Pizza has a Pepperoni Topping then we write

hasTopping(PepperoniPizza, PepperoniTopping).

Every owl class and object property is represented in a choice rule, ranging over the individuals as the grounding values.

We then translate the various relationships between classes and object properties as constraints. The models obtained from such a program will be the models permissible by the given OWL-DL knowledge base. See Figure 1 for a more detailed list of DL rules to FOL conversion.

The cardinality rule is also expressed using choice formulas. For example to show that a particular pizza can have only 1 pizza base we write the rule as

$1\{\text{hasBase}(Z, Z1):\text{pizzaBase}(Z1)\}1 \leftarrow \text{pizza}(Z).$

A sample translation for a mini pizza ontology and wine ontology is demonstrated in the Appendix.

2. Query for individuals that meet a certain criteria, find models that satisfy the constraints in the ontology.

When tested with the mini pizza ontology, the following query  
 $![Z]: (\text{queryPizza}(Z) \rightarrow \text{pizza}(Z) \ \& \ ?[A]: \text{hasTopping}(Z, A) \ \& \ \text{vegetableTopping}(A)).$

Returns the models

$\text{queryPizza}(\text{tuePizza}), \text{queryPizza}(\text{thurPizza})$

We could display other predicates from the program and see what are the models that satisfy the constraints imposed by the OWL ontology.

We also check for integrity constraints by adding the following additional constraint –

$?[Z]: (\text{pizza}(Z) \rightarrow \text{hasTopping}(Z, Z1) \ \& \ \text{hasTopping}(Z, Z2) \ \& \ \text{vegetableTopping}(Z1) \ \& \ \text{meatTopping}(Z2)).$

The resulting program will return zero models, telling that in the ontology it is not possible for a pizza to have both a vegetable and a meaty topping.

## Results

A translated ASP program can be useful for querying the knowledge base in two main ways –

1. Check if a particular rule or condition is entailed by the ontology, integrity constraints.

## Conclusion

In this project we did a study of OWL-DL ontology and syntax, came up with a translation for DL rules into First order logic. We also investigated the possible shortcomings of OWL reasoners like FaCT, and tried to address it by

demonstrating how they can be overcome by using Answer Set Programming. We presented the features of representation with non-trivial translations and query expressions. We also gained insight into how OWL could be integrated with ASP rules without sacrificing semantic compatibility with either representations.

The project could be extended to incorporate more properties like functional properties, inverse functional properties, transitive property, etc... Also currently certain cardinality rules do not get translated, we would like to add these features going ahead and see how much better the system can be made. A query system with a combination of OWL representation and ASP reasoning can be a very promising and interesting line of study.

## References

Motik Boris, Horrocks Ian, Rosati Riccardo, and Sattler Ulrike, Can OWL and Logic Programming Live Together Happily Ever After?

Antoniou Grigoris, and Harmelen Frank van, A Semantic Web Primer, The MIT Press, Cambridge Massachusetts, London, England.

## Appendix

### Individual Contribution

**Anirudh** – Came up with the representation and translation of OWL syntax into f2lp program rules. Wrote the code for ABox and some parts of TBox translation of the OWL-DL ontology

**Sachin** – Wrote the code for some of rules of TBox ontology.

### Python Translator

```
'''
```

Created on Mar 18, 2014

@author: Anirudh & Sachin

```
'''
```

```
import urllib2 as ulib
from xml.dom import minidom, Node
import unicodedata
individualNames = []
individualNodes = []
classNames = []
classNodes = []
propertyNames = []
propertyNodes = []
fout = open('out.txt','a')

def main():
    fHandle = open('wine.owl','r')
    feedInfo = fHandle.read()
    fout.truncate()
    fout.write("%file out.txt")
    fout.write("\n")
    xmlDoc = minidom.parseString(feedInfo)
    individualNames,individualNodes = getIndividuals(xmlDoc)
    str = "objects("
    for i in individualNames:
        str = str+i+";"
    str = str[:-1]+")."
    fout.write(str)
    fout.write("\n \n")
    classNames,classNodes = getOwlClasses(xmlDoc)
    propertyNames,propertyNodes = getObjectProp(xmlDoc)
    generateChoiceRules(xmlDoc)
    generateABox(xmlDoc)
    generateTBox(xmlDoc)

def getIndividuals(xmlDoc):
```

```

    individuals = xmlDoc.getElementsByTagName('NamedIndividual')
xmlDoc.getElementsByTagName('owl:NamedIndividual')
    for i,item in enumerate(individuals):
        if item.parentNode.tagName=='rdf:RDF':
            individualNodes.append(item)
            temp = item.attributes.items()[0][1]
            individualNames.append(getPredicate(temp))
    return individualNames,individualNodes

def getOwlClasses(xmlDoc):
    classes = xmlDoc.getElementsByTagName('Class') + xmlDoc.getElementsByTagName('owl:Class')
    newClasses = []
    curClassNodes = []
    for i,item in enumerate(classes):
        if item.parentNode.tagName=='rdf:RDF':
            if item.attributes:
                classNodes.append(item)
                temp = item.attributes.items()[0][1]
                classNames.append(getPredicate(temp))
    return classNames, classNodes

def getObjectProp(xmlDoc):
    props = xmlDoc.getElementsByTagName('ObjectProperty')
xmlDoc.getElementsByTagName('owl:ObjectProperty')
    for i,item in enumerate(props):
        if item.parentNode.tagName=='rdf:RDF':
            propertyNodes.append(item)
            temp = item.attributes.items()[0][1]
            propertyNames.append(getPredicate(temp))

    return propertyNames,propertyNodes

def generateChoiceRules(xmlDoc):
    for uPred in classNames:
        fout.write("{ "+uPred+"(I3):objects(I3)}. \n")
    for bPred in propertyNames:
        fout.write("{ "+bPred+"(I3,I4):objects(I3;I4)}. \n")
    fout.write("\n")
    return

def generateABox(xmlDoc):
    """
    Write down the ABox rules for each individual, by iterating through each of them
    """
    for i,item in enumerate(individualNodes):
        children = item.childNodes
        fout.write("% "+individualNames[i]+" \n")
        for child in children:
            if child.localName==None:
                continue

```

```

elif child.localName=='type':
    #print child.toxml()
    """
    If the node is of rdf:type then we define a unary predicate telling that the individual is of type
    the class of the given rdf:type
    """
    if child.attributes:
        fout.write(getRdfType(child)+"("+individualNames[i]+"). \n")
    else:
        print "TODO ABox Individual declaration of unary predicates for complex classes"
elif child.localName in propertyNames:
    """
    If the child node is of type owl:<ObjectProperty name> then we define it as an object property
of the
    individual and declare it as a binary predicate in the ABox
    """
    if child.attributes:
        fout.write(child.localName+"("+individualNames[i]+","+getRdfType(child)+"). \n")
    else:
        print "TODO ABox Individual declaration of binary predicates for complex classes"
    fout.write("\n")
return

def generateTBox(xmlDoc):
    for i,item in enumerate(classNodes):
        #print item.toxml()
        classA = getRdfType(item)
        children = item.childNodes
        for child in children:
            if child.localName==None:
                continue
            elif child.localName=='subClassOf':
                subClassOf(child, classA, 'A', 1)
            elif child.localName=='equivalentClass':
                equivalentClass(child, classA, 'A', 1)
            elif child.localName=='disjointWith':
                disjointWith(child, classA, 'A', 1)

        fout.write("\n")

    for i,item in enumerate(propertyNodes):
        children = item.childNodes
        for child in children:
            nodeType = child.localName
            if nodeType == 'domain':
                if child.attributes:
                    fout.write("! [Z,Z1]: (" +propertyNames[i]+"(Z,Z1) -> "+getRdfType(child)+"(Z)). \n")
                else:
                    print "TODO expand domain class"
            elif nodeType == 'range':

```

```

        if child.attributes:
            fout.write("![" + Z + ",Z1]: (" + propertyNames[i] + "(Z,Z1) -> " + getRdfType(child) + "(Z1)). \n")
        else:
            print "TODO expand range class"
    elif nodeType == 'inverseOf':
        if child.attributes:
            fout.write("![" + Z + ",Z1]: (" + propertyNames[i] + "(Z,Z1) -> " + getRdfType(child) + "(Z1,Z)). \n")
        else:
            print "TODO expand inverseOf class"
    elif nodeType == 'subPropertyOf':
        if child.attributes:
            fout.write("![" + Z + ",Z1]: (" + propertyNames[i] + "(Z,Z1) -> " + getRdfType(child) + "(Z,Z1)). \n")
        else:
            print "TODO expand subPropertyOf class"
    fout.write('\n')

desc = xmlDoc.getElementsByTagName('rdf:Description')
for i,item in enumerate(desc):
    if item.parentNode.tagName == 'rdf:RDF':
        print item.localName
return
'''

def subClassOf(classA,classB):

    defines a rule telling classA is subclass of classB

    if classB.attributes:
        classBName = getRdfType(classB)
        fout.write("![" + Z + "]: (" + classA + "(Z) -> " + classBName + "(Z)). \n")
    else:
        print "TODO subclass of complex classes(restriction etc..)" #classB.firstChild.toxml()
    return
'''

def equivalentClass(node, className, classChar, index):
    convertedString = ""
    finalConversion = list()
    if node.hasChildNodes():
        child = node.childNodes
        for i in range(0, len(child)):
            if child[i].localName != None:
                convertedString = owlClassProperty(child[i], className, classChar, index)
        finalConversion1 = '[' + classChar + ']:(' + className + '(' + classChar + ') -> ' + convertedString + ') .'
        finalConversion2 = '[' + classChar + ']:(' + convertedString + ' -> ' + className + '(' + classChar + ')).'
        fout.write(finalConversion1)
        fout.write('\n')
        fout.write(finalConversion2)
        fout.write('\n')
    return

def disjointWith(node, className, classChar, index):

```



```

    name = makeLower(getName(node.attributes['rdf:resource'].value))
    finalConversion = "![ "+classChar+"]:("+className+"("+classChar+")" and
"+name+"("+classChar+")) -> false)."
    fout.write(finalConversion)
    fout.write('\n')
    return

```

```

def subClassOf(node, className, classChar, index):
    """ given the node which is the child of owl:class tag and the class Name which is the subclass to covert
    it to a -> b rule """

```

```

    restrictionCalled = False
    if node.hasChildNodes():
        subChild = node.childNodes
        for i in range(0, len(subChild)):
            if subChild[i].localName != None :
                childName = subChild[i].localName
                if childName == 'Restriction':
                    index += 1
                    convertedString = restriction(subChild[i], className, classChar, index)
                    finalConversion = "![ "+classChar+"]:(" +className+"("+classChar+")" ->
"+convertedString+")."
                else:
                    print childName
            else:
                """coersion to a->b directly after getting the class name"""
                subClassName = getName(node.attributes['rdf:resource'].value)
                finalConversion = "![ "+classChar+"]:("+className+"("+classChar+")" ->
"+makeLower(subClassName)+"("+classChar+")))."

        fout.write(finalConversion)
        fout.write('\n')
        return

```

```

def owlClassProperty(node, className, classChar, index):
    """ this function is for the owl class tag after equivalentclass or restriction"""
    classChild = node.childNodes
    for child in classChild :
        localName = child.localName
        convertedStrings = list()
        if localName != None and child.hasChildNodes():
            gChildNodes = child.childNodes
            restrictionCalled = False
            first = True
            for gChild in gChildNodes:
                gChildName = gChild.localName
                if gChildName == 'Description' and localName != 'oneOf':
                    gChildValue = makeLower(getName(gChild.attributes['rdf:about'].value))
                    convertedString = gChildValue+"("+classChar+"))"
                elif gChildName == 'Restriction' and localName != 'oneOf':
                    index += 1

```

```

        convertedString = restriction(gChild, className, classChar, index)
        restrictionCalled = True
    elif gChildName != None and localName == 'oneOf':
        convertedString = makeLower(getName(gChild.attributes['rdf:about'].value))
    else :
        continue

    if convertedString != "":
        convertedStrings.insert(len(convertedStrings), convertedString)

finalConversion = ""
if localName == 'intersectionOf':
    finalConversion += " & ".join(convertedStrings)
elif localName == 'unionOf':
    finalConversion = " | ".join(convertedStrings)
elif localName == 'complementOf':
    for convertedString in convertedStrings:
        finalConversion += finalConversion + ' not ('+convertedString+')'
elif localName == 'oneOf':
    for i in range(0, len(convertedStrings)):
        last = False
        first = True
        if i == len(convertedStrings)-1 :
            last = True
        finalConversion = finalConversion + "("
        for j in range(0, len(convertedStrings)):
            gChildValue = convertedStrings[j]
            if i == j and first:
                finalConversion = finalConversion + "(" + classChar + " = " + gChildValue + ")"
                first = False
            elif i != j and first:
                finalConversion = finalConversion + "( not (" + classChar + " = " + gChildValue + "))"
                first = False
            elif i == j and not first:
                finalConversion = finalConversion + " & " + "(" + classChar + " = " + gChildValue + ")"
            elif i != j and not first:
                finalConversion = finalConversion + " & ( not " + "(" + classChar + " = " +
gChildValue + "))"

        if last:
            finalConversion = finalConversion + ")"
        else :
            finalConversion = finalConversion + ") | "
    elif localName != None :
        finalConversion = "not "+getName(child.attributes['rdf:resource'].value)+(" "+classChar+"")

return finalConversion

def restriction(node, className, classChar, index):

```

```

"classChar will tell me what the character has been used previously for restriction"
#print node.toxml()
#print 'from bahar'
#print index
charASCII = 64 + index
char = chr(charASCII)
#print node.toxml()
restrictionChild = node.childNodes
propertyName = ""
convertedString = ""
tempConvertedString = ""
for i in range(0, len(restrictionChild)):
    localName = restrictionChild[i].localName
    if localName == 'onProperty':
        propertyName = getName(restrictionChild[i].attributes['rdf:resource'].value)
        propertyChar = char
        propertyIndex = index
    elif localName == 'someValuesFrom':
        if restrictionChild[i].hasChildNodes():
            gRestrictionChild = restrictionChild[i].childNodes
            for i in range(0, len(gRestrictionChild)):
                gLocalName = gRestrictionChild[i].localName
                if gLocalName == "Class":
                    index += 1
                    tempConvertedString = owlClassProperty(gRestrictionChild[i], propertyName,
propertyChar, index)
                    convertedString = "?["+propertyChar+"]:("+propertyName+"("+classChar+",
"+propertyChar+") & (" +tempConvertedString+"))"
                elif gLocalName == "Restriction":
                    index += 1
                    tempConvertedString = restriction(gRestrictionChild[i], className, propertyChar, index)
                    convertedString = "?["+propertyChar+"]:("+propertyName+"("+classChar+",
"+propertyChar+") & (" +tempConvertedString+"))"
                elif gLocalName == None:
                    continue
                else :
                    print 'TO handle this case'
                    print gLocalName
            else:
                ""does not have child nodes""
                value = makeLower(getName(restrictionChild[i].attributes['rdf:resource'].value))
                convertedString = "?["+char+"]:("+propertyName+"("+classChar+", "+propertyChar+") &
"+value+"("+propertyChar+"))"
                #index += 1
        elif localName == 'hasValue':
            value = getName(restrictionChild[i].attributes['rdf:resource'].value)
            value = makeLower(value)
            convertedString = propertyName+"("+classChar+", "+value+")"
        elif localName == 'allValuesFrom':
            if restrictionChild[i].hasChildNodes():
                gRestrictionChild = restrictionChild[i].childNodes

```

```

        for i in range (0, len(gRestrictionChild)):
            gLocalName = gRestrictionChild[i].localName
            if gLocalName == "Class":
                index+=1
                tempConvertedString = owlClassProperty(gRestrictionChild[i], propertyName,
propertyChar, index)
                convertedString = "["+propertyChar+"]:("+propertyName+"("+classChar+",
"+propertyChar+") & (" +tempConvertedString+"))"
            elif gLocalName == "Restriction":
                index += 1
                tempConvertedString = restriction(gRestrictionChild[i], className, propertyChar, index)
                convertedString = "["+propertyChar+"]:("+propertyName+"("+classChar+",
"+propertyChar+") & (" +tempConvertedString+"))"
            elif gLocalName == None:
                continue
            else :
                print gLocalName
        else:
            value = makeLower(getName(restrictionChild[i].attributes['rdf:resource'].value))
            convertedString = "["+char+"]:("+propertyName+"("+classChar+", "+propertyChar+") &
"+value+"("+propertyChar+"))"
            #index += 1
        """elif localName == 'minCardinality':
            #print 'from min rule'
            #print propertyName
            #print restrictionChild[i].toxml()
            print 'TO DO minimum cardinality'
        elif localName == 'maxCardinality':
            #print 'from max rule'
            #print restrictionChild[i].toxml()
            print 'TO DO maximum cardinality'"""
    return convertedString

```

```

def getRdfType(node):
    """
    Given a node it returns the attribute value of the first attribute
    """
    if node.childNodes != None and node.attributes:
        return getPredicate(node.attributes.items()[0][1])

```

```

def getPredicate(link):
    temp = unicodedata.normalize('NFKD', link).encode('ascii','ignore')
    loc = 0
    if temp.find('#')>=0:
        loc = temp.index('#')+1
    elif temp.find(';')>=0:
        loc = temp.index(';')+1
    else:
        loc=0
    temp = temp[loc:]
    temp = temp[0].lower()+temp[1:]

```

```

return temp

def getName(attributeString):
    return attributeString.split('#')[-1]

def makeLower(value):
    return (value[:1].lower()+value[1:])

if __name__ == '__main__':
    main()

```

## Sample MiniPizza Ontology

```

<?xml version="1.0"?>

<!DOCTYPE rdf:RDF [
    <!ENTITY owl "http://www.w3.org/2002/07/owl#" >
    <!ENTITY xsd "http://www.w3.org/2001/XMLSchema#" >
    <!ENTITY rdfs "http://www.w3.org/2000/01/rdf-schema#" >
    <!ENTITY rdf "http://www.w3.org/1999/02/22-rdf-syntax-ns#" >
    <!ENTITY myPizza "http://www.semanticweb.org/anirudh/ontologies/2014/3/myPizza.owl#" >
]>

<rdf:RDF xmlns="http://www.w3.org/2002/07/owl#"
    xml:base="http://www.w3.org/2002/07/owl"
    xmlns:rdfs="http://www.w3.org/2000/01/rdf-schema#"
    xmlns:owl="http://www.w3.org/2002/07/owl#"
    xmlns:xsd="http://www.w3.org/2001/XMLSchema#"
    xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
    xmlns:myPizza="http://www.semanticweb.org/anirudh/ontologies/2014/3/myPizza.owl#">
    <Ontology rdf:about="http://www.semanticweb.org/anirudh/ontologies/2014/3/myPizza.owl"/>

    <!--
    //////////////////////////////////////
    //
    // Object Properties
    //
    //////////////////////////////////////
    -->

    <!-- http://www.semanticweb.org/anirudh/ontologies/2014/3/myPizza.owl#hasBase -->

    <ObjectProperty rdf:about="&myPizza;hasBase">

```

```
<rdfs:domain rdf:resource="&myPizza;Pizza"/>
<rdfs:range rdf:resource="&myPizza;PizzaBase"/>
</ObjectProperty>
```

```
<!-- http://www.semanticweb.org/anirudh/ontologies/2014/3/myPizza.owl#hasTopping -->
```

```
<ObjectProperty rdf:about="&myPizza;hasTopping">
  <rdfs:domain rdf:resource="&myPizza;Pizza"/>
  <rdfs:range rdf:resource="&myPizza;PizzaTopping"/>
</ObjectProperty>
```

```
<!--
////////////////////////////////////
//
// Classes
//
////////////////////////////////////
-->
```

```
<!-- http://www.semanticweb.org/anirudh/ontologies/2014/3/myPizza.owl#AmericanPizza -->
```

```
<Class rdf:about="&myPizza;AmericanPizza">
  <rdfs:subClassOf rdf:resource="&myPizza;NamedPizza"/>
  <rdfs:subClassOf>
    <Restriction>
      <onProperty rdf:resource="&myPizza;hasTopping"/>
      <someValuesFrom rdf:resource="&myPizza;PepperoniTopping"/>
    </Restriction>
  </rdfs:subClassOf>
  <rdfs:subClassOf>
    <Restriction>
      <onProperty rdf:resource="&myPizza;hasTopping"/>
      <someValuesFrom rdf:resource="&myPizza;TomatoTopping"/>
    </Restriction>
  </rdfs:subClassOf>
</Class>
```

```
<!-- http://www.semanticweb.org/anirudh/ontologies/2014/3/myPizza.owl#CheeseTopping -->
```

```
<Class rdf:about="&myPizza;CheeseTopping">
  <rdfs:subClassOf rdf:resource="&myPizza;PizzaTopping"/>
```

</Class>

<!-- http://www.semanticweb.org/anirudh/ontologies/2014/3/myPizza.owl#IndianPizza -->

```
<Class rdf:about="&myPizza;IndianPizza">
  <rdfs:subClassOf rdf:resource="&myPizza;NamedPizza"/>
  <rdfs:subClassOf>
    <Restriction>
      <onProperty rdf:resource="&myPizza;hasTopping"/>
      <someValuesFrom rdf:resource="&myPizza;OlivesTopping"/>
    </Restriction>
  </rdfs:subClassOf>
</Class>
```

<!-- http://www.semanticweb.org/anirudh/ontologies/2014/3/myPizza.owl#JalapenoTopping -->

```
<Class rdf:about="&myPizza;JalapenoTopping">
  <rdfs:subClassOf rdf:resource="&myPizza;VegetableTopping"/>
</Class>
```

<!-- http://www.semanticweb.org/anirudh/ontologies/2014/3/myPizza.owl#NamedPizza -->

```
<Class rdf:about="&myPizza;NamedPizza">
  <rdfs:subClassOf rdf:resource="&myPizza;Pizza"/>
</Class>
```

<!-- http://www.semanticweb.org/anirudh/ontologies/2014/3/myPizza.owl#OlivesTopping -->

```
<Class rdf:about="&myPizza;OlivesTopping">
  <rdfs:subClassOf rdf:resource="&myPizza;VegetableTopping"/>
</Class>
```

<!-- http://www.semanticweb.org/anirudh/ontologies/2014/3/myPizza.owl#PepperoniTopping -->

```
<Class rdf:about="&myPizza;PepperoniTopping">
  <rdfs:subClassOf rdf:resource="&myPizza;PizzaTopping"/>
</Class>
```

<!-- http://www.semanticweb.org/anirudh/ontologies/2014/3/myPizza.owl#Pizza -->

```
<Class rdf:about="&myPizza;Pizza">
  <rdfs:subClassOf rdf:resource="&myPizza;PizzaDomainConcept"/>
  <rdfs:subClassOf>
    <Restriction>
      <onProperty rdf:resource="&myPizza;hasTopping"/>
      <someValuesFrom rdf:resource="&myPizza;PizzaTopping"/>
    </Restriction>
  </rdfs:subClassOf>
  <rdfs:subClassOf>
    <Restriction>
      <onProperty rdf:resource="&myPizza;hasBase"/>
      <someValuesFrom rdf:resource="&myPizza;PizzaBase"/>
    </Restriction>
  </rdfs:subClassOf>
</Class>
```

<!-- http://www.semanticweb.org/anirudh/ontologies/2014/3/myPizza.owl#PizzaBase -->

```
<Class rdf:about="&myPizza;PizzaBase">
  <rdfs:subClassOf rdf:resource="&myPizza;PizzaDomainConcept"/>
</Class>
```

<!-- http://www.semanticweb.org/anirudh/ontologies/2014/3/myPizza.owl#PizzaDomainConcept -->

```
<Class rdf:about="&myPizza;PizzaDomainConcept"/>
```

<!-- http://www.semanticweb.org/anirudh/ontologies/2014/3/myPizza.owl#PizzaTopping -->

```
<Class rdf:about="&myPizza;PizzaTopping">
  <rdfs:subClassOf rdf:resource="&myPizza;PizzaDomainConcept"/>
</Class>
```

