uri "http://sadl.org/MinimalExampleWithRules.sadl" alias **mexwr**.

import **"http://sadl.org/ScientificConcepts1.sadl"**.

Rule **velocityOfPhysicalObject**:
    if **o** is a **PhysicalObject** with **position p** and [**vv**, **vu**] is **derivative**(**p**, **^time**, 1)
    then **^value** of **velocity** of **o** is **vv** and **unit** of **velocity** of **o** is **vu**.

Rule **accelerationOfPhysicalObject1**:
    if **o** is a **PhysicalObject** with **velocity v** and [**accv**, **accu**] is **derivative**(**v**, **^time**, 1)
    then **^value** of **acceleration** of **o** is **accv** and **unit** of **acceleration** of **o** is **accu**.

Rule **accelerationOfPhysicalObject2**:
    if **o** is a **PhysicalObject** with **position p** and [**accv**, **accu**] is **derivative**(**p**, **^time**, 2)
    then **^value** of **acceleration** of **o** is **accv** and **unit** of **acceleration** of **o** is **accu**.

Rule **momentumOfPhysicalObject**:
    if **o** is a **PhysicalObject** with **velocity v** and
        p is a **Momentum** with **^value** (**^value** of **mass** of **o** * **^value** of **velocity** of **o**),
            with **unit unitResolver**("*", **unit** of **mass** of **o**, **unit** of **velocity** of **o**)
    then **momentum** of **o** is **p**.

Rule **newtons2ndLaw**:
    if **o** is a **PhysicalObject** and **p** is **momentum** of **o** and
        [**pv**, **pu**] is **derivative**(**p**, **^time**, 1)
    then there exists (a **Force** with **^value pv**, with **unit pu**) and
        force of **o** is the **Force**.