# 1 Further Investigation on the Extracted Triples

We conducted a thorough analysis to understand which triplets had been correctly extracted using our approach and OpenIE. Furthermore, we analyzed which triplets had been extracted by both approaches (our tool and OpenIE), but were not correct. To this end, we have chosen four idea descriptions that have been presented in a workshop about "Urban Security Technology". The idea descriptions are as follows:

- *Idea 1* – The building consists of a variable structure. In case of an emergency, the structure opens, encloses the person and descents to the ground.
- *Idea 2* – Window with a heat-sensitive material, that lights-up if a person is in the room during a fire.
- *Idea 3* – The facade indicates in which floor there are people that need to be rescued.
- *Idea 4* – Changeable building structure that changes its structure in case of an emergency, for example during a terrorist warning, to a party zone.

## 1.1 Triples Extracted using our Tool and not by OpenIE

Table 1 shows the triples extracted using our tool and not by OpenIE. For instance, the first triple (row 1) is considered as implicit triple which cannot be easily detected by OpenIE. In such a situation, the user implies a sort of reasoning to discover such triple. The same case for third triple (row 3), the user understands that the structure descents to the ground but in the first place it encloses the person. For the second and fourth triples (row2, row 4), OpenIE couldn't extract such triples due to the complexity of the structure of the sentences.

| **Sentence** | **Subject** | **Predicate** | **Object** |
|---|---|---|---|
| **Idea1** | person | is in | emergency |
| **Idea1** | person | descents | ground |
| **Idea1** | structure | encloses | the person |
| **Idea3** | facade | indicates | floor |

**Table 1.** Triples Extracted using our Tool and not by OpenIE

## 1.2 Triples Extracted using OpenIE and not by our Tool

Table 4 shows the triples extracted using OpenIE and not by our approach. One possible explanation that both triples (row1-2) were not considered by the user is the conditional clause (the if-clause). However, we considered both triples as correct during our evaluation.

| Sentence | Subject | Predicate | Object |
|---|---|---|---|
| **Idea1** | structure | opens | person |

**Table 2.** False Triples Extracted using OpenIE

### 1.3 False Triples Extracted using our Tool

The triple extracted using our tool (Table 3) is considered incorrect because the relation in Idea4 is "change" and not "variable". Even variable can be considered as relation, we assume that the crowd did not understand in the beginning that the relation extracted need to be related with both nouns selected (subject, object).

| Sentence | Subject | Predicate | Object |
|---|---|---|---|
| **Idea4** | building | variable | structure |

**Table 3.** False Triples Extracted using our Tool

### 1.4 False Triples Extracted using OpenIE

Similar to the previous subsection, the Table 2 shows an incorrect triple extracted using OpenIE. Here, the relation extracted is correct but semantically the structure cannot open a person but the structure opens itself. Such false triple occurs because the model does not consider the argument structure of the lexical items.

| Sentence | Subject | Predicate | Object |
|---|---|---|---|
| **Idea2** | person | is in | room |
| **Idea2** | person | is in | room during fire |

**Table 4.** Triples Extracted using OpenIE and not by our Tool