<!-- http://www.semanticweb.org/anirudh/ontologies/2014/3/myPizza.owl#TomatoTopping -->

```
<Class rdf:about="&myPizza;TomatoTopping">
  <rdfs:subClassOf rdf:resource="&myPizza;VegetableTopping"/>
</Class>
```



```

<!-- http://www.semanticweb.org/anirudh/ontologies/2014/3/myPizza.owl#VegetableTopping -->

<Class rdf:about="&myPizza;VegetableTopping">
  <rdfs:subClassOf rdf:resource="&myPizza;PizzaTopping"/>
</Class>

<!--
////////////////////////////////////
//
// Individuals
//
////////////////////////////////////
-->

<!-- http://www.semanticweb.org/anirudh/ontologies/2014/3/myPizza.owl#FishTopping -->

<NamedIndividual rdf:about="&myPizza;FishTopping">
  <rdf:type rdf:resource="&myPizza;PepperoniTopping"/>
</NamedIndividual>

<!-- http://www.semanticweb.org/anirudh/ontologies/2014/3/myPizza.owl#MonPizza -->

<NamedIndividual rdf:about="&myPizza;MonPizza">
  <rdf:type rdf:resource="&myPizza;Pizza"/>
  <myPizza:hasTopping rdf:resource="&myPizza;FishTopping"/>
  <myPizza:hasBase rdf:resource="&myPizza;OvenBase"/>
</NamedIndividual>

<!-- http://www.semanticweb.org/anirudh/ontologies/2014/3/myPizza.owl#OvenBase -->

<NamedIndividual rdf:about="&myPizza;OvenBase">
  <rdf:type rdf:resource="&myPizza;PizzaBase"/>
</NamedIndividual>

<!-- http://www.semanticweb.org/anirudh/ontologies/2014/3/myPizza.owl#SuperTopping -->

<NamedIndividual rdf:about="&myPizza;SuperTopping">
  <rdf:type rdf:resource="&myPizza;CheeseTopping"/>
</NamedIndividual>

```

<!-- http://www.semanticweb.org/anirudh/ontologies/2014/3/myPizza.owl#ThickBase -->

```
<NamedIndividual rdf:about="&myPizza;ThickBase">
  <rdf:type rdf:resource="&myPizza;PizzaBase"/>
</NamedIndividual>
```

<!-- http://www.semanticweb.org/anirudh/ontologies/2014/3/myPizza.owl#ThurPizza -->

```
<NamedIndividual rdf:about="&myPizza;ThurPizza">
  <rdf:type rdf:resource="&myPizza;AmericanPizza"/>
  <myPizza:hasBase rdf:resource="&myPizza;OvenBase"/>
  <myPizza:hasTopping rdf:resource="&myPizza;SuperTopping"/>
</NamedIndividual>
```

<!-- http://www.semanticweb.org/anirudh/ontologies/2014/3/myPizza.owl#TuePizza -->

```
<NamedIndividual rdf:about="&myPizza;TuePizza">
  <rdf:type rdf:resource="&myPizza;IndianPizza"/>
  <myPizza:hasTopping rdf:resource="&myPizza;FishTopping"/>
  <myPizza:hasBase rdf:resource="&myPizza;ThickBase"/>
</NamedIndividual>
```

<!-- http://www.semanticweb.org/anirudh/ontologies/2014/3/myPizza.owl#WedPizza -->

```
<NamedIndividual rdf:about="&myPizza;WedPizza">
  <rdf:type rdf:resource="&myPizza;Pizza"/>
  <myPizza:hasTopping rdf:resource="&myPizza;SuperTopping"/>
  <myPizza:hasBase rdf:resource="&myPizza;ThickBase"/>
</NamedIndividual>
```

<!-- http://www.semanticweb.org/anirudh/ontologies/2014/3/myPizza.owl#test -->

```
<NamedIndividual rdf:about="&myPizza;test">
  <rdf:type>
    <Restriction>
      <onProperty rdf:resource="&myPizza;hasBase"/>
      <someValuesFrom rdf:resource="&myPizza;PizzaBase"/>
    </Restriction>
  </rdf:type>
```

</NamedIndividual>

```
<!--  
////////////////////////////////////  
//  
// General axioms  
//  
////////////////////////////////////  
-->
```

```
<rdf:Description>  
  <rdf:type rdf:resource="&owl;AllDisjointClasses"/>  
  <members rdf:parseType="Collection">  
    <rdf:Description rdf:about="&myPizza;Pizza"/>  
    <rdf:Description rdf:about="&myPizza;PizzaBase"/>  
    <rdf:Description rdf:about="&myPizza;PizzaTopping"/>  
  </members>  
</rdf:Description>  
</rdf:RDF>
```

<!-- Generated by the OWL API (version 3.4.2) <http://owlapi.sourceforge.net> -->

## Converted f2lp Program

```
% file pizza.fof  
% f2lp program for pizza ontology
```

```
objects(fishTopping;monPizza;ovenPizza;ovenBase;superTopping;thickBase;thurPizza;tuePizza;wedPizza).  
#domain objects(X;Y).
```

```
{americanPizza(I3): objects(I3)}.  
{pizzaBase(I3): objects(I3)}.  
{pizza(I3): objects(I3)}.  
{pizzaTopping(I3): objects(I3)}.  
{indianPizza(I3): objects(I3)}.  
{namedPizza(I3): objects(I3)}.  
{vegetableTopping(I3): objects(I3)}.  
{cheeseTopping(I3): objects(I3)}.  
{pepperoniTopping(I3): objects(I3)}.  
{jalapenoTopping(I3): objects(I3)}.  
{olivesTopping(I3): objects(I3)}.  
{tomatoTopping(I3): objects(I3)}.  
{queryPizza(I3) : objects(I3)}.  
{hasTopping(I3,I4): objects(I3;I4)}.  
{hasBase(I3,I4): objects(I3;I4)}.
```

americanPizza(thurPizza).

hasTopping(monPizza,fishTopping).  
hasBase(monPizza,ovenBase).  
hasTopping(thurPizza,superTopping).  
hasBase(thurPizza,ovenBase).  
hasTopping(tuePizza,fishTopping).  
hasBase(tuePizza,thickBase).  
hasTopping(wedPizza,superTopping).  
hasBase(wedPizza,thickBase).  
pizza(monPizza).  
pepperoniTopping(fishTopping).  
pizzaBase(ovenBase;thickBase).  
cheeseTopping(superTopping).  
indianPizza(tuePizza).  
pizza(wedPizza).

#hide pizzaDomainConcept/1.  
#hide objects/1.  
#hide americanPizza/1.  
#hide indianPizza/1.  
#hide hasTopping/2.  
#hide hasBase/2.  
#hide pizza/1.  
#hide pizzaBase/1.  
#hide pepperoniTopping/1.  
#hide cheeseTopping/1.  
#hide indianTopping/1.  
#hide olivesTopping/1.  
#hide tomatoTopping/1.  
#hide jalapenoTopping/1.  
#hide vegetableTopping/1.  
#hide pizzaTopping/1.  
#hide namedPizza/1.

![Z]:(americanPizza(Z) -> namedPizza(Z)).

![Z]:(americanPizza(Z) -> ?[A]:(hasTopping(Z,A) & tomatoTopping(A))).  
![Z]:(americanPizza(Z) -> ?[A]:(hasTopping(Z,A) & pepperoniTopping(A))).

![Z]:(cheeseTopping(Z) -> pizzaTopping(Z)).

![Z]:(indianPizza(Z) -> namedPizza(Z)).  
![Z]:(indianPizza(Z) -> ?[A]:(hasTopping(Z,A) & olivesTopping(A))).

![Z]:(jalapenoTopping(Z) -> vegetableTopping(Z)).

![Z]:(namedPizza(Z) -> pizza(Z)).

```

![Z]:(olivesTopping(Z) -> vegetableTopping(Z)).
![Z]:(pepperoniTopping(Z) -> pizzaTopping(Z)).

![Z]:(pizza(Z) -> pizzaDomainConcept(Z)).
![Z]:(pizza(Z) -> ?[A]:(hasBase(Z,A) & pizzaBase(A))).
![Z]:(pizza(Z) -> ?[A]:(hasTopping(Z,A) & pizzaTopping(A))).

![Z]:(pizzaBase(Z) -> pizzaDomainConcept(Z)).
![Z]:(tomatoTopping(Z) -> vegetableTopping(Z)).
![Z]:(vegetableTopping(Z) -> pizzaTopping(Z)).

![Z]:((pizza(Z) & pizzaTopping(Z)) -> false).
![Z]:((pizza(Z) & pizzaBase(Z)) -> false).
![Z]:((pizzaBase(Z) & pizzaTopping(Z)) -> false).

![Z]: ((vegetableTopping(Z) & cheeseTopping(Z)) -> false).
![Z]: ((vegetableTopping(Z) & pepperoniTopping(Z)) -> false).
![Z]: ((cheeseTopping(Z) & pepperoniTopping(Z)) -> false).

hasTopping(X,Y) -> (pizza(X) & pizzaTopping(Y)).
hasBase(X,Y) -> (pizza(X) & pizzaBase(Y)).

![Z]: (queryPizza(Z) -> pizza(Z) &?[A]:(hasTopping(Z, A) & vegetableTopping(A))).

```

## ASP program for Wine Ontology

%file out.txt

```

objects(alsaceRegion;anjouRegion;arroyoGrandeRegion;australianRegion;bancroft;bancroftChardonnay;beaujolaisRegion;be
ringer;bordeauxRegion;bourgogneRegion;californiaRegion;centralCoastRegion;centralTexasRegion;chardonnayGrape;chatea
uChevalBlanc;chateauChevalBlancStEmilion;chateauDYchem;chateauDYchemSauterne;chateauDeMeursault;chateauDeMe
ursaultMeursault;chateauLafiteRothschild;chateauLafiteRothschildPauillac;chateauMargaux;chateauMargauxWinery;chateau
Morgon;chateauMorgonBeaujolais;chiantiClassico;chiantiRegion;closDeLaPoussie;closDeLaPoussieSancerre;closDeVougeo
t;closDeVougeotCotesDOr;congressSprings;congressSpringsSemillon;corbans;corbansDryWhiteRiesling;corbansPrivateBin
SauvignonBlanc;corbansSauvignonBlanc;cortonMontrachet;cortonMontrachetWhiteBurgundy;cotesDOrRegion;cotturi;cottu
riZinfandel;dAnjou;ednaValleyRegion;elyse;elyseZinfandel;forman;formanCabernetSauvignon;formanChardonnay;foxen;fo
xenCheninBlanc;frenchRegion;gamayGrape;garyFarrell;garyFarrellMerlot;germanyRegion;handley;italianRegion;kalinCella
rs;kalinCellarsSemillon;kathrynKennedy;kathrynKennedyLateral;laneTanner;laneTannerPinotNoir;loireRegion;longridge;lon
gridgeMerlot;margauxRegion;marietta;mariettaCabernetSauvignon;mariettaOldVinesRed;mariettaPetiteSyrah;mariettaZinfan
del;mcGuinnesso;medocRegion;mendocinoRegion;meursaultRegion;mountEdenVineyard;mountEdenVineyardEdnaValleyC
hardonnay;mountEdenVineyardEstatePinotNoir;mountadam;mountadamChardonnay;mountadamPinotNoir;mountadamRiesli
ng;muscadetRegion;napaRegion;newZealandRegion;pageMillWinery;pageMillWineryCabernetSauvignon;pauillacRegion;pe
terMccoy;peterMccoyChardonnay;petiteSyrahGrape;pinotNoirGrape;portugalRegion;pulignyMontrachet;pulignyMontrachet
WhiteBurgundy;rieslingGrape;roseDAnjou;sancerreRegion;sangioveseGrape;santaBarbaraRegion;santaCruzMountainVineya
rd;santaCruzMountainVineyardCabernetSauvignon;santaCruzMountainsRegion;saucelitoCanyon;saucelitoCanyonZinfandel;
saucelitoCanyonZinfandel1998;sauterneRegion;schlossRothermel;schlossRothermelTrochenbierenausleseRiesling;schlossVo
lrad;schlossVolradTrochenbierenausleseRiesling;seanThackrey;seanThackreySiriusPetiteSyrah;selaks;selaksIceWine;selaksS
auvignonBlanc;sevreEtMaine;sevreEtMaineMuscadet;sonomaRegion;southAustraliaRegion;stEmilionRegion;stGenevieve;st
GenevieveTexasWhite;stonleigh;stonleighSauvignonBlanc;taylor;taylorPort;texasRegion;toursRegion;uSRegion;ventana;ven
tanaCheninBlanc;whitehallLane;whitehallLaneCabernetFranc;whitehallLanePrimavera;year1998;zinfandelGrape).

```

```

{alsatianWine(I3):objects(I3)}.
{americanWine(I3):objects(I3)}.

```

{anjou(I3):objects(I3)}.  
{beaujolais(I3):objects(I3)}.  
{bordeaux(I3):objects(I3)}.  
{burgundy(I3):objects(I3)}.  
{cabernetFranc(I3):objects(I3)}.  
{cabernetSauvignon(I3):objects(I3)}.  
{californiaWine(I3):objects(I3)}.  
{chardonnay(I3):objects(I3)}.  
{cheninBlanc(I3):objects(I3)}.  
{chianti(I3):objects(I3)}.  
{cotesDOor(I3):objects(I3)}.  
{dessertWine(I3):objects(I3)}.  
{dryRedWine(I3):objects(I3)}.  
{dryRiesling(I3):objects(I3)}.  
{dryWhiteWine(I3):objects(I3)}.  
{dryWine(I3):objects(I3)}.  
{earlyHarvest(I3):objects(I3)}.  
{frenchWine(I3):objects(I3)}.  
{fullBodiedWine(I3):objects(I3)}.  
{gamay(I3):objects(I3)}.  
{germanWine(I3):objects(I3)}.  
{iceWine(I3):objects(I3)}.  
{italianWine(I3):objects(I3)}.  
{lateHarvest(I3):objects(I3)}.  
{loire(I3):objects(I3)}.  
{margaux(I3):objects(I3)}.  
{medoc(I3):objects(I3)}.  
{meritage(I3):objects(I3)}.  
{merlot(I3):objects(I3)}.  
{meursault(I3):objects(I3)}.  
{muscadet(I3):objects(I3)}.  
{pauillac(I3):objects(I3)}.  
{petiteSyrah(I3):objects(I3)}.  
{pinotBlanc(I3):objects(I3)}.  
{pinotNoir(I3):objects(I3)}.  
{port(I3):objects(I3)}.  
{redBordeaux(I3):objects(I3)}.  
{redBurgundy(I3):objects(I3)}.  
{redTableWine(I3):objects(I3)}.  
{redWine(I3):objects(I3)}.  
{region(I3):objects(I3)}.  
{riesling(I3):objects(I3)}.  
{roseWine(I3):objects(I3)}.  
{sancerre(I3):objects(I3)}.  
{sauterne(I3):objects(I3)}.  
{sauvignonBlanc(I3):objects(I3)}.  
{semillon(I3):objects(I3)}.  
{semillonOrSauvignonBlanc(I3):objects(I3)}.  
{stEmilion(I3):objects(I3)}.  
{sweetRiesling(I3):objects(I3)}.

```

{sweetWine(I3):objects(I3)}.
{tableWine(I3):objects(I3)}.
{texasWine(I3):objects(I3)}.
{tours(I3):objects(I3)}.
{vintage(I3):objects(I3)}.
{vintageYear(I3):objects(I3)}.
{whiteBordeaux(I3):objects(I3)}.
{whiteBurgundy(I3):objects(I3)}.
{whiteLoire(I3):objects(I3)}.
{whiteNonSweetWine(I3):objects(I3)}.
{whiteTableWine(I3):objects(I3)}.
{whiteWine(I3):objects(I3)}.
{wine(I3):objects(I3)}.
{wineBody(I3):objects(I3)}.
{wineColor(I3):objects(I3)}.
{wineDescriptor(I3):objects(I3)}.
{wineFlavor(I3):objects(I3)}.
{wineGrape(I3):objects(I3)}.
{wineSugar(I3):objects(I3)}.
{wineTaste(I3):objects(I3)}.
{winery(I3):objects(I3)}.
{zinfandel(I3):objects(I3)}.
{adjacentRegion(I3,I4):objects(I3;I4)}.
{hasBody(I3,I4):objects(I3;I4)}.
{hasColor(I3,I4):objects(I3;I4)}.
{hasFlavor(I3,I4):objects(I3;I4)}.
{hasMaker(I3,I4):objects(I3;I4)}.
{hasSugar(I3,I4):objects(I3;I4)}.
{hasVintageYear(I3,I4):objects(I3;I4)}.
{hasWineDescriptor(I3,I4):objects(I3;I4)}.
{locatedIn(I3,I4):objects(I3;I4)}.
{madeFromGrape(I3,I4):objects(I3;I4)}.
{madeIntoWine(I3,I4):objects(I3;I4)}.
{producesWine(I3,I4):objects(I3;I4)}.

```

```

% alsaceRegion
region(alsaceRegion).
locatedIn(alsaceRegion,frenchRegion).

```

```

% anjouRegion
region(anjouRegion).
locatedIn(anjouRegion,loireRegion).

```

```

% arroyoGrandeRegion
region(arroyoGrandeRegion).
locatedIn(arroyoGrandeRegion,californiaRegion).

```

```

% australianRegion
region(australianRegion).

```

```
% bancroft
winery(bancroft).
```

```
% bancroftChardonnay
chardonnay(bancroftChardonnay).
hasMaker(bancroftChardonnay,bancroft).
hasSugar(bancroftChardonnay,dry).
hasBody(bancroftChardonnay,medium).
hasFlavor(bancroftChardonnay,moderate).
locatedIn(bancroftChardonnay,napaRegion).
```

```
% beaujolaisRegion
region(beaujolaisRegion).
locatedIn(beaujolaisRegion,frenchRegion).
```

```
% beringer
winery(beringer).
```

```
% bordeauxRegion
region(bordeauxRegion).
locatedIn(bordeauxRegion,frenchRegion).
```

```
% bourgogneRegion
region(bourgogneRegion).
locatedIn(bourgogneRegion,frenchRegion).
```

```
% californiaRegion
region(californiaRegion).
locatedIn(californiaRegion,uSRegion).
```

```
% centralCoastRegion
region(centralCoastRegion).
locatedIn(centralCoastRegion,californiaRegion).
```

```
% centralTexasRegion
region(centralTexasRegion).
locatedIn(centralTexasRegion,texasRegion).
```

```
% chardonnayGrape
wineGrape(chardonnayGrape).
```

```
% chateauChevalBlanc
winery(chateauChevalBlanc).
```

```
% chateauChevalBlancStEmilion
stEmilion(chateauChevalBlancStEmilion).
hasMaker(chateauChevalBlancStEmilion,chateauChevalBlanc).
```

```
% chateauDYchem
winery(chateauDYchem).
```



```
% chateauDYchemSauterne
sauterne(chateauDYchemSauterne).
hasMaker(chateauDYchemSauterne,chateauDYchem).
madeFromGrape(chateauDYchemSauterne,sauvignonBlancGrape).
madeFromGrape(chateauDYchemSauterne,semillonGrape).
hasFlavor(chateauDYchemSauterne,strong).

% chateauDeMeursault
winery(chateauDeMeursault).

% chateauDeMeursaultMeursault
meursault(chateauDeMeursaultMeursault).
hasMaker(chateauDeMeursaultMeursault,chateauDeMeursault).
hasFlavor(chateauDeMeursaultMeursault,moderate).

% chateauLafiteRothschild
winery(chateauLafiteRothschild).

% chateauLafiteRothschildPauillac
pauillac(chateauLafiteRothschildPauillac).
hasMaker(chateauLafiteRothschildPauillac,chateauLafiteRothschild).

% chateauMargaux
margaux(chateauMargaux).
hasMaker(chateauMargaux,chateauMargauxWinery).

% chateauMargauxWinery
winery(chateauMargauxWinery).

% chateauMorgon
winery(chateauMorgon).

% chateauMorgonBeaujolais
beaujolais(chateauMorgonBeaujolais).
hasMaker(chateauMorgonBeaujolais,chateauMorgon).

% chiantiClassico
chianti(chiantiClassico).
hasMaker(chiantiClassico,mcGuinnesso).
hasBody(chiantiClassico,medium).

% chiantiRegion
region(chiantiRegion).
locatedIn(chiantiRegion,italianRegion).

% closDeLaPoussie
winery(closDeLaPoussie).

% closDeLaPoussieSancerre
```

sancerre(closDeLaPoussieSancerre).  
hasMaker(closDeLaPoussieSancerre,closDeLaPoussie).

% closDeVougeot  
winery(closDeVougeot).

% closDeVougeotCotesDOr  
cotesDOr(closDeVougeotCotesDOr).  
hasMaker(closDeVougeotCotesDOr,closDeVougeot).

% congressSprings  
winery(congressSprings).

% congressSpringsSemillon  
semillon(congressSpringsSemillon).  
hasMaker(congressSpringsSemillon,congressSprings).  
hasSugar(congressSpringsSemillon,dry).  
hasBody(congressSpringsSemillon,medium).  
hasFlavor(congressSpringsSemillon,moderate).

% corbans  
winery(corbans).

% corbansDryWhiteRiesling  
riesling(corbansDryWhiteRiesling).  
hasMaker(corbansDryWhiteRiesling,corbans).  
hasBody(corbansDryWhiteRiesling,medium).  
hasFlavor(corbansDryWhiteRiesling,moderate).  
locatedIn(corbansDryWhiteRiesling,newZealandRegion).  
hasSugar(corbansDryWhiteRiesling,offDry).

% corbansPrivateBinSauvignonBlanc  
sauvignonBlanc(corbansPrivateBinSauvignonBlanc).  
hasMaker(corbansPrivateBinSauvignonBlanc,corbans).  
hasSugar(corbansPrivateBinSauvignonBlanc,dry).  
hasBody(corbansPrivateBinSauvignonBlanc,full).  
locatedIn(corbansPrivateBinSauvignonBlanc,newZealandRegion).  
hasFlavor(corbansPrivateBinSauvignonBlanc,strong).

% corbansSauvignonBlanc  
sauvignonBlanc(corbansSauvignonBlanc).  
hasMaker(corbansSauvignonBlanc,corbans).  
hasSugar(corbansSauvignonBlanc,dry).  
hasBody(corbansSauvignonBlanc,medium).  
locatedIn(corbansSauvignonBlanc,newZealandRegion).  
hasFlavor(corbansSauvignonBlanc,strong).

% cortonMontrachet  
winery(cortonMontrachet).

```
% cortonMontrachetWhiteBurgundy
whiteBurgundy(cortonMontrachetWhiteBurgundy).
hasMaker(cortonMontrachetWhiteBurgundy,cortonMontrachet).
hasSugar(cortonMontrachetWhiteBurgundy,dry).
hasBody(cortonMontrachetWhiteBurgundy,full).
hasFlavor(cortonMontrachetWhiteBurgundy,strong).
```

```
% cotesDOrRegion
region(cotesDOrRegion).
locatedIn(cotesDOrRegion,bourgogneRegion).
```

```
% cotturi
winery(cotturi).
```

```
% cotturiZinfandel
zinfandel(cotturiZinfandel).
hasMaker(cotturiZinfandel,cotturi).
hasSugar(cotturiZinfandel,dry).
hasBody(cotturiZinfandel,full).
locatedIn(cotturiZinfandel,sonomaRegion).
hasFlavor(cotturiZinfandel,strong).
```

```
% dAnjou
winery(dAnjou).
```

```
% ednaValleyRegion
region(ednaValleyRegion).
locatedIn(ednaValleyRegion,californiaRegion).
```

```
% elyse
winery(elyse).
```

```
% elyseZinfandel
zinfandel(elyseZinfandel).
hasSugar(elyseZinfandel,dry).
hasMaker(elyseZinfandel,elyse).
hasBody(elyseZinfandel,full).
hasFlavor(elyseZinfandel,moderate).
locatedIn(elyseZinfandel,napaRegion).
```

```
% forman
winery(forman).
```

```
% formanCabernetSauvignon
cabernetSauvignon(formanCabernetSauvignon).
hasSugar(formanCabernetSauvignon,dry).
hasMaker(formanCabernetSauvignon,forman).
hasBody(formanCabernetSauvignon,medium).
locatedIn(formanCabernetSauvignon,napaRegion).
hasFlavor(formanCabernetSauvignon,strong).
```

```
% formanChardonnay
chardonnay(formanChardonnay).
hasSugar(formanChardonnay,dry).
hasMaker(formanChardonnay,forman).
hasBody(formanChardonnay,full).
hasFlavor(formanChardonnay,moderate).
locatedIn(formanChardonnay,napaRegion).
```

```
% foxen
winery(foxen).
```

```
% foxenCheninBlanc
cheninBlanc(foxenCheninBlanc).
hasSugar(foxenCheninBlanc,dry).
hasMaker(foxenCheninBlanc,foxen).
hasBody(foxenCheninBlanc,full).
hasFlavor(foxenCheninBlanc,moderate).
locatedIn(foxenCheninBlanc,santaBarbaraRegion).
```

```
% frenchRegion
region(frenchRegion).
```

```
% gamayGrape
wineGrape(gamayGrape).
```

```
% garyFarrell
winery(garyFarrell).
```

```
% garyFarrellMerlot
merlot(garyFarrellMerlot).
hasSugar(garyFarrellMerlot,dry).
hasMaker(garyFarrellMerlot,garyFarrell).
hasBody(garyFarrellMerlot,medium).
hasFlavor(garyFarrellMerlot,moderate).
locatedIn(garyFarrellMerlot,sonomaRegion).
```

```
% germanyRegion
region(germanyRegion).
```

```
% handley
winery(handley).
```

```
% italianRegion
region(italianRegion).
```

```
% kalinCellars
winery(kalinCellars).
```

```
% kalinCellarsSemillon
```

```
semillon(kalinCellarsSemillon).
hasSugar(kalinCellarsSemillon,dry).
hasBody(kalinCellarsSemillon,full).
hasMaker(kalinCellarsSemillon,kalinCellars).
hasFlavor(kalinCellarsSemillon,strong).
```

```
% kathrynKennedy
winery(kathrynKennedy).
```

```
% kathrynKennedyLateral
meritage(kathrynKennedyLateral).
hasFlavor(kathrynKennedyLateral,delicate).
hasSugar(kathrynKennedyLateral,dry).
hasMaker(kathrynKennedyLateral,kathrynKennedy).
hasBody(kathrynKennedyLateral,medium).
```

```
% laneTanner
winery(laneTanner).
```

```
% laneTannerPinotNoir
pinotNoir(laneTannerPinotNoir).
hasFlavor(laneTannerPinotNoir,delicate).
hasSugar(laneTannerPinotNoir,dry).
hasMaker(laneTannerPinotNoir,laneTanner).
hasBody(laneTannerPinotNoir,light).
locatedIn(laneTannerPinotNoir,santaBarbaraRegion).
```

```
% loireRegion
region(loireRegion).
locatedIn(loireRegion,frenchRegion).
```

```
% longridge
winery(longridge).
```

```
% longridgeMerlot
merlot(longridgeMerlot).
hasSugar(longridgeMerlot,dry).
hasBody(longridgeMerlot,light).
hasMaker(longridgeMerlot,longridge).
hasFlavor(longridgeMerlot,moderate).
locatedIn(longridgeMerlot,newZealandRegion).
```

```
% margauxRegion
region(margauxRegion).
locatedIn(margauxRegion,medocRegion).
```

```
% marietta
winery(marietta).
```

```
% mariettaCabernetSauvignon
```

cabernetSauvignon(mariettaCabernetSauvignon).  
hasSugar(mariettaCabernetSauvignon,dry).  
hasMaker(mariettaCabernetSauvignon,marietta).  
hasBody(mariettaCabernetSauvignon,medium).  
hasFlavor(mariettaCabernetSauvignon,moderate).  
locatedIn(mariettaCabernetSauvignon,sonomaRegion).

