2.1.3

URDF: Checking for correctness

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Making mistakes – checking for errors

- Validating URDFs: `check_urdf`
- checks syntax (ie: legal combinations of URDF keywords)
- not semantics (ie: meaning or real-world correctness)

Checking for errors – example

tiny_robot.urdf

```
<robot name="tiny_robot">
  <link name="link_1" />
  <link name="link_2" />
  <joint name="joint_1" type="continuous">
    <parent link="link_1" />
    <child link="link_3" />
  </joint>
</robot>
```

Checking for errors – check_urdf

Running `check_urdf`

```
$ check_urdf tiny_robot.urdf
```

Result:

```
Error: Failed to build tree:
  child link [link_3] of joint [joint_1] not found
ERROR: Model Parsing the xml failed
```

Checking for errors – example – corrected

tiny_robot.urdf

```
<robot name="tiny_robot">
  <link name="link_1" />
  <link name="link_2" />
  <joint name="joint_1" type="continuous">
    <parent link="link_1" />
    <child link="link_2" />
  </joint>
</robot>
```

Checking for errors – check_urdf – corrected

Result:

```
robot name is: tiny_robot
---------- Successfully Parsed XML ---------------
root Link: link_1 has 1 child(ren)
    child(1):  link_2
```

XACRO and check_urdf

Conversion to URDF:

```
$ rosrun xacro xacro /path/to/robot.xacro > robot.urdf
```

Checking the resulting URDF:

```
$ check_urdf robot.urdf
```

End of part 3 - recap

- Mistakes are easily made
- Use `check_urdf`:
  - Checks syntax
  - Not semantics
- Conversion needed for checking XACRO files