

We based our work on TAP (Text Arranging Pipeline)

TAP is a set of interfaces that define generic functionality for a pipeline of tasks oriented towards natural language generation

The Reference Solver from TAP has been modified to aim for *identification, minimality, and system-human match*

It is guided by the order in which to consider the attributes that are used - as in the list of *preferred attributes*, in order of preference, described in (Reiter & Dale, 1992).

- ❑ *Identification* evaluation:
 - ❑ It was not necessary to modify the module
- ❑ *Minimality* evaluation
 - ❑ The list of attributes that are considered can be ordered by their discriminatory power
- ❑ *System-human match* using the Dice coefficient
 - ❑ The order of the attributes is fixed by studying the training data

- ❑ Training data was studied separately for each domain
 - ❑ Psychological considerations when referring to a piece of furniture or a person might be different
- ❑ The *type* attribute was used as distinguishing in the furniture domain, but not in the people domain
- ❑ Minimal Expression vs. Dice Coefficient
 - ❑ Initial experiments demonstrated that minimal references produced low Dice results

	Minimal	Dice
Furniture	100,00%	24,33%
People	100,00%	31,33%

- ❑ We concentrated on improving the Dice coefficient results

- ❑ The attribute order that generates the best results was determined empirically
 - ❑ All the possible order combinations of the attributes were generated
 - ❑ For each of them the whole process of generating the attribute selection of the examples in the training corpus was executed
- ❑ Experiments revealed that the results seemed to be dependant on the relative order of 'groups' of attributes, rather than the order of attributes in general:
 - ❑ Furniture features [colour, type, size]
 - ❑ Spatial situation [orientation, x-dimension, y-dimension]
- ❑ Best results with
 [type, colour, size,
 orientation, x-dimension, y-dimension]

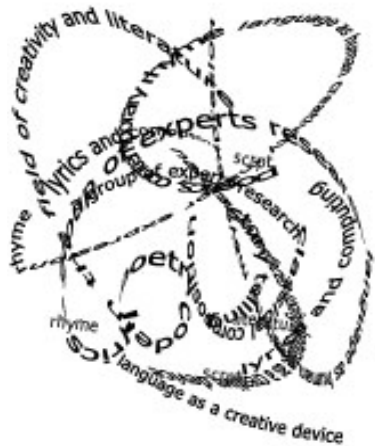
- ❑ With 11 attributes there were too many combinations to test
 - ❑ We established different groups of attributes based on intuition
 - ❑ We tested only variations of relative orders between those groups
- ❑ The best option found was grouping attributes depending on the relevance of their presence or absence
 - ❑ For example, to have beard or to wear glasses are usually more perceivable than to wear a tie (especially if the person is also wearing a suit)
- ❑ Best results with
 [hasGlasses, hasBeard, hairColour, hasHair,
 hasSuit, hasTie, hasShirt,
 age,
 x-dimension, y-dimension, orientation]

	Identification	Minimal	Dice
Furniture	100%	0,00%	75,21%
People	100%	33,82%	44,78%

- ❑ Unbalanced results: good for furnitures, bad for people
 - ❑ Training data was studied statistically for the furniture domain
 - ❑ For the people domain we have no time for exhaustive computation and we applied a heuristic that did not work
- ❑ Efforts like this challenge seem very fruitful for the NLG community
 - ❑ Sharing techniques and results over the same data
- ❑ May be interesting to explore similar tasks
 - ❑ References for target elements in a text
 - ❑ Taking into account the elements already mentioned in the text
 - ❑ Working also with defined and undefined references and pronouns

Attribute Selection for Matching the Task Corpus Using Relative Attribute Groupings Obtained from the Test Data

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natural interaction based on language
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