% mariettaOldVinesRed  
redTableWine(mariettaOldVinesRed).  
hasSugar(mariettaOldVinesRed,dry).  
hasMaker(mariettaOldVinesRed,marietta).  
hasBody(mariettaOldVinesRed,medium).  
hasFlavor(mariettaOldVinesRed,moderate).  
locatedIn(mariettaOldVinesRed,sonomaRegion).

% mariettaPetiteSyrah  
petiteSyrah(mariettaPetiteSyrah).  
hasSugar(mariettaPetiteSyrah,dry).  
hasMaker(mariettaPetiteSyrah,marietta).  
hasBody(mariettaPetiteSyrah,medium).  
hasFlavor(mariettaPetiteSyrah,moderate).  
locatedIn(mariettaPetiteSyrah,sonomaRegion).

% mariettaZinfandel  
zinfandel(mariettaZinfandel).  
hasSugar(mariettaZinfandel,dry).  
hasMaker(mariettaZinfandel,marietta).  
hasBody(mariettaZinfandel,medium).  
hasFlavor(mariettaZinfandel,moderate).  
locatedIn(mariettaZinfandel,sonomaRegion).

% mcGuinnesso  
winery(mcGuinnesso).

% medocRegion  
region(medocRegion).  
locatedIn(medocRegion,bordeauxRegion).

% mendocinoRegion  
region(mendocinoRegion).  
locatedIn(mendocinoRegion,californiaRegion).  
adjacentRegion(mendocinoRegion,sonomaRegion).

% meursaultRegion  
region(meursaultRegion).  
locatedIn(meursaultRegion,bourgogneRegion).

% mountEdenVineyard  
winery(mountEdenVineyard).

```
% mountEdenVineyardEdnaValleyChardonnay
chardonnay(mountEdenVineyardEdnaValleyChardonnay).
hasSugar(mountEdenVineyardEdnaValleyChardonnay,dry).
locatedIn(mountEdenVineyardEdnaValleyChardonnay,ednaValleyRegion).
hasBody(mountEdenVineyardEdnaValleyChardonnay,medium).
hasFlavor(mountEdenVineyardEdnaValleyChardonnay,moderate).
hasMaker(mountEdenVineyardEdnaValleyChardonnay,mountEdenVineyard).
```

```
% mountEdenVineyardEstatePinotNoir
pinotNoir(mountEdenVineyardEstatePinotNoir).
hasSugar(mountEdenVineyardEstatePinotNoir,dry).
locatedIn(mountEdenVineyardEstatePinotNoir,ednaValleyRegion).
hasBody(mountEdenVineyardEstatePinotNoir,full).
hasMaker(mountEdenVineyardEstatePinotNoir,mountEdenVineyard).
hasFlavor(mountEdenVineyardEstatePinotNoir,strong).
```

```
% mountadam
winery(mountadam).
```

```
% mountadamChardonnay
chardonnay(mountadamChardonnay).
hasSugar(mountadamChardonnay,dry).
hasBody(mountadamChardonnay,full).
hasMaker(mountadamChardonnay,mountadam).
locatedIn(mountadamChardonnay,southAustraliaRegion).
hasFlavor(mountadamChardonnay,strong).
```

```
% mountadamPinotNoir
pinotNoir(mountadamPinotNoir).
hasSugar(mountadamPinotNoir,dry).
hasBody(mountadamPinotNoir,medium).
hasFlavor(mountadamPinotNoir,moderate).
hasMaker(mountadamPinotNoir,mountadam).
locatedIn(mountadamPinotNoir,southAustraliaRegion).
```

```
% mountadamRiesling
dryRiesling(mountadamRiesling).
hasFlavor(mountadamRiesling,delicate).
hasSugar(mountadamRiesling,dry).
hasBody(mountadamRiesling,medium).
hasMaker(mountadamRiesling,mountadam).
locatedIn(mountadamRiesling,southAustraliaRegion).
```

```
% muscadetRegion
region(muscadetRegion).
locatedIn(muscadetRegion,loireRegion).
```

```
% napaRegion
region(napaRegion).
locatedIn(napaRegion,californiaRegion).
```

```
% newZealandRegion
region(newZealandRegion).
```

```
% pageMillWinery
winery(pageMillWinery).
```

```
% pageMillWineryCabernetSauvignon
cabernetSauvignon(pageMillWineryCabernetSauvignon).
hasSugar(pageMillWineryCabernetSauvignon,dry).
hasBody(pageMillWineryCabernetSauvignon,medium).
hasFlavor(pageMillWineryCabernetSauvignon,moderate).
locatedIn(pageMillWineryCabernetSauvignon,napaRegion).
hasMaker(pageMillWineryCabernetSauvignon,pageMillWinery).
```

```
% pauillacRegion
region(pauillacRegion).
locatedIn(pauillacRegion,medocRegion).
```

```
% peterMccoy
winery(peterMccoy).
```

```
% peterMccoyChardonnay
chardonnay(peterMccoyChardonnay).
hasSugar(peterMccoyChardonnay,dry).
hasBody(peterMccoyChardonnay,medium).
hasFlavor(peterMccoyChardonnay,moderate).
hasMaker(peterMccoyChardonnay,peterMccoy).
locatedIn(peterMccoyChardonnay,sonomaRegion).
```

```
% petiteSyrahGrape
wineGrape(petiteSyrahGrape).
```

```
% pinotNoirGrape
wineGrape(pinotNoirGrape).
```

```
% portugalRegion
region(portugalRegion).
```

```
% pulignyMontrachet
winery(pulignyMontrachet).
```

```
% pulignyMontrachetWhiteBurgundy
whiteBurgundy(pulignyMontrachetWhiteBurgundy).
hasSugar(pulignyMontrachetWhiteBurgundy,dry).
hasBody(pulignyMontrachetWhiteBurgundy,medium).
hasFlavor(pulignyMontrachetWhiteBurgundy,moderate).
hasMaker(pulignyMontrachetWhiteBurgundy,pulignyMontrachet).
```

```
% rieslingGrape
```



wineGrape(rieslingGrape).

% roseDAnjou  
anjou(roseDAnjou).  
hasMaker(roseDAnjou,dAnjou).

% sancerreRegion  
region(sancerreRegion).  
locatedIn(sancerreRegion,loireRegion).

% sangioveseGrape  
wineGrape(sangioveseGrape).

% santaBarbaraRegion  
region(santaBarbaraRegion).  
locatedIn(santaBarbaraRegion,californiaRegion).

% santaCruzMountainVineyard  
winery(santaCruzMountainVineyard).

% santaCruzMountainVineyardCabernetSauvignon  
cabernetSauvignon(santaCruzMountainVineyardCabernetSauvignon).  
hasSugar(santaCruzMountainVineyardCabernetSauvignon,dry).  
hasBody(santaCruzMountainVineyardCabernetSauvignon,full).  
hasMaker(santaCruzMountainVineyardCabernetSauvignon,santaCruzMountainVineyard).  
locatedIn(santaCruzMountainVineyardCabernetSauvignon,santaCruzMountainsRegion).  
hasFlavor(santaCruzMountainVineyardCabernetSauvignon,strong).

% santaCruzMountainsRegion  
region(santaCruzMountainsRegion).  
locatedIn(santaCruzMountainsRegion,californiaRegion).

% saucelitoCanyon  
winery(saucelitoCanyon).

% saucelitoCanyonZinfandel  
zinfandel(saucelitoCanyonZinfandel).  
locatedIn(saucelitoCanyonZinfandel,arroyoGrandeRegion).  
hasSugar(saucelitoCanyonZinfandel,dry).  
hasBody(saucelitoCanyonZinfandel,medium).  
hasFlavor(saucelitoCanyonZinfandel,moderate).  
hasMaker(saucelitoCanyonZinfandel,saucelitoCanyon).

% saucelitoCanyonZinfandel1998  
zinfandel(saucelitoCanyonZinfandel1998).  
locatedIn(saucelitoCanyonZinfandel1998,arroyoGrandeRegion).  
hasSugar(saucelitoCanyonZinfandel1998,dry).  
hasBody(saucelitoCanyonZinfandel1998,medium).  
hasFlavor(saucelitoCanyonZinfandel1998,moderate).  
hasMaker(saucelitoCanyonZinfandel1998,saucelitoCanyon).

hasVintageYear(saucelitoCanyonZinfandel1998,year1998).

% sauterneRegion  
region(sauterneRegion).  
locatedIn(sauterneRegion,bordeauxRegion).

% schlossRothermel  
winery(schlossRothermel).

% schlossRothermelTrochenbierenausleseRiesling  
sweetRiesling(schlossRothermelTrochenbierenausleseRiesling).  
hasBody(schlossRothermelTrochenbierenausleseRiesling,full).  
locatedIn(schlossRothermelTrochenbierenausleseRiesling,germanyRegion).  
hasMaker(schlossRothermelTrochenbierenausleseRiesling,schlossRothermel).  
hasFlavor(schlossRothermelTrochenbierenausleseRiesling,strong).  
hasSugar(schlossRothermelTrochenbierenausleseRiesling,sweet).

% schlossVolrad  
winery(schlossVolrad).

% schlossVolradTrochenbierenausleseRiesling  
sweetRiesling(schlossVolradTrochenbierenausleseRiesling).  
hasBody(schlossVolradTrochenbierenausleseRiesling,full).  
locatedIn(schlossVolradTrochenbierenausleseRiesling,germanyRegion).  
hasFlavor(schlossVolradTrochenbierenausleseRiesling,moderate).  
hasMaker(schlossVolradTrochenbierenausleseRiesling,schlossVolrad).  
hasSugar(schlossVolradTrochenbierenausleseRiesling,sweet).

% seanThackrey  
winery(seanThackrey).

% seanThackreySiriusPetiteSyrah  
petiteSyrah(seanThackreySiriusPetiteSyrah).  
hasSugar(seanThackreySiriusPetiteSyrah,dry).  
hasBody(seanThackreySiriusPetiteSyrah,full).  
locatedIn(seanThackreySiriusPetiteSyrah,napaRegion).  
hasMaker(seanThackreySiriusPetiteSyrah,seanThackrey).  
hasFlavor(seanThackreySiriusPetiteSyrah,strong).

% selaks  
winery(selaks).

% selaksIceWine  
iceWine(selaksIceWine).  
hasBody(selaksIceWine,medium).  
hasFlavor(selaksIceWine,moderate).  
locatedIn(selaksIceWine,newZealandRegion).  
hasMaker(selaksIceWine,selaks).  
hasColor(selaksIceWine,white).

```
% selaksSauvignonBlanc
sauvignonBlanc(selaksSauvignonBlanc).
hasSugar(selaksSauvignonBlanc,dry).
hasBody(selaksSauvignonBlanc,medium).
hasFlavor(selaksSauvignonBlanc,moderate).
locatedIn(selaksSauvignonBlanc,newZealandRegion).
hasMaker(selaksSauvignonBlanc,selaks).
```

```
% sevreEtMaine
winery(sevreEtMaine).
```

```
% sevreEtMaineMuscadet
muscadet(sevreEtMaineMuscadet).
hasMaker(sevreEtMaineMuscadet,sevreEtMaine).
```

```
% sonomaRegion
region(sonomaRegion).
locatedIn(sonomaRegion,californiaRegion).
```

```
% southAustraliaRegion
region(southAustraliaRegion).
locatedIn(southAustraliaRegion,australianRegion).
```

```
% stEmilionRegion
region(stEmilionRegion).
locatedIn(stEmilionRegion,bordeauxRegion).
```

```
% stGenevieve
winery(stGenevieve).
```

```
% stGenevieveTexasWhite
whiteWine(stGenevieveTexasWhite).
locatedIn(stGenevieveTexasWhite,centralTexasRegion).
hasSugar(stGenevieveTexasWhite,dry).
hasFlavor(stGenevieveTexasWhite,moderate).
hasMaker(stGenevieveTexasWhite,stGenevieve).
```

```
% stonleigh
winery(stonleigh).
```

```
% stonleighSauvignonBlanc
sauvignonBlanc(stonleighSauvignonBlanc).
hasFlavor(stonleighSauvignonBlanc,delicate).
hasSugar(stonleighSauvignonBlanc,dry).
hasBody(stonleighSauvignonBlanc,medium).
locatedIn(stonleighSauvignonBlanc,newZealandRegion).
hasMaker(stonleighSauvignonBlanc,stonleigh).
```

```
% taylor
winery(taylor).
```

```
% taylorPort
port(taylorPort).
hasMaker(taylorPort,taylor).
```

```
% texasRegion
region(texasRegion).
locatedIn(texasRegion,uSRegion).
```

```
% toursRegion
region(toursRegion).
locatedIn(toursRegion,loireRegion).
```

```
% uSRegion
region(uSRegion).
```

```
% ventana
winery(ventana).
```

```
% ventanaCheninBlanc
cheninBlanc(ventanaCheninBlanc).
locatedIn(ventanaCheninBlanc,centralCoastRegion).
hasBody(ventanaCheninBlanc,medium).
hasFlavor(ventanaCheninBlanc,moderate).
hasSugar(ventanaCheninBlanc,offDry).
hasMaker(ventanaCheninBlanc,ventana).
```

```
% whitehallLane
winery(whitehallLane).
```

```
% whitehallLaneCabernetFranc
cabernetFranc(whitehallLaneCabernetFranc).
hasSugar(whitehallLaneCabernetFranc,dry).
hasBody(whitehallLaneCabernetFranc,medium).
hasFlavor(whitehallLaneCabernetFranc,moderate).
locatedIn(whitehallLaneCabernetFranc,napaRegion).
hasMaker(whitehallLaneCabernetFranc,whitehallLane).
```

```
% whitehallLanePrimavera
dessertWine(whitehallLanePrimavera).
hasFlavor(whitehallLanePrimavera,delicate).
hasBody(whitehallLanePrimavera,light).
locatedIn(whitehallLanePrimavera,napaRegion).
hasSugar(whitehallLanePrimavera,sweet).
```

```
% year1998
vintageYear(year1998).
```

```
% zinfandelGrape
wineGrape(zinfandelGrape).
```

![Z]: (chianti(Z) -> italianWine(Z)).

![Z]: (dessertWine(Z) -> wine(Z)).

![Z]: (earlyHarvest(Z) -> wine(Z)).

![Z]: (lateHarvest(Z) -> wine(Z)).

![Z]: (port(Z) -> redWine(Z)).

![Z]: (sauterne(Z) -> bordeaux(Z)).  
![Z]: (sauterne(Z) -> lateHarvest(Z)).

![Z]: (sweetRiesling(Z) -> dessertWine(Z)).

![Z]: (wine(Z) -> potableLiquid(Z)).

![Z]: (wineBody(Z) -> wineTaste(Z)).

![Z]: (wineColor(Z) -> wineDescriptor(Z)).

![Z]: (wineFlavor(Z) -> wineTaste(Z)).

![Z]: (wineGrape(Z) -> grape(Z)).

![Z]: (wineSugar(Z) -> wineTaste(Z)).

![Z]: (wineTaste(Z) -> wineDescriptor(Z)).

![Z,Z1]: (adjacentRegion(Z,Z1) -> region(Z1)).

![Z,Z1]: (adjacentRegion(Z,Z1) -> region(Z)).

![Z,Z1]: (hasBody(Z,Z1) -> wineBody(Z1)).

![Z,Z1]: (hasBody(Z,Z1) -> hasWineDescriptor(Z,Z1)).

![Z,Z1]: (hasColor(Z,Z1) -> wine(Z)).

![Z,Z1]: (hasColor(Z,Z1) -> wineColor(Z1)).

![Z,Z1]: (hasColor(Z,Z1) -> hasWineDescriptor(Z,Z1)).

![Z,Z1]: (hasFlavor(Z,Z1) -> wineFlavor(Z1)).

![Z,Z1]: (hasFlavor(Z,Z1) -> hasWineDescriptor(Z,Z1)).

![Z,Z1]: (hasSugar(Z,Z1) -> wineSugar(Z1)).

![Z,Z1]: (hasSugar(Z,Z1) -> hasWineDescriptor(Z,Z1)).

![Z,Z1]: (hasVintageYear(Z,Z1) -> vintage(Z)).

![Z,Z1]: (hasVintageYear(Z,Z1) -> vintageYear(Z1)).

![Z,Z1]: (hasWineDescriptor(Z,Z1) -> wine(Z)).

![Z,Z1]: (hasWineDescriptor(Z,Z1) -> wineDescriptor(Z1)).

![Z,Z1]: (locatedIn(Z,Z1) -> thing(Z)).

![Z,Z1]: (locatedIn(Z,Z1) -> region(Z1)).

![Z,Z1]: (madeFromGrape(Z,Z1) -> madeFromFruit(Z,Z1)).

![Z,Z1]: (madeFromGrape(Z,Z1) -> wine(Z)).

![Z,Z1]: (madeFromGrape(Z,Z1) -> wineGrape(Z1)).

![Z,Z1]: (madeIntoWine(Z,Z1) -> madeFromGrape(Z1,Z)).

![Z,Z1]: (producesWine(Z,Z1) -> hasMaker(Z1,Z)).

## Wine Ontology

<?xml version="1.0"?>

```
<!DOCTYPE rdf:RDF [  
  <!ENTITY owl "http://www.w3.org/2002/07/owl#" >  
  <!ENTITY xsd "http://www.w3.org/2001/XMLSchema#" >  
  <!ENTITY rdfs "http://www.w3.org/2000/01/rdf-schema#" >  
  <!ENTITY rdf "http://www.w3.org/1999/02/22-rdf-syntax-ns#" >  
  <!ENTITY vin "http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#" >  
  <!ENTITY food "http://www.w3.org/TR/2003/CR-owl-guide-20030818/food#" >  
>
```

<rdf:RDF xmlns="http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#"



```

xml:base="http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine"
xmlns:rdfs="http://www.w3.org/2000/01/rdf-schema#"
xmlns:food="http://www.w3.org/TR/2003/CR-owl-guide-20030818/food#"
xmlns:vin="http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#"
xmlns:owl="http://www.w3.org/2002/07/owl#"
xmlns:xsd="http://www.w3.org/2001/XMLSchema#"
xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#">
<owl:Ontology rdf:about="http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine">
  <rdfs:label>Wine Ontology</rdfs:label>
  <rdfs:comment>An example OWL ontology</rdfs:comment>
  <rdfs:comment>Derived from the DAML Wine ontology at
http://ontolingua.stanford.edu/doc/chimaera/ontologies/wines.daml
Substantially changed, in particular the Region based relations.
</rdfs:comment>
  <owl:imports rdf:resource="http://www.w3.org/TR/2003/CR-owl-guide-20030818/food"/>
  <owl:priorVersion rdf:resource="http://www.w3.org/TR/2003/WD-owl-guide-20030331/wine"/>
</owl:Ontology>

```

```

<!--
////////////////////////////////////
//
// Object Properties
//
////////////////////////////////////
-->

```

```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#adjacentRegion -->

```

```

<owl:ObjectProperty rdf:about="&vin;adjacentRegion">
  <rdf:type rdf:resource="&owl;SymmetricProperty"/>
  <rdfs:range rdf:resource="&vin;Region"/>
  <rdfs:domain rdf:resource="&vin;Region"/>
</owl:ObjectProperty>

```

```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#hasBody -->

```

```

<owl:ObjectProperty rdf:about="&vin;hasBody">
  <rdf:type rdf:resource="&owl;FunctionalProperty"/>
  <rdfs:range rdf:resource="&vin;WineBody"/>
  <rdfs:subPropertyOf rdf:resource="&vin;hasWineDescriptor"/>
</owl:ObjectProperty>

```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#hasColor -->

```
<owl:ObjectProperty rdf:about="&vin;hasColor">
  <rdf:type rdf:resource="&owl;FunctionalProperty"/>
  <rdfs:domain rdf:resource="&vin;Wine"/>
  <rdfs:range rdf:resource="&vin;WineColor"/>
  <rdfs:subPropertyOf rdf:resource="&vin;hasWineDescriptor"/>
</owl:ObjectProperty>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#hasFlavor -->

```
<owl:ObjectProperty rdf:about="&vin;hasFlavor">
  <rdf:type rdf:resource="&owl;FunctionalProperty"/>
  <rdfs:range rdf:resource="&vin;WineFlavor"/>
  <rdfs:subPropertyOf rdf:resource="&vin;hasWineDescriptor"/>
</owl:ObjectProperty>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#hasMaker -->

```
<owl:ObjectProperty rdf:about="&vin;hasMaker">
  <rdf:type rdf:resource="&owl;FunctionalProperty"/>
</owl:ObjectProperty>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#hasSugar -->

```
<owl:ObjectProperty rdf:about="&vin;hasSugar">
  <rdf:type rdf:resource="&owl;FunctionalProperty"/>
  <rdfs:range rdf:resource="&vin;WineSugar"/>
  <rdfs:subPropertyOf rdf:resource="&vin;hasWineDescriptor"/>
</owl:ObjectProperty>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#hasVintageYear -->

```
<owl:ObjectProperty rdf:about="&vin;hasVintageYear">
  <rdf:type rdf:resource="&owl;FunctionalProperty"/>
  <rdfs:domain rdf:resource="&vin;Vintage"/>
  <rdfs:range rdf:resource="&vin;VintageYear"/>
</owl:ObjectProperty>
```



```
////////////////////////////////////  
-->
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#yearValue -->
```

```
<owl:DatatypeProperty rdf:about="&vin;yearValue">  
  <rdfs:range rdf:resource="&xsd;positiveInteger"/>  
  <rdfs:domain rdf:resource="&vin;VintageYear"/>  
</owl:DatatypeProperty>
```

```
<!--  
////////////////////////////////////  
//  
// Classes  
//  
////////////////////////////////////  
-->
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#AlsatianWine -->
```

```
<owl:Class rdf:about="&vin;AlsatianWine">  
  <owl:equivalentClass>  
    <owl:Class>  
      <owl:intersectionOf rdf:parseType="Collection">  
        <rdf:Description rdf:about="&vin;Wine"/>  
        <owl:Restriction>  
          <owl:onProperty rdf:resource="&vin;locatedIn"/>  
          <owl:hasValue rdf:resource="&vin;AlsaceRegion"/>  
        </owl:Restriction>  
      </owl:intersectionOf>  
    </owl:Class>  
  </owl:equivalentClass>  
</owl:Class>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#AmericanWine -->
```

```
<owl:Class rdf:about="&vin;AmericanWine">  
  <owl:equivalentClass>  
    <owl:Class>  
      <owl:intersectionOf rdf:parseType="Collection">
```

```

    <rdf:Description rdf:about="&vin;Wine"/>
    <owl:Restriction>
      <owl:onProperty rdf:resource="&vin;locatedIn"/>
      <owl:hasValue rdf:resource="&vin;USRegion"/>
    </owl:Restriction>
  </owl:intersectionOf>
</owl:Class>
</owl:equivalentClass>
</owl:Class>

```

```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#Anjou -->

```

```

<owl:Class rdf:about="&vin;Anjou">
  <owl:equivalentClass>
    <owl:Class>
      <owl:intersectionOf rdf:parseType="Collection">
        <rdf:Description rdf:about="&vin;Loire"/>
        <owl:Restriction>
          <owl:onProperty rdf:resource="&vin;locatedIn"/>
          <owl:hasValue rdf:resource="&vin;AnjouRegion"/>
        </owl:Restriction>
      </owl:intersectionOf>
    </owl:Class>
  </owl:equivalentClass>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="&vin;hasBody"/>
      <owl:hasValue rdf:resource="&vin;Light"/>
    </owl:Restriction>
  </rdfs:subClassOf>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="&vin;hasSugar"/>
      <owl:hasValue rdf:resource="&vin;OffDry"/>
    </owl:Restriction>
  </rdfs:subClassOf>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="&vin;hasFlavor"/>
      <owl:hasValue rdf:resource="&vin;Delicate"/>
    </owl:Restriction>
  </rdfs:subClassOf>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="&vin;hasColor"/>
      <owl:hasValue rdf:resource="&vin;Rose"/>
    </owl:Restriction>
  </rdfs:subClassOf>

```

</owl:Class>

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#Beaujolais -->

```
<owl:Class rdf:about="&vin;Beaujolais">
  <owl:equivalentClass>
    <owl:Class>
      <owl:intersectionOf rdf:parseType="Collection">
        <rdf:Description rdf:about="&vin;Wine"/>
        <owl:Restriction>
          <owl:onProperty rdf:resource="&vin;locatedIn"/>
          <owl:hasValue rdf:resource="&vin;BeaujolaisRegion"/>
        </owl:Restriction>
      </owl:intersectionOf>
    </owl:Class>
  </owl:equivalentClass>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="&vin;hasFlavor"/>
      <owl:hasValue rdf:resource="&vin;Delicate"/>
    </owl:Restriction>
  </rdfs:subClassOf>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="&vin;hasColor"/>
      <owl:hasValue rdf:resource="&vin;Red"/>
    </owl:Restriction>
  </rdfs:subClassOf>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="&vin;hasSugar"/>
      <owl:hasValue rdf:resource="&vin;Dry"/>
    </owl:Restriction>
  </rdfs:subClassOf>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="&vin;madeFromGrape"/>
      <owl:hasValue rdf:resource="&vin;GamayGrape"/>
    </owl:Restriction>
  </rdfs:subClassOf>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="&vin;hasBody"/>
      <owl:hasValue rdf:resource="&vin;Light"/>
    </owl:Restriction>
  </rdfs:subClassOf>
  <rdfs:subClassOf>
    <owl:Restriction>
```

```

        <owl:onProperty rdf:resource="&vin;madeFromGrape"/>
        <owl:maxCardinality rdf:datatype="&xsd;nonNegativeInteger">1</owl:maxCardinality>
    </owl:Restriction>
</rdfs:subClassOf>
</owl:Class>

```

```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#Bordeaux -->

```

```

<owl:Class rdf:about="&vin;Bordeaux">
    <owl:equivalentClass>
        <owl:Class>
            <owl:intersectionOf rdf:parseType="Collection">
                <rdf:Description rdf:about="&vin;Wine"/>
                <owl:Restriction>
                    <owl:onProperty rdf:resource="&vin;locatedIn"/>
                    <owl:hasValue rdf:resource="&vin;BordeauxRegion"/>
                </owl:Restriction>
            </owl:intersectionOf>
        </owl:Class>
    </owl:equivalentClass>
</owl:Class>

```

```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#Burgundy -->

```

```

<owl:Class rdf:about="&vin;Burgundy">
    <owl:equivalentClass>
        <owl:Class>
            <owl:intersectionOf rdf:parseType="Collection">
                <rdf:Description rdf:about="&vin;Wine"/>
                <owl:Restriction>
                    <owl:onProperty rdf:resource="&vin;locatedIn"/>
                    <owl:hasValue rdf:resource="&vin;BourgogneRegion"/>
                </owl:Restriction>
            </owl:intersectionOf>
        </owl:Class>
    </owl:equivalentClass>
</rdfs:subClassOf>
    <owl:Restriction>
        <owl:onProperty rdf:resource="&vin;hasSugar"/>
        <owl:hasValue rdf:resource="&vin;Dry"/>
    </owl:Restriction>
</rdfs:subClassOf>
</owl:Class>

```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#CabernetFranc -->

```
<owl:Class rdf:about="&vin;CabernetFranc">
  <owl:equivalentClass>
    <owl:Class>
      <owl:intersectionOf rdf:parseType="Collection">
        <rdf:Description rdf:about="&vin;Wine"/>
        <owl:Restriction>
          <owl:onProperty rdf:resource="&vin;madeFromGrape"/>
          <owl:hasValue rdf:resource="&vin;CabernetFrancGrape"/>
        </owl:Restriction>
        <owl:Restriction>
          <owl:onProperty rdf:resource="&vin;madeFromGrape"/>
          <owl:maxCardinality rdf:datatype="&xsd;nonNegativeInteger">1</owl:maxCardinality>
        </owl:Restriction>
      </owl:intersectionOf>
    </owl:Class>
  </owl:equivalentClass>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="&vin;hasFlavor"/>
      <owl:hasValue rdf:resource="&vin;Moderate"/>
    </owl:Restriction>
  </rdfs:subClassOf>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="&vin;hasColor"/>
      <owl:hasValue rdf:resource="&vin;Red"/>
    </owl:Restriction>
  </rdfs:subClassOf>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="&vin;hasBody"/>
      <owl:hasValue rdf:resource="&vin;Medium"/>
    </owl:Restriction>
  </rdfs:subClassOf>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="&vin;hasSugar"/>
      <owl:hasValue rdf:resource="&vin;Dry"/>
    </owl:Restriction>
  </rdfs:subClassOf>
</owl:Class>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#CabernetSauvignon -->

```
<owl:Class rdf:about="&vin;CabernetSauvignon">
  <owl:equivalentClass>
```



```

<owl:Class>
  <owl:intersectionOf rdf:parseType="Collection">
    <rdf:Description rdf:about="&vin;Wine"/>
    <owl:Restriction>
      <owl:onProperty rdf:resource="&vin;madeFromGrape"/>
      <owl:hasValue rdf:resource="&vin;CabernetSauvignonGrape"/>
    </owl:Restriction>
    <owl:Restriction>
      <owl:onProperty rdf:resource="&vin;madeFromGrape"/>
      <owl:maxCardinality rdf:datatype="&xsd;nonNegativeInteger">1</owl:maxCardinality>
    </owl:Restriction>
  </owl:intersectionOf>
</owl:Class>
</owl:equivalentClass>
<rdfs:subClassOf>
  <owl:Restriction>
    <owl:onProperty rdf:resource="&vin;hasColor"/>
    <owl:hasValue rdf:resource="&vin;Red"/>
  </owl:Restriction>
</rdfs:subClassOf>
<rdfs:subClassOf>
  <owl:Restriction>
    <owl:onProperty rdf:resource="&vin;hasFlavor"/>
    <owl:allValuesFrom>
      <owl:Class>
        <owl:oneOf rdf:parseType="Collection">
          <rdf:Description rdf:about="&vin;Moderate"/>
          <rdf:Description rdf:about="&vin;Strong"/>
        </owl:oneOf>
      </owl:Class>
    </owl:allValuesFrom>
  </owl:Restriction>
</rdfs:subClassOf>
<rdfs:subClassOf>
  <owl:Restriction>
    <owl:onProperty rdf:resource="&vin;hasSugar"/>
    <owl:hasValue rdf:resource="&vin;Dry"/>
  </owl:Restriction>
</rdfs:subClassOf>
<rdfs:subClassOf>
  <owl:Restriction>
    <owl:onProperty rdf:resource="&vin;hasBody"/>
    <owl:allValuesFrom>
      <owl:Class>
        <owl:oneOf rdf:parseType="Collection">
          <rdf:Description rdf:about="&vin;Medium"/>
          <rdf:Description rdf:about="&vin;Full"/>
        </owl:oneOf>
      </owl:Class>
    </owl:allValuesFrom>
  </owl:Restriction>
</rdfs:subClassOf>

```

```
</owl:Restriction>
</rdfs:subClassOf>
</owl:Class>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#CaliforniaWine -->
```

```
<owl:Class rdf:about="&vin;CaliforniaWine">
  <owl:equivalentClass>
    <owl:Class>
      <owl:intersectionOf rdf:parseType="Collection">
        <rdf:Description rdf:about="&vin;Wine"/>
        <owl:Restriction>
          <owl:onProperty rdf:resource="&vin;locatedIn"/>
          <owl:hasValue rdf:resource="&vin;CaliforniaRegion"/>
        </owl:Restriction>
      </owl:intersectionOf>
    </owl:Class>
  </owl:equivalentClass>
</owl:Class>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#Chardonnay -->
```

```
<owl:Class rdf:about="&vin;Chardonnay">
  <owl:equivalentClass>
    <owl:Class>
      <owl:intersectionOf rdf:parseType="Collection">
        <rdf:Description rdf:about="&vin;Wine"/>
        <owl:Restriction>
          <owl:onProperty rdf:resource="&vin;madeFromGrape"/>
          <owl:hasValue rdf:resource="&vin;ChardonnayGrape"/>
        </owl:Restriction>
        <owl:Restriction>
          <owl:onProperty rdf:resource="&vin;madeFromGrape"/>
          <owl:maxCardinality rdf:datatype="&xsd;nonNegativeInteger">1</owl:maxCardinality>
        </owl:Restriction>
      </owl:intersectionOf>
    </owl:Class>
  </owl:equivalentClass>
<rdfs:subClassOf>
  <owl:Restriction>
    <owl:onProperty rdf:resource="&vin;hasColor"/>
    <owl:hasValue rdf:resource="&vin;White"/>
  </owl:Restriction>
</rdfs:subClassOf>
<rdfs:subClassOf>
  <owl:Restriction>
```

```

<owl:onProperty rdf:resource="&vin;hasBody"/>
<owl:allValuesFrom>
  <owl:Class>
    <owl:oneOf rdf:parseType="Collection">
      <rdf:Description rdf:about="&vin;Medium"/>
      <rdf:Description rdf:about="&vin;Full"/>
    </owl:oneOf>
  </owl:Class>
</owl:allValuesFrom>
</owl:Restriction>
</rdfs:subClassOf>
<rdfs:subClassOf>
  <owl:Restriction>
    <owl:onProperty rdf:resource="&vin;hasFlavor"/>
    <owl:allValuesFrom>
      <owl:Class>
        <owl:oneOf rdf:parseType="Collection">
          <rdf:Description rdf:about="&vin;Moderate"/>
          <rdf:Description rdf:about="&vin;Strong"/>
        </owl:oneOf>
      </owl:Class>
    </owl:allValuesFrom>
  </owl:Restriction>
</rdfs:subClassOf>
</owl:Class>

```

```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#CheninBlanc -->

```

```

<owl:Class rdf:about="&vin;CheninBlanc">
  <owl:equivalentClass>
    <owl:Class>
      <owl:intersectionOf rdf:parseType="Collection">
        <rdf:Description rdf:about="&vin;Wine"/>
        <owl:Restriction>
          <owl:onProperty rdf:resource="&vin;madeFromGrape"/>
          <owl:hasValue rdf:resource="&vin;CheninBlancGrape"/>
        </owl:Restriction>
        <owl:Restriction>
          <owl:onProperty rdf:resource="&vin;madeFromGrape"/>
          <owl:maxCardinality rdf:datatype="&xsd;nonNegativeInteger">1</owl:maxCardinality>
        </owl:Restriction>
      </owl:intersectionOf>
    </owl:Class>
  </owl:equivalentClass>
</rdfs:subClassOf>
  <owl:Restriction>
    <owl:onProperty rdf:resource="&vin;hasColor"/>
    <owl:hasValue rdf:resource="&vin;White"/>
  </owl:Restriction>

```

```

    </owl:Restriction>
  </rdfs:subClassOf>
<rdfs:subClassOf>
  <owl:Restriction>
    <owl:onProperty rdf:resource="&vin;hasBody"/>
    <owl:allValuesFrom>
      <owl:Class>
        <owl:oneOf rdf:parseType="Collection">
          <rdf:Description rdf:about="&vin;Medium"/>
          <rdf:Description rdf:about="&vin;Full"/>
        </owl:oneOf>
      </owl:Class>
    </owl:allValuesFrom>
  </owl:Restriction>
</rdfs:subClassOf>
<rdfs:subClassOf>
  <owl:Restriction>
    <owl:onProperty rdf:resource="&vin;hasFlavor"/>
    <owl:hasValue rdf:resource="&vin;Moderate"/>
  </owl:Restriction>
</rdfs:subClassOf>
<rdfs:subClassOf>
  <owl:Restriction>
    <owl:onProperty rdf:resource="&vin;hasSugar"/>
    <owl:allValuesFrom>
      <owl:Class>
        <owl:oneOf rdf:parseType="Collection">
          <rdf:Description rdf:about="&vin;Dry"/>
          <rdf:Description rdf:about="&vin;OffDry"/>
        </owl:oneOf>
      </owl:Class>
    </owl:allValuesFrom>
  </owl:Restriction>
</rdfs:subClassOf>
</owl:Class>

```

```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#Chianti -->

```

```

<owl:Class rdf:about="&vin;Chianti">
  <rdfs:subClassOf rdf:resource="&vin;ItalianWine"/>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="&vin;madeFromGrape"/>
      <owl:hasValue rdf:resource="&vin;SangioveseGrape"/>
    </owl:Restriction>
  </rdfs:subClassOf>
  <rdfs:subClassOf>
    <owl:Restriction>

```

```

        <owl:onProperty rdf:resource="&vin;hasColor"/>
        <owl:hasValue rdf:resource="&vin;Red"/>
    </owl:Restriction>
</rdfs:subClassOf>
<rdfs:subClassOf>
    <owl:Restriction>
        <owl:onProperty rdf:resource="&vin;hasFlavor"/>
        <owl:hasValue rdf:resource="&vin;Moderate"/>
    </owl:Restriction>
</rdfs:subClassOf>
<rdfs:subClassOf>
    <owl:Restriction>
        <owl:onProperty rdf:resource="&vin;locatedIn"/>
        <owl:hasValue rdf:resource="&vin;ChiantiRegion"/>
    </owl:Restriction>
</rdfs:subClassOf>
<rdfs:subClassOf>
    <owl:Restriction>
        <owl:onProperty rdf:resource="&vin;hasBody"/>
        <owl:allValuesFrom>
            <owl:Class>
                <owl:oneOf rdf:parseType="Collection">
                    <rdf:Description rdf:about="&vin;Medium"/>
                    <rdf:Description rdf:about="&vin;Light"/>
                </owl:oneOf>
            </owl:Class>
        </owl:allValuesFrom>
    </owl:Restriction>
</rdfs:subClassOf>
<rdfs:subClassOf>
    <owl:Restriction>
        <owl:onProperty rdf:resource="&vin;hasSugar"/>
        <owl:hasValue rdf:resource="&vin;Dry"/>
    </owl:Restriction>
</rdfs:subClassOf>
</owl:Class>

```

```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#CotesDOr -->

```

```

<owl:Class rdf:about="&vin;CotesDOr">
    <owl:equivalentClass>
        <owl:Class>
            <owl:intersectionOf rdf:parseType="Collection">
                <rdf:Description rdf:about="&vin;RedBurgundy"/>
                <owl:Restriction>
                    <owl:onProperty rdf:resource="&vin;locatedIn"/>
                    <owl:hasValue rdf:resource="&vin;CotesDOrRegion"/>
                </owl:Restriction>
            </owl:intersectionOf>
        </owl:Class>
    </owl:equivalentClass>
</owl:Class>

```

```

        </owl:intersectionOf>
    </owl:Class>
</owl:equivalentClass>
<rdfs:subClassOf>
    <owl:Restriction>
        <owl:onProperty rdf:resource="&vin;hasFlavor"/>
        <owl:hasValue rdf:resource="&vin;Moderate"/>
    </owl:Restriction>
</rdfs:subClassOf>
</owl:Class>

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#DessertWine -->

<owl:Class rdf:about="&vin;DessertWine">
    <rdfs:subClassOf rdf:resource="&vin;Wine"/>
    <rdfs:subClassOf>
        <owl:Restriction>
            <owl:onProperty rdf:resource="&vin;hasSugar"/>
            <owl:allValuesFrom>
                <owl:Class>
                    <owl:oneOf rdf:parseType="Collection">
                        <rdf:Description rdf:about="&vin;OffDry"/>
                        <rdf:Description rdf:about="&vin;Sweet"/>
                    </owl:oneOf>
                </owl:Class>
            </owl:allValuesFrom>
        </owl:Restriction>
    </rdfs:subClassOf>
</owl:Class>

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#DryRedWine -->

<owl:Class rdf:about="&vin;DryRedWine">
    <owl:equivalentClass>
        <owl:Class>
            <owl:intersectionOf rdf:parseType="Collection">
                <rdf:Description rdf:about="&vin;DryWine"/>
                <rdf:Description rdf:about="&vin;RedWine"/>
            </owl:intersectionOf>
        </owl:Class>
    </owl:equivalentClass>
</owl:Class>

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#DryRiesling -->

```

```

<owl:Class rdf:about="&vin;DryRiesling">
  <owl:equivalentClass>
    <owl:Class>
      <owl:intersectionOf rdf:parseType="Collection">
        <rdf:Description rdf:about="&vin;Riesling"/>
        <owl:Restriction>
          <owl:onProperty rdf:resource="&vin;hasSugar"/>
          <owl:hasValue rdf:resource="&vin;Dry"/>
        </owl:Restriction>
      </owl:intersectionOf>
    </owl:Class>
  </owl:equivalentClass>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="&vin;hasBody"/>
      <owl:allValuesFrom>
        <owl:Class>
          <owl:oneOf rdf:parseType="Collection">
            <rdf:Description rdf:about="&vin;Medium"/>
            <rdf:Description rdf:about="&vin;Light"/>
          </owl:oneOf>
        </owl:Class>
      </owl:allValuesFrom>
    </owl:Restriction>
  </rdfs:subClassOf>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="&vin;hasColor"/>
      <owl:hasValue rdf:resource="&vin;White"/>
    </owl:Restriction>
  </rdfs:subClassOf>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="&vin;hasFlavor"/>
      <owl:hasValue rdf:resource="&vin;Delicate"/>
    </owl:Restriction>
  </rdfs:subClassOf>
</owl:Class>

```

```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#DryWhiteWine -->

```

```

<owl:Class rdf:about="&vin;DryWhiteWine">
  <owl:equivalentClass>
    <owl:Class>
      <owl:intersectionOf rdf:parseType="Collection">
        <rdf:Description rdf:about="&vin;DryWine"/>
        <rdf:Description rdf:about="&vin;WhiteWine"/>
      </owl:intersectionOf>
    </owl:Class>
  </owl:equivalentClass>

```

```
        </owl:intersectionOf>
    </owl:Class>
</owl:equivalentClass>
</owl:Class>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#DryWine -->
```

```
<owl:Class rdf:about="&vin;DryWine">
  <owl:equivalentClass>
    <owl:Class>
      <owl:intersectionOf rdf:parseType="Collection">
        <rdf:Description rdf:about="&vin;Wine"/>
        <owl:Restriction>
          <owl:onProperty rdf:resource="&vin;hasSugar"/>
          <owl:hasValue rdf:resource="&vin;Dry"/>
        </owl:Restriction>
      </owl:intersectionOf>
    </owl:Class>
  </owl:equivalentClass>
</owl:Class>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#EarlyHarvest -->
```

```
<owl:Class rdf:about="&vin;EarlyHarvest">
  <rdfs:subClassOf rdf:resource="&vin;Wine"/>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="&vin;hasSugar"/>
      <owl:allValuesFrom>
        <owl:Class>
          <owl:oneOf rdf:parseType="Collection">
            <rdf:Description rdf:about="&vin;Dry"/>
            <rdf:Description rdf:about="&vin;OffDry"/>
          </owl:oneOf>
        </owl:Class>
      </owl:allValuesFrom>
    </owl:Restriction>
  </rdfs:subClassOf>
  <owl:disjointWith rdf:resource="&vin;LateHarvest"/>
</owl:Class>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#FrenchWine -->
```

```
<owl:Class rdf:about="&vin;FrenchWine">
```



```

<owl:equivalentClass>
  <owl:Class>
    <owl:intersectionOf rdf:parseType="Collection">
      <rdf:Description rdf:about="&vin;Wine"/>
      <owl:Restriction>
        <owl:onProperty rdf:resource="&vin;locatedIn"/>
        <owl:hasValue rdf:resource="&vin;FrenchRegion"/>
      </owl:Restriction>
    </owl:intersectionOf>
  </owl:Class>
</owl:equivalentClass>
</owl:Class>

```

```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#FullBodiedWine -->

```

```

<owl:Class rdf:about="&vin;FullBodiedWine">
  <owl:equivalentClass>
    <owl:Class>
      <owl:intersectionOf rdf:parseType="Collection">
        <rdf:Description rdf:about="&vin;Wine"/>
        <owl:Restriction>
          <owl:onProperty rdf:resource="&vin;hasBody"/>
          <owl:hasValue rdf:resource="&vin;Full"/>
        </owl:Restriction>
      </owl:intersectionOf>
    </owl:Class>
  </owl:equivalentClass>
</owl:Class>

```

```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#Gamay -->

```

```

<owl:Class rdf:about="&vin;Gamay">
  <owl:equivalentClass>
    <owl:Class>
      <owl:intersectionOf rdf:parseType="Collection">
        <rdf:Description rdf:about="&vin;Wine"/>
        <owl:Restriction>
          <owl:onProperty rdf:resource="&vin;madeFromGrape"/>
          <owl:hasValue rdf:resource="&vin;GamayGrape"/>
        </owl:Restriction>
        <owl:Restriction>
          <owl:onProperty rdf:resource="&vin;madeFromGrape"/>
          <owl:maxCardinality rdf:datatype="&xsd;nonNegativeInteger">1</owl:maxCardinality>
        </owl:Restriction>
      </owl:intersectionOf>
    </owl:Class>
  </owl:equivalentClass>
</owl:Class>

```

```
</owl:equivalentClass>
</owl:Class>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#GermanWine -->
```

```
<owl:Class rdf:about="&vin;GermanWine">
  <owl:equivalentClass>
    <owl:Class>
      <owl:intersectionOf rdf:parseType="Collection">
        <rdf:Description rdf:about="&vin;Wine"/>
        <owl:Restriction>
          <owl:onProperty rdf:resource="&vin;locatedIn"/>
          <owl:hasValue rdf:resource="&vin;GermanyRegion"/>
        </owl:Restriction>
      </owl:intersectionOf>
    </owl:Class>
  </owl:equivalentClass>
</owl:Class>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#IceWine -->
```

```
<owl:Class rdf:about="&vin;IceWine">
  <owl:equivalentClass>
    <owl:Class>
      <owl:intersectionOf rdf:parseType="Collection">
        <rdf:Description rdf:about="&vin;DessertWine"/>
        <rdf:Description rdf:about="&vin;LateHarvest"/>
        <owl:Restriction>
          <owl:onProperty rdf:resource="&vin;hasColor"/>
          <owl:hasValue rdf:resource="&vin;White"/>
        </owl:Restriction>
      </owl:intersectionOf>
    </owl:Class>
  </owl:equivalentClass>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="&vin;hasFlavor"/>
      <owl:allValuesFrom>
        <owl:Class>
          <owl:oneOf rdf:parseType="Collection">
            <rdf:Description rdf:about="&vin;Moderate"/>
            <rdf:Description rdf:about="&vin;Strong"/>
          </owl:oneOf>
        </owl:Class>
      </owl:allValuesFrom>
    </owl:Restriction>
  </rdfs:subClassOf>
</owl:Class>
```

```

</rdfs:subClassOf>
<rdfs:subClassOf>
  <owl:Restriction>
    <owl:onProperty rdf:resource="&vin;hasBody"/>
    <owl:allValuesFrom>
      <owl:Class>
        <owl:oneOf rdf:parseType="Collection">
          <rdf:Description rdf:about="&vin;Medium"/>
          <rdf:Description rdf:about="&vin;Full"/>
        </owl:oneOf>
      </owl:Class>
    </owl:allValuesFrom>
  </owl:Restriction>
</rdfs:subClassOf>
</owl:Class>

```

```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#ItalianWine -->

```

```

<owl:Class rdf:about="&vin;ItalianWine">
  <owl:equivalentClass>
    <owl:Class>
      <owl:intersectionOf rdf:parseType="Collection">
        <rdf:Description rdf:about="&vin;Wine"/>
        <owl:Restriction>
          <owl:onProperty rdf:resource="&vin;locatedIn"/>
          <owl:hasValue rdf:resource="&vin;ItalianRegion"/>
        </owl:Restriction>
      </owl:intersectionOf>
    </owl:Class>
  </owl:equivalentClass>
</owl:Class>

```

```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#LateHarvest -->

```

```

<owl:Class rdf:about="&vin;LateHarvest">
  <rdfs:subClassOf rdf:resource="&vin;Wine"/>
<rdfs:subClassOf>
  <owl:Restriction>
    <owl:onProperty rdf:resource="&vin;hasSugar"/>
    <owl:hasValue rdf:resource="&vin;Sweet"/>
  </owl:Restriction>
</rdfs:subClassOf>
<rdfs:subClassOf>
  <owl:Restriction>
    <owl:onProperty rdf:resource="&vin;hasFlavor"/>
    <owl:allValuesFrom>

```

```

    <owl:Class>
      <owl:oneOf rdf:parseType="Collection">
        <rdf:Description rdf:about="&vin;Moderate"/>
        <rdf:Description rdf:about="&vin;Strong"/>
      </owl:oneOf>
    </owl:Class>
  </owl:allValuesFrom>
</owl:Restriction>
</rdfs:subClassOf>
</owl:Class>

```

```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#Loire -->

```

```

<owl:Class rdf:about="&vin;Loire">
  <owl:equivalentClass>
    <owl:Class>
      <owl:intersectionOf rdf:parseType="Collection">
        <rdf:Description rdf:about="&vin;Wine"/>
        <owl:Restriction>
          <owl:onProperty rdf:resource="&vin;locatedIn"/>
          <owl:hasValue rdf:resource="&vin;LoireRegion"/>
        </owl:Restriction>
      </owl:intersectionOf>
    </owl:Class>
  </owl:equivalentClass>
</owl:Class>

```

```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#Margaux -->

```

```

<owl:Class rdf:about="&vin;Margaux">
  <owl:equivalentClass>
    <owl:Class>
      <owl:intersectionOf rdf:parseType="Collection">
        <rdf:Description rdf:about="&vin;Medoc"/>
        <owl:Restriction>
          <owl:onProperty rdf:resource="&vin;locatedIn"/>
          <owl:hasValue rdf:resource="&vin;MargauxRegion"/>
        </owl:Restriction>
      </owl:intersectionOf>
    </owl:Class>
  </owl:equivalentClass>
</rdfs:subClassOf>
  <owl:Restriction>
    <owl:onProperty rdf:resource="&vin;madeFromGrape"/>
    <owl:maxCardinality rdf:datatype="&xsd;nonNegativeInteger">1</owl:maxCardinality>
  </owl:Restriction>

```

```

</rdfs:subClassOf>
<rdfs:subClassOf>
  <owl:Restriction>
    <owl:onProperty rdf:resource="&vin;hasFlavor"/>
    <owl:hasValue rdf:resource="&vin;Delicate"/>
  </owl:Restriction>
</rdfs:subClassOf>
<rdfs:subClassOf>
  <owl:Restriction>
    <owl:onProperty rdf:resource="&vin;madeFromGrape"/>
    <owl:hasValue rdf:resource="&vin;MerlotGrape"/>
  </owl:Restriction>
</rdfs:subClassOf>
</owl:Class>

```

```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#Medoc -->

```

```

<owl:Class rdf:about="&vin;Medoc">
  <owl:equivalentClass>
    <owl:Class>
      <owl:intersectionOf rdf:parseType="Collection">
        <rdf:Description rdf:about="&vin;Bordeaux"/>
        <owl:Restriction>
          <owl:onProperty rdf:resource="&vin;locatedIn"/>
          <owl:hasValue rdf:resource="&vin;MedocRegion"/>
        </owl:Restriction>
      </owl:intersectionOf>
    </owl:Class>
  </owl:equivalentClass>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="&vin;hasSugar"/>
      <owl:hasValue rdf:resource="&vin;Dry"/>
    </owl:Restriction>
  </rdfs:subClassOf>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="&vin;hasColor"/>
      <owl:hasValue rdf:resource="&vin;Red"/>
    </owl:Restriction>
  </rdfs:subClassOf>
</owl:Class>

```

```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#Meritage -->

```

```

<owl:Class rdf:about="&vin;Meritage">

```

```

<owl:equivalentClass>
  <owl:Class>
    <owl:intersectionOf rdf:parseType="Collection">
      <rdf:Description rdf:about="&vin;Wine"/>
      <owl:Restriction>
        <owl:onProperty rdf:resource="&vin;madeFromGrape"/>
        <owl:allValuesFrom>
          <owl:Class>
            <owl:oneOf rdf:parseType="Collection">
              <rdf:Description rdf:about="&vin;CabernetFrancGrape"/>
              <rdf:Description rdf:about="&vin;CabernetSauvignonGrape"/>
              <rdf:Description rdf:about="&vin;MerlotGrape"/>
              <rdf:Description rdf:about="&vin;MalbecGrape"/>
              <rdf:Description rdf:about="&vin;PetiteVerdotGrape"/>
            </owl:oneOf>
          </owl:Class>
        </owl:allValuesFrom>
      </owl:Restriction>
      <owl:Restriction>
        <owl:onProperty rdf:resource="&vin;madeFromGrape"/>
        <owl:minCardinality rdf:datatype="&xsd;nonNegativeInteger">2</owl:minCardinality>
      </owl:Restriction>
    </owl:intersectionOf>
  </owl:Class>
</owl:equivalentClass>
<rdfs:subClassOf>
  <owl:Restriction>
    <owl:onProperty rdf:resource="&vin;hasColor"/>
    <owl:hasValue rdf:resource="&vin;Red"/>
  </owl:Restriction>
</rdfs:subClassOf>
</owl:Class>

```

```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#Merlot -->

```

```

<owl:Class rdf:about="&vin;Merlot">
  <owl:equivalentClass>
    <owl:Class>
      <owl:intersectionOf rdf:parseType="Collection">
        <rdf:Description rdf:about="&vin;Wine"/>
        <owl:Restriction>
          <owl:onProperty rdf:resource="&vin;madeFromGrape"/>
          <owl:hasValue rdf:resource="&vin;MerlotGrape"/>
        </owl:Restriction>
        <owl:Restriction>
          <owl:onProperty rdf:resource="&vin;madeFromGrape"/>
          <owl:maxCardinality rdf:datatype="&xsd;nonNegativeInteger">1</owl:maxCardinality>
        </owl:Restriction>
      </owl:intersectionOf>
    </owl:Class>
  </owl:equivalentClass>
</owl:Class>

```

```

        </owl:intersectionOf>
    </owl:Class>
</owl:equivalentClass>
<rdfs:subClassOf>
    <owl:Restriction>
        <owl:onProperty rdf:resource="&vin;hasSugar"/>
        <owl:hasValue rdf:resource="&vin;Dry"/>
    </owl:Restriction>
</rdfs:subClassOf>
<rdfs:subClassOf>
    <owl:Restriction>
        <owl:onProperty rdf:resource="&vin;hasColor"/>
        <owl:hasValue rdf:resource="&vin;Red"/>
    </owl:Restriction>
</rdfs:subClassOf>
<rdfs:subClassOf>
    <owl:Restriction>
        <owl:onProperty rdf:resource="&vin;hasFlavor"/>
        <owl:allValuesFrom>
            <owl:Class>
                <owl:oneOf rdf:parseType="Collection">
                    <rdf:Description rdf:about="&vin;Delicate"/>
                    <rdf:Description rdf:about="&vin;Moderate"/>
                </owl:oneOf>
            </owl:Class>
        </owl:allValuesFrom>
    </owl:Restriction>
</rdfs:subClassOf>
<rdfs:subClassOf>
    <owl:Restriction>
        <owl:onProperty rdf:resource="&vin;hasBody"/>
        <owl:allValuesFrom>
            <owl:Class>
                <owl:oneOf rdf:parseType="Collection">
                    <rdf:Description rdf:about="&vin;Medium"/>
                    <rdf:Description rdf:about="&vin;Light"/>
                </owl:oneOf>
            </owl:Class>
        </owl:allValuesFrom>
    </owl:Restriction>
</rdfs:subClassOf>
</owl:Class>

```

```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#Meursault -->

```

```

<owl:Class rdf:about="&vin;Meursault">
    <owl:equivalentClass>
        <owl:Class>

```

```

    <owl:intersectionOf rdf:parseType="Collection">
      <rdf:Description rdf:about="&vin;WhiteBurgundy"/>
      <owl:Restriction>
        <owl:onProperty rdf:resource="&vin;locatedIn"/>
        <owl:hasValue rdf:resource="&vin;MeursaultRegion"/>
      </owl:Restriction>
    </owl:intersectionOf>
  </owl:Class>
</owl:equivalentClass>
<rdfs:subClassOf>
  <owl:Restriction>
    <owl:onProperty rdf:resource="&vin;hasBody"/>
    <owl:hasValue rdf:resource="&vin;Full"/>
  </owl:Restriction>
</rdfs:subClassOf>
</owl:Class>

```

```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#Muscadet -->

```

```

<owl:Class rdf:about="&vin;Muscadet">
  <owl:equivalentClass>
    <owl:Class>
      <owl:intersectionOf rdf:parseType="Collection">
        <rdf:Description rdf:about="&vin;Loire"/>
        <owl:Restriction>
          <owl:onProperty rdf:resource="&vin;locatedIn"/>
          <owl:hasValue rdf:resource="&vin;MuscadetRegion"/>
        </owl:Restriction>
      </owl:intersectionOf>
    </owl:Class>
  </owl:equivalentClass>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="&vin;hasSugar"/>
      <owl:hasValue rdf:resource="&vin;Dry"/>
    </owl:Restriction>
  </rdfs:subClassOf>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="&vin;madeFromGrape"/>
      <owl:maxCardinality rdf:datatype="&xsd;nonNegativeInteger">1</owl:maxCardinality>
    </owl:Restriction>
  </rdfs:subClassOf>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="&vin;hasFlavor"/>
      <owl:hasValue rdf:resource="&vin;Delicate"/>
    </owl:Restriction>
  </rdfs:subClassOf>

```



```

</rdfs:subClassOf>
<rdfs:subClassOf>
  <owl:Restriction>
    <owl:onProperty rdf:resource="&vin;madeFromGrape"/>
    <owl:hasValue rdf:resource="&vin;PinotBlancGrape"/>
  </owl:Restriction>
</rdfs:subClassOf>
<rdfs:subClassOf>
  <owl:Restriction>
    <owl:onProperty rdf:resource="&vin;hasBody"/>
    <owl:hasValue rdf:resource="&vin;Light"/>
  </owl:Restriction>
</rdfs:subClassOf>
</owl:Class>

```

```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#Pauillac -->

```

```

<owl:Class rdf:about="&vin;Pauillac">
  <owl:equivalentClass>
    <owl:Class>
      <owl:intersectionOf rdf:parseType="Collection">
        <rdf:Description rdf:about="&vin;Medoc"/>
        <owl:Restriction>
          <owl:onProperty rdf:resource="&vin;locatedIn"/>
          <owl:hasValue rdf:resource="&vin;PauillacRegion"/>
        </owl:Restriction>
      </owl:intersectionOf>
    </owl:Class>
  </owl:equivalentClass>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="&vin;hasFlavor"/>
      <owl:hasValue rdf:resource="&vin;Strong"/>
    </owl:Restriction>
  </rdfs:subClassOf>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="&vin;madeFromGrape"/>
      <owl:hasValue rdf:resource="&vin;CabernetSauvignonGrape"/>
    </owl:Restriction>
  </rdfs:subClassOf>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="&vin;hasBody"/>
      <owl:hasValue rdf:resource="&vin;Full"/>
    </owl:Restriction>
  </rdfs:subClassOf>
  <rdfs:subClassOf>

```



```

        </owl:allValuesFrom>
    </owl:Restriction>
</rdfs:subClassOf>
<rdfs:subClassOf>
    <owl:Restriction>
        <owl:onProperty rdf:resource="&vin;hasSugar"/>
        <owl:hasValue rdf:resource="&vin;Dry"/>
    </owl:Restriction>
</rdfs:subClassOf>
<rdfs:subClassOf>
    <owl:Restriction>
        <owl:onProperty rdf:resource="&vin;hasColor"/>
        <owl:hasValue rdf:resource="&vin;Red"/>
    </owl:Restriction>
</rdfs:subClassOf>
</owl:Class>

```

```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#PinotBlanc -->

```

```

<owl:Class rdf:about="&vin;PinotBlanc">
    <owl:equivalentClass>
        <owl:Class>
            <owl:intersectionOf rdf:parseType="Collection">
                <rdf:Description rdf:about="&vin;Wine"/>
                <owl:Restriction>
                    <owl:onProperty rdf:resource="&vin;madeFromGrape"/>
                    <owl:hasValue rdf:resource="&vin;PinotBlancGrape"/>
                </owl:Restriction>
                <owl:Restriction>
                    <owl:onProperty rdf:resource="&vin;madeFromGrape"/>
                    <owl:maxCardinality rdf:datatype="&xsd;nonNegativeInteger">1</owl:maxCardinality>
                </owl:Restriction>
            </owl:intersectionOf>
        </owl:Class>
    </owl:equivalentClass>
</rdfs:subClassOf>
    <owl:Restriction>
        <owl:onProperty rdf:resource="&vin;hasColor"/>
        <owl:hasValue rdf:resource="&vin;White"/>
    </owl:Restriction>
</rdfs:subClassOf>
</owl:Class>

```

```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#PinotNoir -->

```

```

<owl:Class rdf:about="&vin;PinotNoir">

```

```

<owl:equivalentClass>
  <owl:Class>
    <owl:intersectionOf rdf:parseType="Collection">
      <rdf:Description rdf:about="&vin;Wine"/>
      <owl:Restriction>
        <owl:onProperty rdf:resource="&vin;madeFromGrape"/>
        <owl:hasValue rdf:resource="&vin;PinotNoirGrape"/>
      </owl:Restriction>
      <owl:Restriction>
        <owl:onProperty rdf:resource="&vin;madeFromGrape"/>
        <owl:maxCardinality rdf:datatype="&xsd;nonNegativeInteger">1</owl:maxCardinality>
      </owl:Restriction>
    </owl:intersectionOf>
  </owl:Class>
</owl:equivalentClass>
<rdfs:subClassOf>
  <owl:Restriction>
    <owl:onProperty rdf:resource="&vin;hasColor"/>
    <owl:hasValue rdf:resource="&vin;Red"/>
  </owl:Restriction>
</rdfs:subClassOf>
</owl:Class>

```

```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#Port -->

```

```

<owl:Class rdf:about="&vin;Port">
  <rdfs:subClassOf rdf:resource="&vin;RedWine"/>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="&vin;hasFlavor"/>
      <owl:hasValue rdf:resource="&vin;Strong"/>
    </owl:Restriction>
  </rdfs:subClassOf>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="&vin;hasSugar"/>
      <owl:hasValue rdf:resource="&vin;Sweet"/>
    </owl:Restriction>
  </rdfs:subClassOf>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="&vin;hasBody"/>
      <owl:hasValue rdf:resource="&vin;Full"/>
    </owl:Restriction>
  </rdfs:subClassOf>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="&vin;locatedIn"/>

```

```

        <owl:hasValue rdf:resource="&vin;PortugalRegion"/>
    </owl:Restriction>
</rdfs:subClassOf>
</owl:Class>

```

```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#RedBordeaux -->

```

```

<owl:Class rdf:about="&vin;RedBordeaux">
  <owl:equivalentClass>
    <owl:Class>
      <owl:intersectionOf rdf:parseType="Collection">
        <rdf:Description rdf:about="&vin;Bordeaux"/>
        <rdf:Description rdf:about="&vin;RedWine"/>
      </owl:intersectionOf>
    </owl:Class>
  </owl:equivalentClass>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="&vin;madeFromGrape"/>
      <owl:allValuesFrom>
        <owl:Class>
          <owl:oneOf rdf:parseType="Collection">
            <rdf:Description rdf:about="&vin;CabernetSauvignonGrape"/>
            <rdf:Description rdf:about="&vin;MerlotGrape"/>
          </owl:oneOf>
        </owl:Class>
      </owl:allValuesFrom>
    </owl:Restriction>
  </rdfs:subClassOf>
</owl:Class>

```

```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#RedBurgundy -->

```

```

<owl:Class rdf:about="&vin;RedBurgundy">
  <owl:equivalentClass>
    <owl:Class>
      <owl:intersectionOf rdf:parseType="Collection">
        <rdf:Description rdf:about="&vin;Burgundy"/>
        <rdf:Description rdf:about="&vin;RedWine"/>
      </owl:intersectionOf>
    </owl:Class>
  </owl:equivalentClass>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="&vin;madeFromGrape"/>
      <owl:hasValue rdf:resource="&vin;PinotNoirGrape"/>
    </owl:Restriction>
  </rdfs:subClassOf>
</owl:Class>

```

```

    </owl:Restriction>
  </rdfs:subClassOf>
<rdfs:subClassOf>
  <owl:Restriction>
    <owl:onProperty rdf:resource="&vin;madeFromGrape"/>
    <owl:maxCardinality rdf:datatype="&xsd;nonNegativeInteger">1</owl:maxCardinality>
  </owl:Restriction>
</rdfs:subClassOf>
</owl:Class>

```

```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#RedTableWine -->

```

```

<owl:Class rdf:about="&vin;RedTableWine">
  <owl:equivalentClass>
    <owl:Class>
      <owl:intersectionOf rdf:parseType="Collection">
        <rdf:Description rdf:about="&vin;TableWine"/>
        <owl:Restriction>
          <owl:onProperty rdf:resource="&vin;hasColor"/>
          <owl:hasValue rdf:resource="&vin;Red"/>
        </owl:Restriction>
      </owl:intersectionOf>
    </owl:Class>
  </owl:equivalentClass>
</owl:Class>

```

```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#RedWine -->

```

```

<owl:Class rdf:about="&vin;RedWine">
  <owl:equivalentClass>
    <owl:Class>
      <owl:intersectionOf rdf:parseType="Collection">
        <rdf:Description rdf:about="&vin;Wine"/>
        <owl:Restriction>
          <owl:onProperty rdf:resource="&vin;hasColor"/>
          <owl:hasValue rdf:resource="&vin;Red"/>
        </owl:Restriction>
      </owl:intersectionOf>
    </owl:Class>
  </owl:equivalentClass>
</owl:Class>

```

```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#Region -->

```

```
<owl:Class rdf:about="&vin;Region"/>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#Riesling -->
```

```
<owl:Class rdf:about="&vin;Riesling">
  <owl:equivalentClass>
    <owl:Class>
      <owl:intersectionOf rdf:parseType="Collection">
        <rdf:Description rdf:about="&vin;Wine"/>
        <owl:Restriction>
          <owl:onProperty rdf:resource="&vin;madeFromGrape"/>
          <owl:hasValue rdf:resource="&vin;RieslingGrape"/>
        </owl:Restriction>
        <owl:Restriction>
          <owl:onProperty rdf:resource="&vin;madeFromGrape"/>
          <owl:maxCardinality rdf:datatype="&xsd;nonNegativeInteger">1</owl:maxCardinality>
        </owl:Restriction>
      </owl:intersectionOf>
    </owl:Class>
  </owl:equivalentClass>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="&vin;hasColor"/>
      <owl:hasValue rdf:resource="&vin;White"/>
    </owl:Restriction>
  </rdfs:subClassOf>
</owl:Class>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#RoseWine -->
```

```
<owl:Class rdf:about="&vin;RoseWine">
  <owl:equivalentClass>
    <owl:Class>
      <owl:intersectionOf rdf:parseType="Collection">
        <rdf:Description rdf:about="&vin;Wine"/>
        <owl:Restriction>
          <owl:onProperty rdf:resource="&vin;hasColor"/>
          <owl:hasValue rdf:resource="&vin;Rose"/>
        </owl:Restriction>
      </owl:intersectionOf>
    </owl:Class>
  </owl:equivalentClass>
</owl:Class>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#Sancerre -->

```
<owl:Class rdf:about="&vin;Sancerre">
  <owl:equivalentClass>
    <owl:Class>
      <owl:intersectionOf rdf:parseType="Collection">
        <rdf:Description rdf:about="&vin;Loire"/>
        <owl:Restriction>
          <owl:onProperty rdf:resource="&vin;locatedIn"/>
          <owl:hasValue rdf:resource="&vin;SancerreRegion"/>
        </owl:Restriction>
      </owl:intersectionOf>
    </owl:Class>
  </owl:equivalentClass>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="&vin;hasSugar"/>
      <owl:hasValue rdf:resource="&vin;OffDry"/>
    </owl:Restriction>
  </rdfs:subClassOf>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="&vin;hasFlavor"/>
      <owl:hasValue rdf:resource="&vin;Delicate"/>
    </owl:Restriction>
  </rdfs:subClassOf>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="&vin;madeFromGrape"/>
      <owl:hasValue rdf:resource="&vin;SauvignonBlancGrape"/>
    </owl:Restriction>
  </rdfs:subClassOf>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="&vin;madeFromGrape"/>
      <owl:maxCardinality rdf:datatype="&xsd;nonNegativeInteger">1</owl:maxCardinality>
    </owl:Restriction>
  </rdfs:subClassOf>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="&vin;hasBody"/>
      <owl:hasValue rdf:resource="&vin;Medium"/>
    </owl:Restriction>
  </rdfs:subClassOf>
</owl:Class>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#Sauterne -->



```

<owl:Class rdf:about="&vin;Sauterne">
  <rdfs:subClassOf rdf:resource="&vin;Bordeaux"/>
  <rdfs:subClassOf rdf:resource="&vin;LateHarvest"/>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="&vin;locatedIn"/>
      <owl:hasValue rdf:resource="&vin;SauterneRegion"/>
    </owl:Restriction>
  </rdfs:subClassOf>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="&vin;hasBody"/>
      <owl:hasValue rdf:resource="&vin;Medium"/>
    </owl:Restriction>
  </rdfs:subClassOf>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="&vin;hasColor"/>
      <owl:hasValue rdf:resource="&vin;White"/>
    </owl:Restriction>
  </rdfs:subClassOf>
</owl:Class>

```

```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#SauvignonBlanc -->

```

```

<owl:Class rdf:about="&vin;SauvignonBlanc">
  <owl:equivalentClass>
    <owl:Class>
      <owl:intersectionOf rdf:parseType="Collection">
        <rdf:Description rdf:about="&vin;SemillonOrSauvignonBlanc"/>
        <owl:Restriction>
          <owl:onProperty rdf:resource="&vin;madeFromGrape"/>
          <owl:hasValue rdf:resource="&vin;SauvignonBlancGrape"/>
        </owl:Restriction>
        <owl:Restriction>
          <owl:onProperty rdf:resource="&vin;madeFromGrape"/>
          <owl:maxCardinality rdf:datatype="&xsd;nonNegativeInteger">1</owl:maxCardinality>
        </owl:Restriction>
      </owl:intersectionOf>
    </owl:Class>
  </owl:equivalentClass>
</owl:Class>

```

```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#Semillon -->

```

```

<owl:Class rdf:about="&vin;Semillon">

```

```

<owl:equivalentClass>
  <owl:Class>
    <owl:intersectionOf rdf:parseType="Collection">
      <rdf:Description rdf:about="&vin;SemillonOrSauvignonBlanc"/>
      <owl:Restriction>
        <owl:onProperty rdf:resource="&vin;madeFromGrape"/>
        <owl:hasValue rdf:resource="&vin;SemillonGrape"/>
      </owl:Restriction>
      <owl:Restriction>
        <owl:onProperty rdf:resource="&vin;madeFromGrape"/>
        <owl:maxCardinality rdf:datatype="&xsd;nonNegativeInteger">1</owl:maxCardinality>
      </owl:Restriction>
    </owl:intersectionOf>
  </owl:Class>
</owl:equivalentClass>
</owl:Class>

```

```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#SemillonOrSauvignonBlanc -->

```

```

<owl:Class rdf:about="&vin;SemillonOrSauvignonBlanc">
  <owl:equivalentClass>
    <owl:Class>
      <owl:intersectionOf rdf:parseType="Collection">
        <rdf:Description rdf:about="&vin;Wine"/>
        <owl:Restriction>
          <owl:onProperty rdf:resource="&vin;madeFromGrape"/>
          <owl:allValuesFrom>
            <owl:Class>
              <owl:oneOf rdf:parseType="Collection">
                <rdf:Description rdf:about="&vin;SauvignonBlancGrape"/>
                <rdf:Description rdf:about="&vin;SemillonGrape"/>
              </owl:oneOf>
            </owl:Class>
          </owl:allValuesFrom>
        </owl:Restriction>
      </owl:intersectionOf>
    </owl:Class>
  </owl:equivalentClass>
<rdfs:subClassOf>
  <owl:Restriction>
    <owl:onProperty rdf:resource="&vin;hasColor"/>
    <owl:hasValue rdf:resource="&vin;White"/>
  </owl:Restriction>
</rdfs:subClassOf>
<rdfs:subClassOf>
  <owl:Restriction>
    <owl:onProperty rdf:resource="&vin;hasBody"/>
    <owl:allValuesFrom>

```

```

    <owl:Class>
      <owl:oneOf rdf:parseType="Collection">
        <rdf:Description rdf:about="&vin;Medium"/>
        <rdf:Description rdf:about="&vin;Full"/>
      </owl:oneOf>
    </owl:Class>
  </owl:allValuesFrom>
</owl:Restriction>
</rdfs:subClassOf>
</owl:Class>

```

```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#StEmilion -->

```

```

<owl:Class rdf:about="&vin;StEmilion">
  <owl:equivalentClass>
    <owl:Class>
      <owl:intersectionOf rdf:parseType="Collection">
        <rdf:Description rdf:about="&vin;Bordeaux"/>
        <owl:Restriction>
          <owl:onProperty rdf:resource="&vin;locatedIn"/>
          <owl:hasValue rdf:resource="&vin;StEmilionRegion"/>
        </owl:Restriction>
      </owl:intersectionOf>
    </owl:Class>
  </owl:equivalentClass>
</rdfs:subClassOf>
  <owl:Restriction>
    <owl:onProperty rdf:resource="&vin;hasColor"/>
    <owl:hasValue rdf:resource="&vin;Red"/>
  </owl:Restriction>
</rdfs:subClassOf>
<rdfs:subClassOf>
  <owl:Restriction>
    <owl:onProperty rdf:resource="&vin;hasFlavor"/>
    <owl:hasValue rdf:resource="&vin;Strong"/>
  </owl:Restriction>
</rdfs:subClassOf>
<rdfs:subClassOf>
  <owl:Restriction>
    <owl:onProperty rdf:resource="&vin;madeFromGrape"/>
    <owl:maxCardinality rdf:datatype="&xsd;nonNegativeInteger">1</owl:maxCardinality>
  </owl:Restriction>
</rdfs:subClassOf>
<rdfs:subClassOf>
  <owl:Restriction>
    <owl:onProperty rdf:resource="&vin;madeFromGrape"/>
    <owl:hasValue rdf:resource="&vin;CabernetSauvignonGrape"/>
  </owl:Restriction>

```

```
</rdfs:subClassOf>
</owl:Class>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#SweetRiesling -->
```

```
<owl:Class rdf:about="&vin;SweetRiesling">
  <owl:equivalentClass>
    <owl:Class>
      <owl:intersectionOf rdf:parseType="Collection">
        <rdf:Description rdf:about="&vin;Riesling"/>
        <owl:Restriction>
          <owl:onProperty rdf:resource="&vin;hasSugar"/>
          <owl:hasValue rdf:resource="&vin;Sweet"/>
        </owl:Restriction>
      </owl:intersectionOf>
    </owl:Class>
  </owl:equivalentClass>
  <rdfs:subClassOf rdf:resource="&vin;DessertWine"/>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="&vin;hasBody"/>
      <owl:hasValue rdf:resource="&vin;Full"/>
    </owl:Restriction>
  </rdfs:subClassOf>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="&vin;hasFlavor"/>
      <owl:allValuesFrom>
        <owl:Class>
          <owl:oneOf rdf:parseType="Collection">
            <rdf:Description rdf:about="&vin;Moderate"/>
            <rdf:Description rdf:about="&vin;Strong"/>
          </owl:oneOf>
        </owl:Class>
      </owl:allValuesFrom>
    </owl:Restriction>
  </rdfs:subClassOf>
</owl:Class>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#SweetWine -->
```

```
<owl:Class rdf:about="&vin;SweetWine">
  <owl:equivalentClass>
    <owl:Class>
      <owl:intersectionOf rdf:parseType="Collection">
        <rdf:Description rdf:about="&vin;Wine"/>
```

```
        <owl:Restriction>
          <owl:onProperty rdf:resource="&vin;hasSugar"/>
          <owl:hasValue rdf:resource="&vin;Sweet"/>
        </owl:Restriction>
      </owl:intersectionOf>
    </owl:Class>
  </owl:equivalentClass>
</owl:Class>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#TableWine -->
```

```
<owl:Class rdf:about="&vin;TableWine">
  <owl:equivalentClass>
    <owl:Class>
      <owl:intersectionOf rdf:parseType="Collection">
        <rdf:Description rdf:about="&vin;Wine"/>
        <owl:Restriction>
          <owl:onProperty rdf:resource="&vin;hasSugar"/>
          <owl:hasValue rdf:resource="&vin;Dry"/>
        </owl:Restriction>
      </owl:intersectionOf>
    </owl:Class>
  </owl:equivalentClass>
</owl:Class>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#TexasWine -->
```

```
<owl:Class rdf:about="&vin;TexasWine">
  <owl:equivalentClass>
    <owl:Class>
      <owl:intersectionOf rdf:parseType="Collection">
        <rdf:Description rdf:about="&vin;Wine"/>
        <owl:Restriction>
          <owl:onProperty rdf:resource="&vin;locatedIn"/>
          <owl:hasValue rdf:resource="&vin;TexasRegion"/>
        </owl:Restriction>
      </owl:intersectionOf>
    </owl:Class>
  </owl:equivalentClass>
</owl:Class>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#Tours -->
```

```
<owl:Class rdf:about="&vin;Tours">
```

```

<owl:equivalentClass>
  <owl:Class>
    <owl:intersectionOf rdf:parseType="Collection">
      <rdf:Description rdf:about="&vin;Loire"/>
      <owl:Restriction>
        <owl:onProperty rdf:resource="&vin;locatedIn"/>
        <owl:hasValue rdf:resource="&vin;ToursRegion"/>
      </owl:Restriction>
    </owl:intersectionOf>
  </owl:Class>
</owl:equivalentClass>
<rdfs:subClassOf>
  <owl:Restriction>
    <owl:onProperty rdf:resource="&vin;madeFromGrape"/>
    <owl:hasValue rdf:resource="&vin;CheninBlancGrape"/>
  </owl:Restriction>
</rdfs:subClassOf>
<rdfs:subClassOf>
  <owl:Restriction>
    <owl:onProperty rdf:resource="&vin;madeFromGrape"/>
    <owl:maxCardinality rdf:datatype="&xsd;nonNegativeInteger">1</owl:maxCardinality>
  </owl:Restriction>
</rdfs:subClassOf>
</owl:Class>

```

```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#Vintage -->

```

```

<owl:Class rdf:about="&vin;Vintage">
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="&vin;hasVintageYear"/>
      <owl:cardinality rdf:datatype="&xsd;nonNegativeInteger">1</owl:cardinality>
    </owl:Restriction>
  </rdfs:subClassOf>
</owl:Class>

```

```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#VintageYear -->

```

```

<owl:Class rdf:about="&vin;VintageYear"/>

```

```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#WhiteBordeaux -->

```

```

<owl:Class rdf:about="&vin;WhiteBordeaux">
  <owl:equivalentClass>

```

```

<owl:Class>
  <owl:intersectionOf rdf:parseType="Collection">
    <rdf:Description rdf:about="&vin;Bordeaux"/>
    <rdf:Description rdf:about="&vin;WhiteWine"/>
  </owl:intersectionOf>
</owl:Class>
</owl:equivalentClass>
<rdfs:subClassOf>
  <owl:Restriction>
    <owl:onProperty rdf:resource="&vin;madeFromGrape"/>
    <owl:allValuesFrom>
      <owl:Class>
        <owl:oneOf rdf:parseType="Collection">
          <rdf:Description rdf:about="&vin;SauvignonBlancGrape"/>
          <rdf:Description rdf:about="&vin;SemillonGrape"/>
        </owl:oneOf>
      </owl:Class>
    </owl:allValuesFrom>
  </owl:Restriction>
</rdfs:subClassOf>
</owl:Class>

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#WhiteBurgundy -->

<owl:Class rdf:about="&vin;WhiteBurgundy">
  <owl:equivalentClass>
    <owl:Class>
      <owl:intersectionOf rdf:parseType="Collection">
        <rdf:Description rdf:about="&vin;Burgundy"/>
        <rdf:Description rdf:about="&vin;WhiteWine"/>
      </owl:intersectionOf>
    </owl:Class>
  </owl:equivalentClass>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="&vin;madeFromGrape"/>
      <owl:hasValue rdf:resource="&vin;ChardonnayGrape"/>
    </owl:Restriction>
  </rdfs:subClassOf>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="&vin;madeFromGrape"/>
      <owl:maxCardinality rdf:datatype="&xsd;nonNegativeInteger">1</owl:maxCardinality>
    </owl:Restriction>
  </rdfs:subClassOf>
</owl:Class>

```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#WhiteLoire -->

```
<owl:Class rdf:about="&vin;WhiteLoire">
  <owl:equivalentClass>
    <owl:Class>
      <owl:intersectionOf rdf:parseType="Collection">
        <rdf:Description rdf:about="&vin;Loire"/>
        <rdf:Description rdf:about="&vin;WhiteWine"/>
      </owl:intersectionOf>
    </owl:Class>
  </owl:equivalentClass>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="&vin;madeFromGrape"/>
      <owl:allValuesFrom>
        <owl:Class>
          <owl:oneOf rdf:parseType="Collection">
            <rdf:Description rdf:about="&vin;CheninBlancGrape"/>
            <rdf:Description rdf:about="&vin;PinotBlancGrape"/>
            <rdf:Description rdf:about="&vin;SauvignonBlancGrape"/>
          </owl:oneOf>
        </owl:Class>
      </owl:allValuesFrom>
    </owl:Restriction>
  </rdfs:subClassOf>
</owl:Class>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#WhiteNonSweetWine -->

```
<owl:Class rdf:about="&vin;WhiteNonSweetWine">
  <owl:equivalentClass>
    <owl:Class>
      <owl:intersectionOf rdf:parseType="Collection">
        <rdf:Description rdf:about="&vin;WhiteWine"/>
        <owl:Restriction>
          <owl:onProperty rdf:resource="&vin;hasSugar"/>
          <owl:allValuesFrom>
            <owl:Class>
              <owl:oneOf rdf:parseType="Collection">
                <rdf:Description rdf:about="&vin;Dry"/>
                <rdf:Description rdf:about="&vin;OffDry"/>
              </owl:oneOf>
            </owl:Class>
          </owl:allValuesFrom>
        </owl:Restriction>
      </owl:intersectionOf>
    </owl:Class>
  </owl:equivalentClass>
</owl:Class>
```



```
</owl:equivalentClass>
</owl:Class>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#WhiteTableWine -->
```

```
<owl:Class rdf:about="&vin;WhiteTableWine">
  <owl:equivalentClass>
    <owl:Class>
      <owl:intersectionOf rdf:parseType="Collection">
        <rdf:Description rdf:about="&vin;TableWine"/>
        <owl:Restriction>
          <owl:onProperty rdf:resource="&vin;hasColor"/>
          <owl:hasValue rdf:resource="&vin;White"/>
        </owl:Restriction>
      </owl:intersectionOf>
    </owl:Class>
  </owl:equivalentClass>
</owl:Class>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#WhiteWine -->
```

```
<owl:Class rdf:about="&vin;WhiteWine">
  <owl:equivalentClass>
    <owl:Class>
      <owl:intersectionOf rdf:parseType="Collection">
        <rdf:Description rdf:about="&vin;Wine"/>
        <owl:Restriction>
          <owl:onProperty rdf:resource="&vin;hasColor"/>
          <owl:hasValue rdf:resource="&vin;White"/>
        </owl:Restriction>
      </owl:intersectionOf>
    </owl:Class>
  </owl:equivalentClass>
</owl:Class>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#Wine -->
```

```
<owl:Class rdf:about="&vin;Wine">
  <rdfs:label xml:lang="en">wine</rdfs:label>
  <rdfs:label xml:lang="fr">vin</rdfs:label>
  <rdfs:subClassOf rdf:resource="&food;PotableLiquid"/>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="&vin;hasColor"/>
```

```

        <owl:cardinality rdf:datatype="&xsd;nonNegativeInteger">1</owl:cardinality>
    </owl:Restriction>
</rdfs:subClassOf>
<rdfs:subClassOf>
    <owl:Restriction>
        <owl:onProperty rdf:resource="&vin;hasSugar"/>
        <owl:cardinality rdf:datatype="&xsd;nonNegativeInteger">1</owl:cardinality>
    </owl:Restriction>
</rdfs:subClassOf>
<rdfs:subClassOf>
    <owl:Restriction>
        <owl:onProperty rdf:resource="&vin;locatedIn"/>
        <owl:someValuesFrom rdf:resource="&vin;Region"/>
    </owl:Restriction>
</rdfs:subClassOf>
<rdfs:subClassOf>
    <owl:Restriction>
        <owl:onProperty rdf:resource="&vin;hasMaker"/>
        <owl:cardinality rdf:datatype="&xsd;nonNegativeInteger">1</owl:cardinality>
    </owl:Restriction>
</rdfs:subClassOf>
<rdfs:subClassOf>
    <owl:Restriction>
        <owl:onProperty rdf:resource="&vin;hasBody"/>
        <owl:cardinality rdf:datatype="&xsd;nonNegativeInteger">1</owl:cardinality>
    </owl:Restriction>
</rdfs:subClassOf>
<rdfs:subClassOf>
    <owl:Restriction>
        <owl:onProperty rdf:resource="&vin;hasFlavor"/>
        <owl:cardinality rdf:datatype="&xsd;nonNegativeInteger">1</owl:cardinality>
    </owl:Restriction>
</rdfs:subClassOf>
<rdfs:subClassOf>
    <owl:Restriction>
        <owl:onProperty rdf:resource="&vin;hasMaker"/>
        <owl:allValuesFrom rdf:resource="&vin;Winery"/>
    </owl:Restriction>
</rdfs:subClassOf>
<rdfs:subClassOf>
    <owl:Restriction>
        <owl:onProperty rdf:resource="&vin;madeFromGrape"/>
        <owl:minCardinality rdf:datatype="&xsd;nonNegativeInteger">1</owl:minCardinality>
    </owl:Restriction>
</rdfs:subClassOf>
</owl:Class>

```

```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#WineBody -->

```

```

<owl:Class rdf:about="&vin;WineBody">
  <owl:equivalentClass>
    <owl:Class>
      <owl:oneOf rdf:parseType="Collection">
        <rdf:Description rdf:about="&vin;Medium"/>
        <rdf:Description rdf:about="&vin;Full"/>
        <rdf:Description rdf:about="&vin;Light"/>
      </owl:oneOf>
    </owl:Class>
  </owl:equivalentClass>
  <rdfs:subClassOf rdf:resource="&vin;WineTaste"/>
</owl:Class>

```

```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#WineColor -->

```

```

<owl:Class rdf:about="&vin;WineColor">
  <owl:equivalentClass>
    <owl:Class>
      <owl:oneOf rdf:parseType="Collection">
        <rdf:Description rdf:about="&vin;Rose"/>
        <rdf:Description rdf:about="&vin;White"/>
        <rdf:Description rdf:about="&vin;Red"/>
      </owl:oneOf>
    </owl:Class>
  </owl:equivalentClass>
  <rdfs:subClassOf rdf:resource="&vin;WineDescriptor"/>
</owl:Class>

```

```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#WineDescriptor -->

```

```

<owl:Class rdf:about="&vin;WineDescriptor">
  <owl:equivalentClass>
    <owl:Class>
      <owl:unionOf rdf:parseType="Collection">
        <rdf:Description rdf:about="&vin;WineColor"/>
        <rdf:Description rdf:about="&vin;WineTaste"/>
      </owl:unionOf>
    </owl:Class>
  </owl:equivalentClass>
  <rdfs:comment>Made WineDescriptor unionType of tastes and color</rdfs:comment>
</owl:Class>

```

```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#WineFlavor -->

```

```
<owl:Class rdf:about="&vin;WineFlavor">
  <owl:equivalentClass>
    <owl:Class>
      <owl:oneOf rdf:parseType="Collection">
        <rdf:Description rdf:about="&vin;Delicate"/>
        <rdf:Description rdf:about="&vin;Moderate"/>
        <rdf:Description rdf:about="&vin;Strong"/>
      </owl:oneOf>
    </owl:Class>
  </owl:equivalentClass>
  <rdfs:subClassOf rdf:resource="&vin;WineTaste"/>
</owl:Class>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#WineGrape -->
```

```
<owl:Class rdf:about="&vin;WineGrape">
  <rdfs:subClassOf rdf:resource="&food;Grape"/>
</owl:Class>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#WineSugar -->
```

```
<owl:Class rdf:about="&vin;WineSugar">
  <owl:equivalentClass>
    <owl:Class>
      <owl:oneOf rdf:parseType="Collection">
        <rdf:Description rdf:about="&vin;Dry"/>
        <rdf:Description rdf:about="&vin;OffDry"/>
        <rdf:Description rdf:about="&vin;Sweet"/>
      </owl:oneOf>
    </owl:Class>
  </owl:equivalentClass>
  <rdfs:subClassOf rdf:resource="&vin;WineTaste"/>
</owl:Class>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#WineTaste -->
```

```
<owl:Class rdf:about="&vin;WineTaste">
  <rdfs:subClassOf rdf:resource="&vin;WineDescriptor"/>
</owl:Class>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#Winery -->
```

```
<owl:Class rdf:about="&vin;Winery"/>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#Zinfandel -->
```

```
<owl:Class rdf:about="&vin;Zinfandel">
  <owl:equivalentClass>
    <owl:Class>
      <owl:intersectionOf rdf:parseType="Collection">
        <rdf:Description rdf:about="&vin;Wine"/>
        <owl:Restriction>
          <owl:onProperty rdf:resource="&vin;madeFromGrape"/>
          <owl:hasValue rdf:resource="&vin;ZinfandelGrape"/>
        </owl:Restriction>
        <owl:Restriction>
          <owl:onProperty rdf:resource="&vin;madeFromGrape"/>
          <owl:maxCardinality rdf:datatype="&xsd;nonNegativeInteger">1</owl:maxCardinality>
        </owl:Restriction>
      </owl:intersectionOf>
    </owl:Class>
  </owl:equivalentClass>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="&vin;hasSugar"/>
      <owl:hasValue rdf:resource="&vin;Dry"/>
    </owl:Restriction>
  </rdfs:subClassOf>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="&vin;hasColor"/>
      <owl:hasValue rdf:resource="&vin;Red"/>
    </owl:Restriction>
  </rdfs:subClassOf>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="&vin;hasFlavor"/>
      <owl:allValuesFrom>
        <owl:Class>
          <owl:oneOf rdf:parseType="Collection">
            <rdf:Description rdf:about="&vin;Moderate"/>
            <rdf:Description rdf:about="&vin;Strong"/>
          </owl:oneOf>
        </owl:Class>
      </owl:allValuesFrom>
    </owl:Restriction>
  </rdfs:subClassOf>
  <rdfs:subClassOf>
    <owl:Restriction>
```

```

<owl:onProperty rdf:resource="&vin;hasBody"/>
<owl:allValuesFrom>
  <owl:Class>
    <owl:oneOf rdf:parseType="Collection">
      <rdf:Description rdf:about="&vin;Medium"/>
      <rdf:Description rdf:about="&vin;Full"/>
    </owl:oneOf>
  </owl:Class>
</owl:allValuesFrom>
</owl:Restriction>
</rdfs:subClassOf>
</owl:Class>

```

```

<!--
////////////////////////////////////
//
// Individuals
//
////////////////////////////////////
-->

```

```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#AlsaceRegion -->

```

```

<owl:NamedIndividual rdf:about="&vin;AlsaceRegion">
  <rdf:type rdf:resource="&vin;Region"/>
  <locatedIn rdf:resource="&vin;FrenchRegion"/>
</owl:NamedIndividual>

```

```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#AnjouRegion -->

```

```

<owl:NamedIndividual rdf:about="&vin;AnjouRegion">
  <rdf:type rdf:resource="&vin;Region"/>
  <locatedIn rdf:resource="&vin;LoireRegion"/>
</owl:NamedIndividual>

```

```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#ArroyoGrandeRegion -->

```

```

<owl:NamedIndividual rdf:about="&vin;ArroyoGrandeRegion">
  <rdf:type rdf:resource="&vin;Region"/>
  <locatedIn rdf:resource="&vin;CaliforniaRegion"/>
</owl:NamedIndividual>

```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#AustralianRegion -->

```
<owl:NamedIndividual rdf:about="&vin;AustralianRegion">
  <rdf:type rdf:resource="&vin;Region"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#Bancroft -->

```
<owl:NamedIndividual rdf:about="&vin;Bancroft">
  <rdf:type rdf:resource="&vin;Winery"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#BancroftChardonnay -->

```
<owl:NamedIndividual rdf:about="&vin;BancroftChardonnay">
  <rdf:type rdf:resource="&vin;Chardonnay"/>
  <hasMaker rdf:resource="&vin;Bancroft"/>
  <hasSugar rdf:resource="&vin;Dry"/>
  <hasBody rdf:resource="&vin;Medium"/>
  <hasFlavor rdf:resource="&vin;Moderate"/>
  <locatedIn rdf:resource="&vin;NapaRegion"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#BeaujolaisRegion -->

```
<owl:NamedIndividual rdf:about="&vin;BeaujolaisRegion">
  <rdf:type rdf:resource="&vin;Region"/>
  <locatedIn rdf:resource="&vin;FrenchRegion"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#Beringer -->

```
<owl:NamedIndividual rdf:about="&vin;Beringer">
  <rdf:type rdf:resource="&vin;Winery"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#BordeauxRegion -->

```
<owl:NamedIndividual rdf:about="&vin;BordeauxRegion">
  <rdf:type rdf:resource="&vin;Region"/>
  <locatedIn rdf:resource="&vin;FrenchRegion"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#BourgogneRegion -->
```

```
<owl:NamedIndividual rdf:about="&vin;BourgogneRegion">
  <rdf:type rdf:resource="&vin;Region"/>
  <locatedIn rdf:resource="&vin;FrenchRegion"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#CabernetFrancGrape -->
```

```
<owl:Thing rdf:about="&vin;CabernetFrancGrape">
  <rdf:type rdf:resource="&owl;NamedIndividual"/>
  <rdf:type rdf:resource="&vin;WineGrape"/>
</owl:Thing>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#CabernetSauvignonGrape -->
```

```
<owl:Thing rdf:about="&vin;CabernetSauvignonGrape">
  <rdf:type rdf:resource="&owl;NamedIndividual"/>
  <rdf:type rdf:resource="&vin;WineGrape"/>
</owl:Thing>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#CaliforniaRegion -->
```

```
<owl:NamedIndividual rdf:about="&vin;CaliforniaRegion">
  <rdf:type rdf:resource="&vin;Region"/>
  <locatedIn rdf:resource="&vin;USRegion"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#CentralCoastRegion -->
```

```
<owl:NamedIndividual rdf:about="&vin;CentralCoastRegion">
  <rdf:type rdf:resource="&vin;Region"/>
  <locatedIn rdf:resource="&vin;CaliforniaRegion"/>
</owl:NamedIndividual>
```



<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#CentralTexasRegion -->

```
<owl:NamedIndividual rdf:about="&vin;CentralTexasRegion">
  <rdf:type rdf:resource="&vin;Region"/>
  <locatedIn rdf:resource="&vin;TexasRegion"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#ChardonnayGrape -->

```
<owl:NamedIndividual rdf:about="&vin;ChardonnayGrape">
  <rdf:type rdf:resource="&vin;WineGrape"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#ChateauChevalBlanc -->

```
<owl:NamedIndividual rdf:about="&vin;ChateauChevalBlanc">
  <rdf:type rdf:resource="&vin;Winery"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#ChateauChevalBlancStEmilion -->

```
<owl:NamedIndividual rdf:about="&vin;ChateauChevalBlancStEmilion">
  <rdf:type rdf:resource="&vin;StEmilion"/>
  <hasMaker rdf:resource="&vin;ChateauChevalBlanc"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#ChateauDYchem -->

```
<owl:NamedIndividual rdf:about="&vin;ChateauDYchem">
  <rdf:type rdf:resource="&vin;Winery"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#ChateauDYchemSauterne -->

```
<owl:NamedIndividual rdf:about="&vin;ChateauDYchemSauterne">
  <rdf:type rdf:resource="&vin;Sauterne"/>
  <hasMaker rdf:resource="&vin;ChateauDYchem"/>
```

```
<madeFromGrape rdf:resource="&vin;SauvignonBlancGrape"/>
<madeFromGrape rdf:resource="&vin;SemillonGrape"/>
<hasFlavor rdf:resource="&vin;Strong"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#ChateauDeMeursault -->
```

```
<owl:NamedIndividual rdf:about="&vin;ChateauDeMeursault">
  <rdf:type rdf:resource="&vin;Winery"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#ChateauDeMeursaultMeursault -->
```

```
<owl:NamedIndividual rdf:about="&vin;ChateauDeMeursaultMeursault">
  <rdf:type rdf:resource="&vin;Meursault"/>
  <hasMaker rdf:resource="&vin;ChateauDeMeursault"/>
  <hasFlavor rdf:resource="&vin;Moderate"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#ChateauLafiteRothschild -->
```

```
<owl:NamedIndividual rdf:about="&vin;ChateauLafiteRothschild">
  <rdf:type rdf:resource="&vin;Winery"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#ChateauLafiteRothschildPauillac -->
```

```
<owl:NamedIndividual rdf:about="&vin;ChateauLafiteRothschildPauillac">
  <rdf:type rdf:resource="&vin;Pauillac"/>
  <hasMaker rdf:resource="&vin;ChateauLafiteRothschild"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#ChateauMargaux -->
```

```
<owl:NamedIndividual rdf:about="&vin;ChateauMargaux">
  <rdf:type rdf:resource="&vin;Margaux"/>
  <hasMaker rdf:resource="&vin;ChateauMargauxWinery"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#ChateauMargauxWinery -->

```
<owl:NamedIndividual rdf:about="&vin;ChateauMargauxWinery">
  <rdf:type rdf:resource="&vin;Winery"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#ChateauMorgon -->

```
<owl:NamedIndividual rdf:about="&vin;ChateauMorgon">
  <rdf:type rdf:resource="&vin;Winery"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#ChateauMorgonBeaujolais -->

```
<owl:NamedIndividual rdf:about="&vin;ChateauMorgonBeaujolais">
  <rdf:type rdf:resource="&vin;Beaujolais"/>
  <hasMaker rdf:resource="&vin;ChateauMorgon"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#CheninBlancGrape -->

```
<owl:Thing rdf:about="&vin;CheninBlancGrape">
  <rdf:type rdf:resource="&owl;NamedIndividual"/>
  <rdf:type rdf:resource="&vin;WineGrape"/>
</owl:Thing>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#ChiantiClassico -->

```
<owl:NamedIndividual rdf:about="&vin;ChiantiClassico">
  <rdf:type rdf:resource="&vin;Chianti"/>
  <hasMaker rdf:resource="&vin;McGuinnesso"/>
  <hasBody rdf:resource="&vin;Medium"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#ChiantiRegion -->

```
<owl:NamedIndividual rdf:about="&vin;ChiantiRegion">
  <rdf:type rdf:resource="&vin;Region"/>
  <locatedIn rdf:resource="&vin;ItalianRegion"/>
```

</owl:NamedIndividual>

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#ClosDeLaPoussie -->

<owl:NamedIndividual rdf:about="&vin;ClosDeLaPoussie">  
 <rdf:type rdf:resource="&vin;Winery"/>  
</owl:NamedIndividual>

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#ClosDeLaPoussieSancerre -->

<owl:NamedIndividual rdf:about="&vin;ClosDeLaPoussieSancerre">  
 <rdf:type rdf:resource="&vin;Sancerre"/>  
 <hasMaker rdf:resource="&vin;ClosDeLaPoussie"/>  
</owl:NamedIndividual>

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#ClosDeVougeot -->

<owl:NamedIndividual rdf:about="&vin;ClosDeVougeot">  
 <rdf:type rdf:resource="&vin;Winery"/>  
</owl:NamedIndividual>

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#ClosDeVougeotCotesDOr -->

<owl:NamedIndividual rdf:about="&vin;ClosDeVougeotCotesDOr">  
 <rdf:type rdf:resource="&vin;CotesDOr"/>  
 <hasMaker rdf:resource="&vin;ClosDeVougeot"/>  
</owl:NamedIndividual>

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#CongressSprings -->

<owl:NamedIndividual rdf:about="&vin;CongressSprings">  
 <rdf:type rdf:resource="&vin;Winery"/>  
</owl:NamedIndividual>

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#CongressSpringsSemillon -->

<owl:NamedIndividual rdf:about="&vin;CongressSpringsSemillon">  
 <rdf:type rdf:resource="&vin;Semillon"/>

```
<hasMaker rdf:resource="&vin;CongressSprings"/>
<hasSugar rdf:resource="&vin;Dry"/>
<hasBody rdf:resource="&vin;Medium"/>
<hasFlavor rdf:resource="&vin;Moderate"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#Corbans -->
```

```
<owl:NamedIndividual rdf:about="&vin;Corbans">
  <rdf:type rdf:resource="&vin;Winery"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#CorbansDryWhiteRiesling -->
```

```
<owl:NamedIndividual rdf:about="&vin;CorbansDryWhiteRiesling">
  <rdf:type rdf:resource="&vin;Riesling"/>
  <hasMaker rdf:resource="&vin;Corbans"/>
  <hasBody rdf:resource="&vin;Medium"/>
  <hasFlavor rdf:resource="&vin;Moderate"/>
  <locatedIn rdf:resource="&vin;NewZealandRegion"/>
  <hasSugar rdf:resource="&vin;OffDry"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#CorbansPrivateBinSauvignonBlanc -->
```

```
<owl:NamedIndividual rdf:about="&vin;CorbansPrivateBinSauvignonBlanc">
  <rdf:type rdf:resource="&vin;SauvignonBlanc"/>
  <hasMaker rdf:resource="&vin;Corbans"/>
  <hasSugar rdf:resource="&vin;Dry"/>
  <hasBody rdf:resource="&vin;Full"/>
  <locatedIn rdf:resource="&vin;NewZealandRegion"/>
  <hasFlavor rdf:resource="&vin;Strong"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#CorbansSauvignonBlanc -->
```

```
<owl:NamedIndividual rdf:about="&vin;CorbansSauvignonBlanc">
  <rdf:type rdf:resource="&vin;SauvignonBlanc"/>
  <hasMaker rdf:resource="&vin;Corbans"/>
  <hasSugar rdf:resource="&vin;Dry"/>
  <hasBody rdf:resource="&vin;Medium"/>
  <locatedIn rdf:resource="&vin;NewZealandRegion"/>
```

```
<hasFlavor rdf:resource="&vin;Strong"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#CortonMontrachet -->
```

```
<owl:NamedIndividual rdf:about="&vin;CortonMontrachet">
  <rdf:type rdf:resource="&vin;Winery"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#CortonMontrachetWhiteBurgundy -->
```

```
<owl:NamedIndividual rdf:about="&vin;CortonMontrachetWhiteBurgundy">
  <rdf:type rdf:resource="&vin;WhiteBurgundy"/>
  <hasMaker rdf:resource="&vin;CortonMontrachet"/>
  <hasSugar rdf:resource="&vin;Dry"/>
  <hasBody rdf:resource="&vin;Full"/>
  <hasFlavor rdf:resource="&vin;Strong"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#CotesDOrRegion -->
```

```
<owl:NamedIndividual rdf:about="&vin;CotesDOrRegion">
  <rdf:type rdf:resource="&vin;Region"/>
  <locatedIn rdf:resource="&vin;BourgogneRegion"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#Cotturi -->
```

```
<owl:NamedIndividual rdf:about="&vin;Cotturi">
  <rdf:type rdf:resource="&vin;Winery"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#CotturiZinfandel -->
```

```
<owl:NamedIndividual rdf:about="&vin;CotturiZinfandel">
  <rdf:type rdf:resource="&vin;Zinfandel"/>
  <hasMaker rdf:resource="&vin;Cotturi"/>
  <hasSugar rdf:resource="&vin;Dry"/>
  <hasBody rdf:resource="&vin;Full"/>
  <locatedIn rdf:resource="&vin;SonomaRegion"/>
```

```
<hasFlavor rdf:resource="&vin;Strong"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#DAnjou -->
```

```
<owl:NamedIndividual rdf:about="&vin;DAnjou">
  <rdf:type rdf:resource="&vin;Winery"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#Delicate -->
```

```
<owl:Thing rdf:about="&vin;Delicate">
  <rdf:type rdf:resource="&owl;NamedIndividual"/>
  <rdf:type rdf:resource="&vin;WineFlavor"/>
</owl:Thing>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#Dry -->
```

```
<owl:Thing rdf:about="&vin;Dry">
  <rdf:type rdf:resource="&owl;NamedIndividual"/>
  <rdf:type rdf:resource="&vin;WineSugar"/>
</owl:Thing>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#EdnaValleyRegion -->
```

```
<owl:NamedIndividual rdf:about="&vin;EdnaValleyRegion">
  <rdf:type rdf:resource="&vin;Region"/>
  <locatedIn rdf:resource="&vin;CaliforniaRegion"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#Elyse -->
```

```
<owl:NamedIndividual rdf:about="&vin;Elyse">
  <rdf:type rdf:resource="&vin;Winery"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#ElyseZinfandel -->
```

```
<owl:NamedIndividual rdf:about="&vin;ElyseZinfandel">
  <rdf:type rdf:resource="&vin;Zinfandel"/>
  <hasSugar rdf:resource="&vin;Dry"/>
  <hasMaker rdf:resource="&vin;Elyse"/>
  <hasBody rdf:resource="&vin;Full"/>
  <hasFlavor rdf:resource="&vin;Moderate"/>
  <locatedIn rdf:resource="&vin;NapaRegion"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#Forman -->
```

```
<owl:NamedIndividual rdf:about="&vin;Forman">
  <rdf:type rdf:resource="&vin;Winery"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#FormanCabernetSauvignon -->
```

```
<owl:NamedIndividual rdf:about="&vin;FormanCabernetSauvignon">
  <rdf:type rdf:resource="&vin;CabernetSauvignon"/>
  <hasSugar rdf:resource="&vin;Dry"/>
  <hasMaker rdf:resource="&vin;Forman"/>
  <hasBody rdf:resource="&vin;Medium"/>
  <locatedIn rdf:resource="&vin;NapaRegion"/>
  <hasFlavor rdf:resource="&vin;Strong"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#FormanChardonnay -->
```

```
<owl:NamedIndividual rdf:about="&vin;FormanChardonnay">
  <rdf:type rdf:resource="&vin;Chardonnay"/>
  <hasSugar rdf:resource="&vin;Dry"/>
  <hasMaker rdf:resource="&vin;Forman"/>
  <hasBody rdf:resource="&vin;Full"/>
  <hasFlavor rdf:resource="&vin;Moderate"/>
  <locatedIn rdf:resource="&vin;NapaRegion"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#Foxen -->
```

```
<owl:NamedIndividual rdf:about="&vin;Foxen">
  <rdf:type rdf:resource="&vin;Winery"/>
</owl:NamedIndividual>
```



<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#FoxenCheninBlanc -->

```
<owl:NamedIndividual rdf:about="&vin;FoxenCheninBlanc">
  <rdf:type rdf:resource="&vin;CheninBlanc"/>
  <hasSugar rdf:resource="&vin;Dry"/>
  <hasMaker rdf:resource="&vin;Foxen"/>
  <hasBody rdf:resource="&vin;Full"/>
  <hasFlavor rdf:resource="&vin;Moderate"/>
  <locatedIn rdf:resource="&vin;SantaBarbaraRegion"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#FrenchRegion -->

```
<owl:NamedIndividual rdf:about="&vin;FrenchRegion">
  <rdf:type rdf:resource="&vin;Region"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#Full -->

```
<owl:Thing rdf:about="&vin;Full">
  <rdf:type rdf:resource="&owl;NamedIndividual"/>
  <rdf:type rdf:resource="&vin;WineBody"/>
</owl:Thing>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#GamayGrape -->

```
<owl:NamedIndividual rdf:about="&vin;GamayGrape">
  <rdf:type rdf:resource="&vin;WineGrape"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#GaryFarrell -->

```
<owl:NamedIndividual rdf:about="&vin;GaryFarrell">
  <rdf:type rdf:resource="&vin;Winery"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#GaryFarrellMerlot -->

```
<owl:NamedIndividual rdf:about="&vin;GaryFarrellMerlot">
  <rdf:type rdf:resource="&vin;Merlot"/>
  <hasSugar rdf:resource="&vin;Dry"/>
  <hasMaker rdf:resource="&vin;GaryFarrell"/>
  <hasBody rdf:resource="&vin;Medium"/>
  <hasFlavor rdf:resource="&vin;Moderate"/>
  <locatedIn rdf:resource="&vin;SonomaRegion"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#GermanyRegion -->
```

```
<owl:NamedIndividual rdf:about="&vin;GermanyRegion">
  <rdf:type rdf:resource="&vin;Region"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#Handley -->
```

```
<owl:NamedIndividual rdf:about="&vin;Handley">
  <rdf:type rdf:resource="&vin;Winery"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#ItalianRegion -->
```

```
<owl:NamedIndividual rdf:about="&vin;ItalianRegion">
  <rdf:type rdf:resource="&vin;Region"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#KalinCellars -->
```

```
<owl:NamedIndividual rdf:about="&vin;KalinCellars">
  <rdf:type rdf:resource="&vin;Winery"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#KalinCellarsSemillon -->
```

```
<owl:NamedIndividual rdf:about="&vin;KalinCellarsSemillon">
  <rdf:type rdf:resource="&vin;Semillon"/>
  <hasSugar rdf:resource="&vin;Dry"/>
  <hasBody rdf:resource="&vin;Full"/>
```

```
<hasMaker rdf:resource="&vin;KalinCellars"/>
<hasFlavor rdf:resource="&vin;Strong"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#KathrynKennedy -->
```

```
<owl:NamedIndividual rdf:about="&vin;KathrynKennedy">
  <rdf:type rdf:resource="&vin;Winery"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#KathrynKennedyLateral -->
```

```
<owl:NamedIndividual rdf:about="&vin;KathrynKennedyLateral">
  <rdf:type rdf:resource="&vin;Meritage"/>
  <hasFlavor rdf:resource="&vin;Delicate"/>
  <hasSugar rdf:resource="&vin;Dry"/>
  <hasMaker rdf:resource="&vin;KathrynKennedy"/>
  <hasBody rdf:resource="&vin;Medium"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#LaneTanner -->
```

```
<owl:NamedIndividual rdf:about="&vin;LaneTanner">
  <rdf:type rdf:resource="&vin;Winery"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#LaneTannerPinotNoir -->
```

```
<owl:NamedIndividual rdf:about="&vin;LaneTannerPinotNoir">
  <rdf:type rdf:resource="&vin;PinotNoir"/>
  <hasFlavor rdf:resource="&vin;Delicate"/>
  <hasSugar rdf:resource="&vin;Dry"/>
  <hasMaker rdf:resource="&vin;LaneTanner"/>
  <hasBody rdf:resource="&vin;Light"/>
  <locatedIn rdf:resource="&vin;SantaBarbaraRegion"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#Light -->
```

```
<owl:Thing rdf:about="&vin;Light">
```

```
<rdf:type rdf:resource="&owl;NamedIndividual"/>
<rdf:type rdf:resource="&vin;WineBody"/>
</owl:Thing>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#LoireRegion -->
```

```
<owl:NamedIndividual rdf:about="&vin;LoireRegion">
  <rdf:type rdf:resource="&vin;Region"/>
  <locatedIn rdf:resource="&vin;FrenchRegion"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#Longridge -->
```

```
<owl:NamedIndividual rdf:about="&vin;Longridge">
  <rdf:type rdf:resource="&vin;Winery"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#LongridgeMerlot -->
```

```
<owl:NamedIndividual rdf:about="&vin;LongridgeMerlot">
  <rdf:type rdf:resource="&vin;Merlot"/>
  <hasSugar rdf:resource="&vin;Dry"/>
  <hasBody rdf:resource="&vin;Light"/>
  <hasMaker rdf:resource="&vin;Longridge"/>
  <hasFlavor rdf:resource="&vin;Moderate"/>
  <locatedIn rdf:resource="&vin;NewZealandRegion"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#MalbecGrape -->
```

```
<owl:Thing rdf:about="&vin;MalbecGrape">
  <rdf:type rdf:resource="&owl;NamedIndividual"/>
  <rdf:type rdf:resource="&vin;WineGrape"/>
</owl:Thing>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#MargauxRegion -->
```

```
<owl:NamedIndividual rdf:about="&vin;MargauxRegion">
  <rdf:type rdf:resource="&vin;Region"/>
  <locatedIn rdf:resource="&vin;MedocRegion"/>
```

</owl:NamedIndividual>

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#Marietta -->

<owl:NamedIndividual rdf:about="&vin;Marietta">  
 <rdf:type rdf:resource="&vin;Winery"/>  
</owl:NamedIndividual>

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#MariettaCabernetSauvignon -->

<owl:NamedIndividual rdf:about="&vin;MariettaCabernetSauvignon">  
 <rdf:type rdf:resource="&vin;CabernetSauvignon"/>  
 <hasSugar rdf:resource="&vin;Dry"/>  
 <hasMaker rdf:resource="&vin;Marietta"/>  
 <hasBody rdf:resource="&vin;Medium"/>  
 <hasFlavor rdf:resource="&vin;Moderate"/>  
 <locatedIn rdf:resource="&vin;SonomaRegion"/>  
</owl:NamedIndividual>

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#MariettaOldVinesRed -->

<owl:NamedIndividual rdf:about="&vin;MariettaOldVinesRed">  
 <rdf:type rdf:resource="&vin;RedTableWine"/>  
 <hasSugar rdf:resource="&vin;Dry"/>  
 <hasMaker rdf:resource="&vin;Marietta"/>  
 <hasBody rdf:resource="&vin;Medium"/>  
 <hasFlavor rdf:resource="&vin;Moderate"/>  
 <locatedIn rdf:resource="&vin;SonomaRegion"/>  
</owl:NamedIndividual>

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#MariettaPetiteSyrah -->

<owl:NamedIndividual rdf:about="&vin;MariettaPetiteSyrah">  
 <rdf:type rdf:resource="&vin;PetiteSyrah"/>  
 <hasSugar rdf:resource="&vin;Dry"/>  
 <hasMaker rdf:resource="&vin;Marietta"/>  
 <hasBody rdf:resource="&vin;Medium"/>  
 <hasFlavor rdf:resource="&vin;Moderate"/>  
 <locatedIn rdf:resource="&vin;SonomaRegion"/>  
</owl:NamedIndividual>

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#MariettaZinfandel -->

```
<owl:NamedIndividual rdf:about="&vin;MariettaZinfandel">
  <rdf:type rdf:resource="&vin;Zinfandel"/>
  <hasSugar rdf:resource="&vin;Dry"/>
  <hasMaker rdf:resource="&vin;Marietta"/>
  <hasBody rdf:resource="&vin;Medium"/>
  <hasFlavor rdf:resource="&vin;Moderate"/>
  <locatedIn rdf:resource="&vin;SonomaRegion"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#McGuinnesso -->

```
<owl:NamedIndividual rdf:about="&vin;McGuinnesso">
  <rdf:type rdf:resource="&vin;Winery"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#Medium -->

```
<owl:Thing rdf:about="&vin;Medium">
  <rdf:type rdf:resource="&owl;NamedIndividual"/>
  <rdf:type rdf:resource="&vin;WineBody"/>
</owl:Thing>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#MedocRegion -->

```
<owl:NamedIndividual rdf:about="&vin;MedocRegion">
  <rdf:type rdf:resource="&vin;Region"/>
  <locatedIn rdf:resource="&vin;BordeauxRegion"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#MendocinoRegion -->

```
<owl:NamedIndividual rdf:about="&vin;MendocinoRegion">
  <rdf:type rdf:resource="&vin;Region"/>
  <locatedIn rdf:resource="&vin;CaliforniaRegion"/>
  <adjacentRegion rdf:resource="&vin;SonomaRegion"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#MerlotGrape -->

```
<owl:Thing rdf:about="&vin;MerlotGrape">
  <rdf:type rdf:resource="&owl;NamedIndividual"/>
  <rdf:type rdf:resource="&vin;WineGrape"/>
</owl:Thing>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#MeursaultRegion -->

```
<owl:NamedIndividual rdf:about="&vin;MeursaultRegion">
  <rdf:type rdf:resource="&vin;Region"/>
  <locatedIn rdf:resource="&vin;BourgogneRegion"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#Moderate -->

```
<owl:Thing rdf:about="&vin;Moderate">
  <rdf:type rdf:resource="&owl;NamedIndividual"/>
  <rdf:type rdf:resource="&vin;WineFlavor"/>
</owl:Thing>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#MountEdenVineyard -->

```
<owl:NamedIndividual rdf:about="&vin;MountEdenVineyard">
  <rdf:type rdf:resource="&vin;Winery"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#MountEdenVineyardEdnaValleyChardonnay -->

```
<owl:NamedIndividual rdf:about="&vin;MountEdenVineyardEdnaValleyChardonnay">
  <rdf:type rdf:resource="&vin;Chardonnay"/>
  <hasSugar rdf:resource="&vin;Dry"/>
  <locatedIn rdf:resource="&vin;EdnaValleyRegion"/>
  <hasBody rdf:resource="&vin;Medium"/>
  <hasFlavor rdf:resource="&vin;Moderate"/>
  <hasMaker rdf:resource="&vin;MountEdenVineyard"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#MountEdenVineyardEstatePinotNoir -->

```
<owl:NamedIndividual rdf:about="&vin;MountEdenVineyardEstatePinotNoir">
  <rdf:type rdf:resource="&vin;PinotNoir"/>
  <hasSugar rdf:resource="&vin;Dry"/>
  <locatedIn rdf:resource="&vin;EdnaValleyRegion"/>
  <hasBody rdf:resource="&vin;Full"/>
  <hasMaker rdf:resource="&vin;MountEdenVineyard"/>
  <hasFlavor rdf:resource="&vin;Strong"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#Mountadam -->
```

```
<owl:NamedIndividual rdf:about="&vin;Mountadam">
  <rdf:type rdf:resource="&vin;Winery"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#MountadamChardonnay -->
```

```
<owl:NamedIndividual rdf:about="&vin;MountadamChardonnay">
  <rdf:type rdf:resource="&vin;Chardonnay"/>
  <hasSugar rdf:resource="&vin;Dry"/>
  <hasBody rdf:resource="&vin;Full"/>
  <hasMaker rdf:resource="&vin;Mountadam"/>
  <locatedIn rdf:resource="&vin;SouthAustraliaRegion"/>
  <hasFlavor rdf:resource="&vin;Strong"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#MountadamPinotNoir -->
```

```
<owl:NamedIndividual rdf:about="&vin;MountadamPinotNoir">
  <rdf:type rdf:resource="&vin;PinotNoir"/>
  <hasSugar rdf:resource="&vin;Dry"/>
  <hasBody rdf:resource="&vin;Medium"/>
  <hasFlavor rdf:resource="&vin;Moderate"/>
  <hasMaker rdf:resource="&vin;Mountadam"/>
  <locatedIn rdf:resource="&vin;SouthAustraliaRegion"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#MountadamRiesling -->
```

```
<owl:NamedIndividual rdf:about="&vin;MountadamRiesling">
  <rdf:type rdf:resource="&vin;DryRiesling"/>
  <hasFlavor rdf:resource="&vin;Delicate"/>
```



```
<hasSugar rdf:resource="&vin;Dry"/>
<hasBody rdf:resource="&vin;Medium"/>
<hasMaker rdf:resource="&vin;Mountadam"/>
<locatedIn rdf:resource="&vin;SouthAustraliaRegion"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#MuscadetRegion -->
```

```
<owl:NamedIndividual rdf:about="&vin;MuscadetRegion">
  <rdf:type rdf:resource="&vin;Region"/>
  <locatedIn rdf:resource="&vin;LoireRegion"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#NapaRegion -->
```

```
<owl:NamedIndividual rdf:about="&vin;NapaRegion">
  <rdf:type rdf:resource="&vin;Region"/>
  <locatedIn rdf:resource="&vin;CaliforniaRegion"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#NewZealandRegion -->
```

```
<owl:NamedIndividual rdf:about="&vin;NewZealandRegion">
  <rdf:type rdf:resource="&vin;Region"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#OffDry -->
```

```
<owl:Thing rdf:about="&vin;OffDry">
  <rdf:type rdf:resource="&owl;NamedIndividual"/>
  <rdf:type rdf:resource="&vin;WineSugar"/>
</owl:Thing>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#PageMillWinery -->
```

```
<owl:NamedIndividual rdf:about="&vin;PageMillWinery">
  <rdf:type rdf:resource="&vin;Winery"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#PageMillWineryCabernetSauvignon -->

```
<owl:NamedIndividual rdf:about="&vin;PageMillWineryCabernetSauvignon">
  <rdf:type rdf:resource="&vin;CabernetSauvignon"/>
  <hasSugar rdf:resource="&vin;Dry"/>
  <hasBody rdf:resource="&vin;Medium"/>
  <hasFlavor rdf:resource="&vin;Moderate"/>
  <locatedIn rdf:resource="&vin;NapaRegion"/>
  <hasMaker rdf:resource="&vin;PageMillWinery"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#PauillacRegion -->

```
<owl:NamedIndividual rdf:about="&vin;PauillacRegion">
  <rdf:type rdf:resource="&vin;Region"/>
  <locatedIn rdf:resource="&vin;MedocRegion"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#PeterMccoy -->

```
<owl:NamedIndividual rdf:about="&vin;PeterMccoy">
  <rdf:type rdf:resource="&vin;Winery"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#PeterMccoyChardonnay -->

```
<owl:NamedIndividual rdf:about="&vin;PeterMccoyChardonnay">
  <rdf:type rdf:resource="&vin;Chardonnay"/>
  <hasSugar rdf:resource="&vin;Dry"/>
  <hasBody rdf:resource="&vin;Medium"/>
  <hasFlavor rdf:resource="&vin;Moderate"/>
  <hasMaker rdf:resource="&vin;PeterMccoy"/>
  <locatedIn rdf:resource="&vin;SonomaRegion"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#PetiteSyrahGrape -->

```
<owl:NamedIndividual rdf:about="&vin;PetiteSyrahGrape">
  <rdf:type rdf:resource="&vin;WineGrape"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#PetiteVerdotGrape -->

```
<owl:Thing rdf:about="&vin;PetiteVerdotGrape">
  <rdf:type rdf:resource="&owl;NamedIndividual"/>
  <rdf:type rdf:resource="&vin;WineGrape"/>
</owl:Thing>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#PinotBlancGrape -->

```
<owl:Thing rdf:about="&vin;PinotBlancGrape">
  <rdf:type rdf:resource="&owl;NamedIndividual"/>
  <rdf:type rdf:resource="&vin;WineGrape"/>
</owl:Thing>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#PinotNoirGrape -->

```
<owl:NamedIndividual rdf:about="&vin;PinotNoirGrape">
  <rdf:type rdf:resource="&vin;WineGrape"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#PortugalRegion -->

```
<owl:NamedIndividual rdf:about="&vin;PortugalRegion">
  <rdf:type rdf:resource="&vin;Region"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#PulignyMontrachet -->

```
<owl:NamedIndividual rdf:about="&vin;PulignyMontrachet">
  <rdf:type rdf:resource="&vin;Winery"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#PulignyMontrachetWhiteBurgundy -->

```
<owl:NamedIndividual rdf:about="&vin;PulignyMontrachetWhiteBurgundy">
  <rdf:type rdf:resource="&vin;WhiteBurgundy"/>
  <hasSugar rdf:resource="&vin;Dry"/>
  <hasBody rdf:resource="&vin;Medium"/>
```

```
<hasFlavor rdf:resource="&vin;Moderate"/>
<hasMaker rdf:resource="&vin;PulignyMontrachet"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#Red -->
```

```
<owl:Thing rdf:about="&vin;Red">
  <rdf:type rdf:resource="&owl;NamedIndividual"/>
  <rdf:type rdf:resource="&vin;WineColor"/>
</owl:Thing>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#RieslingGrape -->
```

```
<owl:NamedIndividual rdf:about="&vin;RieslingGrape">
  <rdf:type rdf:resource="&vin;WineGrape"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#Rose -->
```

```
<owl:Thing rdf:about="&vin;Rose">
  <rdf:type rdf:resource="&owl;NamedIndividual"/>
  <rdf:type rdf:resource="&vin;WineColor"/>
</owl:Thing>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#RoseDAnjou -->
```

```
<owl:NamedIndividual rdf:about="&vin;RoseDAnjou">
  <rdf:type rdf:resource="&vin;Anjou"/>
  <hasMaker rdf:resource="&vin;DAnjou"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#SancerreRegion -->
```

```
<owl:NamedIndividual rdf:about="&vin;SancerreRegion">
  <rdf:type rdf:resource="&vin;Region"/>
  <locatedIn rdf:resource="&vin;LoireRegion"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#SangioveseGrape -->

```
<owl:NamedIndividual rdf:about="&vin;SangioveseGrape">
  <rdf:type rdf:resource="&vin;WineGrape"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#SantaBarbaraRegion -->

```
<owl:NamedIndividual rdf:about="&vin;SantaBarbaraRegion">
  <rdf:type rdf:resource="&vin;Region"/>
  <locatedIn rdf:resource="&vin;CaliforniaRegion"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#SantaCruzMountainVineyard -->

```
<owl:NamedIndividual rdf:about="&vin;SantaCruzMountainVineyard">
  <rdf:type rdf:resource="&vin;Winery"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#SantaCruzMountainVineyardCabernetSauvignon -->

```
<owl:NamedIndividual rdf:about="&vin;SantaCruzMountainVineyardCabernetSauvignon">
  <rdf:type rdf:resource="&vin;CabernetSauvignon"/>
  <hasSugar rdf:resource="&vin;Dry"/>
  <hasBody rdf:resource="&vin;Full"/>
  <hasMaker rdf:resource="&vin;SantaCruzMountainVineyard"/>
  <locatedIn rdf:resource="&vin;SantaCruzMountainsRegion"/>
  <hasFlavor rdf:resource="&vin;Strong"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#SantaCruzMountainsRegion -->

```
<owl:NamedIndividual rdf:about="&vin;SantaCruzMountainsRegion">
  <rdf:type rdf:resource="&vin;Region"/>
  <locatedIn rdf:resource="&vin;CaliforniaRegion"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#SaucelitoCanyon -->

```
<owl:NamedIndividual rdf:about="&vin;SaucelitoCanyon">
```

```
<rdf:type rdf:resource="&vin;Winery"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#SaucelitoCanyonZinfandel -->
```

```
<owl:NamedIndividual rdf:about="&vin;SaucelitoCanyonZinfandel">
  <rdf:type rdf:resource="&vin;Zinfandel"/>
  <locatedIn rdf:resource="&vin;ArroyoGrandeRegion"/>
  <hasSugar rdf:resource="&vin;Dry"/>
  <hasBody rdf:resource="&vin;Medium"/>
  <hasFlavor rdf:resource="&vin;Moderate"/>
  <hasMaker rdf:resource="&vin;SaucelitoCanyon"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#SaucelitoCanyonZinfandel1998 -->
```

```
<owl:NamedIndividual rdf:about="&vin;SaucelitoCanyonZinfandel1998">
  <rdf:type rdf:resource="&vin;Zinfandel"/>
  <locatedIn rdf:resource="&vin;ArroyoGrandeRegion"/>
  <hasSugar rdf:resource="&vin;Dry"/>
  <hasBody rdf:resource="&vin;Medium"/>
  <hasFlavor rdf:resource="&vin;Moderate"/>
  <hasMaker rdf:resource="&vin;SaucelitoCanyon"/>
  <hasVintageYear rdf:resource="&vin;Year1998"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#SauterneRegion -->
```

```
<owl:NamedIndividual rdf:about="&vin;SauterneRegion">
  <rdf:type rdf:resource="&vin;Region"/>
  <locatedIn rdf:resource="&vin;BordeauxRegion"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#SauvignonBlancGrape -->
```

```
<owl:Thing rdf:about="&vin;SauvignonBlancGrape">
  <rdf:type rdf:resource="&owl;NamedIndividual"/>
  <rdf:type rdf:resource="&vin;WineGrape"/>
</owl:Thing>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#SchlossRothermel -->

```
<owl:NamedIndividual rdf:about="&vin;SchlossRothermel">
  <rdf:type rdf:resource="&vin;Winery"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#SchlossRothermelTrochenbierenausleseRiesling -->

```
<owl:NamedIndividual rdf:about="&vin;SchlossRothermelTrochenbierenausleseRiesling">
  <rdf:type rdf:resource="&vin;SweetRiesling"/>
  <hasBody rdf:resource="&vin;Full"/>
  <locatedIn rdf:resource="&vin;GermanyRegion"/>
  <hasMaker rdf:resource="&vin;SchlossRothermel"/>
  <hasFlavor rdf:resource="&vin;Strong"/>
  <hasSugar rdf:resource="&vin;Sweet"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#SchlossVolrad -->

```
<owl:NamedIndividual rdf:about="&vin;SchlossVolrad">
  <rdf:type rdf:resource="&vin;Winery"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#SchlossVolradTrochenbierenausleseRiesling -->

```
<owl:NamedIndividual rdf:about="&vin;SchlossVolradTrochenbierenausleseRiesling">
  <rdf:type rdf:resource="&vin;SweetRiesling"/>
  <hasBody rdf:resource="&vin;Full"/>
  <locatedIn rdf:resource="&vin;GermanyRegion"/>
  <hasFlavor rdf:resource="&vin;Moderate"/>
  <hasMaker rdf:resource="&vin;SchlossVolrad"/>
  <hasSugar rdf:resource="&vin;Sweet"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#SeanThackrey -->

```
<owl:NamedIndividual rdf:about="&vin;SeanThackrey">
  <rdf:type rdf:resource="&vin;Winery"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#SeanThackreySiriusPetiteSyrah -->

```
<owl:NamedIndividual rdf:about="&vin;SeanThackreySiriusPetiteSyrah">
  <rdf:type rdf:resource="&vin;PetiteSyrah"/>
  <hasSugar rdf:resource="&vin;Dry"/>
  <hasBody rdf:resource="&vin;Full"/>
  <locatedIn rdf:resource="&vin;NapaRegion"/>
  <hasMaker rdf:resource="&vin;SeanThackrey"/>
  <hasFlavor rdf:resource="&vin;Strong"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#Selaks -->

```
<owl:NamedIndividual rdf:about="&vin;Selaks">
  <rdf:type rdf:resource="&vin;Winery"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#SelaksIceWine -->

```
<owl:NamedIndividual rdf:about="&vin;SelaksIceWine">
  <rdf:type rdf:resource="&vin;IceWine"/>
  <hasBody rdf:resource="&vin;Medium"/>
  <hasFlavor rdf:resource="&vin;Moderate"/>
  <locatedIn rdf:resource="&vin;NewZealandRegion"/>
  <hasMaker rdf:resource="&vin;Selaks"/>
  <hasColor rdf:resource="&vin;White"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#SelaksSauvignonBlanc -->

```
<owl:NamedIndividual rdf:about="&vin;SelaksSauvignonBlanc">
  <rdf:type rdf:resource="&vin;SauvignonBlanc"/>
  <hasSugar rdf:resource="&vin;Dry"/>
  <hasBody rdf:resource="&vin;Medium"/>
  <hasFlavor rdf:resource="&vin;Moderate"/>
  <locatedIn rdf:resource="&vin;NewZealandRegion"/>
  <hasMaker rdf:resource="&vin;Selaks"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#SemillonGrape -->

```
<owl:Thing rdf:about="&vin;SemillonGrape">
```



```
<rdf:type rdf:resource="&owl;NamedIndividual"/>
<rdf:type rdf:resource="&vin;WineGrape"/>
</owl:Thing>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#SevreEtMaine -->
```

```
<owl:NamedIndividual rdf:about="&vin;SevreEtMaine">
  <rdf:type rdf:resource="&vin;Winery"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#SevreEtMaineMuscadet -->
```

```
<owl:NamedIndividual rdf:about="&vin;SevreEtMaineMuscadet">
  <rdf:type rdf:resource="&vin;Muscadet"/>
  <hasMaker rdf:resource="&vin;SevreEtMaine"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#SonomaRegion -->
```

```
<owl:NamedIndividual rdf:about="&vin;SonomaRegion">
  <rdf:type rdf:resource="&vin;Region"/>
  <locatedIn rdf:resource="&vin;CaliforniaRegion"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#SouthAustraliaRegion -->
```

```
<owl:NamedIndividual rdf:about="&vin;SouthAustraliaRegion">
  <rdf:type rdf:resource="&vin;Region"/>
  <locatedIn rdf:resource="&vin;AustralianRegion"/>
</owl:NamedIndividual>
```

```
<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#StEmilionRegion -->
```

```
<owl:NamedIndividual rdf:about="&vin;StEmilionRegion">
  <rdf:type rdf:resource="&vin;Region"/>
  <locatedIn rdf:resource="&vin;BordeauxRegion"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#StGenevieve -->

```
<owl:NamedIndividual rdf:about="&vin;StGenevieve">
  <rdf:type rdf:resource="&vin;Winery"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#StGenevieveTexasWhite -->

```
<owl:NamedIndividual rdf:about="&vin;StGenevieveTexasWhite">
  <rdf:type rdf:resource="&vin;WhiteWine"/>
  <locatedIn rdf:resource="&vin;CentralTexasRegion"/>
  <hasSugar rdf:resource="&vin;Dry"/>
  <hasFlavor rdf:resource="&vin;Moderate"/>
  <hasMaker rdf:resource="&vin;StGenevieve"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#Stonleigh -->

```
<owl:NamedIndividual rdf:about="&vin;Stonleigh">
  <rdf:type rdf:resource="&vin;Winery"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#StonleighSauvignonBlanc -->

```
<owl:NamedIndividual rdf:about="&vin;StonleighSauvignonBlanc">
  <rdf:type rdf:resource="&vin;SauvignonBlanc"/>
  <hasFlavor rdf:resource="&vin;Delicate"/>
  <hasSugar rdf:resource="&vin;Dry"/>
  <hasBody rdf:resource="&vin;Medium"/>
  <locatedIn rdf:resource="&vin;NewZealandRegion"/>
  <hasMaker rdf:resource="&vin;Stonleigh"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#Strong -->

```
<owl:Thing rdf:about="&vin;Strong">
  <rdf:type rdf:resource="&owl;NamedIndividual"/>
  <rdf:type rdf:resource="&vin;WineFlavor"/>
</owl:Thing>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#Sweet -->

```
<owl:Thing rdf:about="&vin;Sweet">
  <rdf:type rdf:resource="&owl;NamedIndividual"/>
  <rdf:type rdf:resource="&vin;WineSugar"/>
</owl:Thing>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#Taylor -->

```
<owl:NamedIndividual rdf:about="&vin;Taylor">
  <rdf:type rdf:resource="&vin;Winery"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#TaylorPort -->

```
<owl:NamedIndividual rdf:about="&vin;TaylorPort">
  <rdf:type rdf:resource="&vin;Port"/>
  <hasMaker rdf:resource="&vin;Taylor"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#TexasRegion -->

```
<owl:NamedIndividual rdf:about="&vin;TexasRegion">
  <rdf:type rdf:resource="&vin;Region"/>
  <locatedIn rdf:resource="&vin;USRegion"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#ToursRegion -->

```
<owl:NamedIndividual rdf:about="&vin;ToursRegion">
  <rdf:type rdf:resource="&vin;Region"/>
  <locatedIn rdf:resource="&vin;LoireRegion"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#USRegion -->

```
<owl:NamedIndividual rdf:about="&vin;USRegion">
  <rdf:type rdf:resource="&vin;Region"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#Ventana -->

```
<owl:NamedIndividual rdf:about="&vin;Ventana">
  <rdf:type rdf:resource="&vin;Winery"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#VentanaCheninBlanc -->

```
<owl:NamedIndividual rdf:about="&vin;VentanaCheninBlanc">
  <rdf:type rdf:resource="&vin;CheninBlanc"/>
  <locatedIn rdf:resource="&vin;CentralCoastRegion"/>
  <hasBody rdf:resource="&vin;Medium"/>
  <hasFlavor rdf:resource="&vin;Moderate"/>
  <hasSugar rdf:resource="&vin;OffDry"/>
  <hasMaker rdf:resource="&vin;Ventana"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#White -->

```
<owl:Thing rdf:about="&vin;White">
  <rdf:type rdf:resource="&owl;NamedIndividual"/>
  <rdf:type rdf:resource="&vin;WineColor"/>
</owl:Thing>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#WhitehallLane -->

```
<owl:NamedIndividual rdf:about="&vin;WhitehallLane">
  <rdf:type rdf:resource="&vin;Winery"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#WhitehallLaneCabernetFranc -->

```
<owl:NamedIndividual rdf:about="&vin;WhitehallLaneCabernetFranc">
  <rdf:type rdf:resource="&vin;CabernetFranc"/>
  <hasSugar rdf:resource="&vin;Dry"/>
  <hasBody rdf:resource="&vin;Medium"/>
  <hasFlavor rdf:resource="&vin;Moderate"/>
  <locatedIn rdf:resource="&vin;NapaRegion"/>
  <hasMaker rdf:resource="&vin;WhitehallLane"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#WhitehallLanePrimavera -->

```
<owl:NamedIndividual rdf:about="&vin;WhitehallLanePrimavera">
  <rdf:type rdf:resource="&vin;DessertWine"/>
  <hasFlavor rdf:resource="&vin;Delicate"/>
  <hasBody rdf:resource="&vin;Light"/>
  <locatedIn rdf:resource="&vin;NapaRegion"/>
  <hasSugar rdf:resource="&vin;Sweet"/>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#Year1998 -->

```
<owl:NamedIndividual rdf:about="&vin;Year1998">
  <rdf:type rdf:resource="&vin;VintageYear"/>
  <yearValue rdf:datatype="&xsd;positiveInteger">1998</yearValue>
</owl:NamedIndividual>
```

<!-- http://www.w3.org/TR/2003/CR-owl-guide-20030818/wine#ZinfandelGrape -->

```
<owl:NamedIndividual rdf:about="&vin;ZinfandelGrape">
  <rdf:type rdf:resource="&vin;WineGrape"/>
</owl:NamedIndividual>
```

```
<!--
////////////////////////////////////
//
// General axioms
//
////////////////////////////////////
-->
```

```
<rdf:Description>
  <rdf:type rdf:resource="&owl;AllDifferent"/>
  <owl:distinctMembers rdf:parseType="Collection">
    <rdf:Description rdf:about="&vin;Red"/>
    <rdf:Description rdf:about="&vin;Rose"/>
    <rdf:Description rdf:about="&vin;White"/>
  </owl:distinctMembers>
</rdf:Description>
<rdf:Description>
  <rdf:type rdf:resource="&owl;AllDifferent"/>
```

```

    <owl:distinctMembers rdf:parseType="Collection">
      <rdf:Description rdf:about="&vin;Dry"/>
      <rdf:Description rdf:about="&vin;OffDry"/>
      <rdf:Description rdf:about="&vin;Sweet"/>
    </owl:distinctMembers>
  </rdf:Description>
  <rdf:Description>
    <rdf:type rdf:resource="&owl;AllDifferent"/>
    <owl:distinctMembers rdf:parseType="Collection">
      <rdf:Description rdf:about="&vin;Delicate"/>
      <rdf:Description rdf:about="&vin;Moderate"/>
      <rdf:Description rdf:about="&vin;Strong"/>
    </owl:distinctMembers>
  </rdf:Description>
  <rdf:Description>
    <rdf:type rdf:resource="&owl;AllDifferent"/>
    <owl:distinctMembers rdf:parseType="Collection">
      <rdf:Description rdf:about="&vin;Full"/>
      <rdf:Description rdf:about="&vin;Light"/>
      <rdf:Description rdf:about="&vin;Medium"/>
    </owl:distinctMembers>
  </rdf:Description>
  <rdf:Description>
    <rdf:type rdf:resource="&owl;AllDifferent"/>
    <owl:distinctMembers rdf:parseType="Collection">
      <rdf:Description rdf:about="&vin;Dry"/>
      <rdf:Description rdf:about="&vin;Sweet"/>
    </owl:distinctMembers>
  </rdf:Description>
  <rdf:Description>
    <rdf:type rdf:resource="&owl;AllDifferent"/>
    <owl:distinctMembers rdf:parseType="Collection">
      <rdf:Description rdf:about="&vin;OffDry"/>
      <rdf:Description rdf:about="&vin;Sweet"/>
    </owl:distinctMembers>
  </rdf:Description>
  <rdf:Description>
    <rdf:type rdf:resource="&owl;AllDifferent"/>
    <owl:distinctMembers rdf:parseType="Collection">
      <rdf:Description rdf:about="&vin;Dry"/>
      <rdf:Description rdf:about="&vin;OffDry"/>
    </owl:distinctMembers>
  </rdf:Description>
  <rdf:Description>
    <rdf:type rdf:resource="&owl;AllDifferent"/>
    <owl:distinctMembers rdf:parseType="Collection">
      <rdf:Description rdf:about="&vin;Bancroft"/>
      <rdf:Description rdf:about="&vin;ChateauChevalBlanc"/>
      <rdf:Description rdf:about="&vin;ChateauDYchem"/>
      <rdf:Description rdf:about="&vin;ChateauDeMeursault"/>
    </owl:distinctMembers>
  </rdf:Description>

```

```

<rdf:Description rdf:about="&vin;ChateauLafiteRothschild"/>
<rdf:Description rdf:about="&vin;ChateauMargauxWinery"/>
<rdf:Description rdf:about="&vin;ChateauMorgon"/>
<rdf:Description rdf:about="&vin;ClosDeLaPoussie"/>
<rdf:Description rdf:about="&vin;ClosDeVougeot"/>
<rdf:Description rdf:about="&vin;CongressSprings"/>
<rdf:Description rdf:about="&vin;Corbans"/>
<rdf:Description rdf:about="&vin;CortonMontrachet"/>
<rdf:Description rdf:about="&vin;Cotturi"/>
<rdf:Description rdf:about="&vin;DAnjou"/>
<rdf:Description rdf:about="&vin;Elyse"/>
<rdf:Description rdf:about="&vin;Forman"/>
<rdf:Description rdf:about="&vin;Foxen"/>
<rdf:Description rdf:about="&vin;GaryFarrell"/>
<rdf:Description rdf:about="&vin;KalinCellars"/>
<rdf:Description rdf:about="&vin;KathrynKennedy"/>
<rdf:Description rdf:about="&vin;LaneTanner"/>
<rdf:Description rdf:about="&vin;Longridge"/>
<rdf:Description rdf:about="&vin;Marietta"/>
<rdf:Description rdf:about="&vin;McGuinnesso"/>
<rdf:Description rdf:about="&vin;MountEdenVineyard"/>
<rdf:Description rdf:about="&vin;Mountadam"/>
<rdf:Description rdf:about="&vin;PageMillWinery"/>
<rdf:Description rdf:about="&vin;PeterMccoy"/>
<rdf:Description rdf:about="&vin;PulignyMontrachet"/>
<rdf:Description rdf:about="&vin;SantaCruzMountainVineyard"/>
<rdf:Description rdf:about="&vin;SaucelitoCanyon"/>
<rdf:Description rdf:about="&vin;SchlossRothermel"/>
<rdf:Description rdf:about="&vin;SchlossVolrad"/>
<rdf:Description rdf:about="&vin;SeanThackrey"/>
<rdf:Description rdf:about="&vin;Selaks"/>
<rdf:Description rdf:about="&vin;SevreEtMaine"/>
<rdf:Description rdf:about="&vin;StGenevieve"/>
<rdf:Description rdf:about="&vin;Stonleigh"/>
<rdf:Description rdf:about="&vin;Taylor"/>
<rdf:Description rdf:about="&vin;Ventana"/>
<rdf:Description rdf:about="&vin;WhitehallLane"/>
</owl:distinctMembers>
</rdf:Description>
</rdf:RDF>

```

<!-- Generated by the OWL API (version 3.4.2) <http://owlapi.sourceforge.net> -->