

Relevance of Qualia Relations in Coercive Contexts

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- Annotation efforts designed to capture metonymies/coercions in texts (Markert and Nissim 2002, 2009 Pustejovsky et al. 2008, 2009).
- Role played by Qualia relations in coercion processes.
- Usefulness of Qualia annotation.
- Preliminary results of a first experiment of coercion annotation on Italian.
- GLML methodology (Pustejovsky et. al. 2008), related to previous work conducted within the Corpus Pattern Analysis (CPA) project (Hanks 2009).
- Proposal for integration of annotation of Qualia

The overall aim is to contribute to enhancing annotation schemes for a more comprehensive annotation of

Basic idea behind coercion

- Some of the senses that Ns exhibit in context are not lexically specified but are built compositionally through a process of meaning modulation.
 - interpretation of Ns in context.
- Coercion as a type adjustment induced by a predicate over its arguments when they do not match its selectional requirements (Pustejovsky 1993, 1995, 2006; Copestake and Briscoe 1995, 2003 inter alia).
- “When they finished the *wine*, he stood up” coercion

- Coercion as Exploitation (cf. Pustejovsky 2006):
 - a subportion of the N type is exploited in composition.

Ex. “The author will discuss her *book*”

- assuming *book*=PHYS.OBJ•INFO, *discuss* exploits the informational content of *book*.

- Coercion as Introduction (cf. Pustejovsky 2006)

- new semantic material is introduced in composition

Ex. “I have read his *speech*”

- assuming *speech*= EVENT•INFO, *read* introduces physical manifestation which is absent in the inherent meaning of *speech*.

- The distinction between *coercion as exploitation* and *coercion as introduction* does not overlap with the distinction between:
 - conventionalized vs. unconventionalized metonymy
 - lexicalized vs. non lexicalized sense.
- “She opened the *wine* and poured some into the glass”
 - Conventional metonymy
 - not lexicalized (container is not an established sense of *wine*).
 - Coercion as Introduction: (if one assumes that liquids need not encode information about the

- The GLML annotation scheme currently annotates the type shifting in coercive contexts:

E.g

- “he left the *concert* early” coercion: **event** → **local**
- “listen to the *radio*” coercion: **phys.obj** → **sound**

BUT as it is still does not explain why coercion take place in certain contexts and not in other

E.g.

- “ascoltare la radio” ‘listen to the radio’
- #ascoltare il tavolo ‘listen to the table’

If I listen to the radio, I listen to the table. If I listen to the table, I listen to the radio.

Qualia role associated with the N that is acted on by the V in a coercive context.

It is precisely the availability of this Quale that licenses the coercion.

E.g.

- “ascoltare la radio” ‘listen to the radio’
phys.obj ⊗_{telic} produces: sound → sound

Considering the role played by Qualia in coercion we argue that they should be recognized, therefore annotated.

Only by recognizing/annotating the Quale targeted in a coercion (in addition to the type shifting), the compositional history of the argument selection can be fully reconstructed

experiment on Italian

Annotation Experiment on Italian → GLML annotation
format and methodology

-Task1 (Pustejovsky et al. 2009, IWCS-8)

→ Semeval-2 “Argument Selection and Coercion”

Three steps:

1) disambiguate verb sense

2) identify mismatch between noun type and
selection restriction of verb, by answering ques
if no mismatch > SELECTION

3) in case of mismatch, annotate noun source typ
→ COERCION

The output provides verb sense, noun source and

Annotation methodology assumes knowledge to be pre-existing:

- Inventory of senses for target verbs
 - Compiled from existing dictionaries/lexical resources & CPA-like corpus analysis
- Type inventory for nouns
 - A shallow type system is defined drawing from existing ontologies (BSO for English)
- Verb selection restrictions → verb type templates
 - Defined on the basis of CPA-like analysis

- The possibility of using existing resources for Italian has been explored.

→ SIMPLE lexicon, ItalWordNet, traditional Dictionaries

(manually constructed resources)

Problems: Coverage, gaps, inconsistencies, errors

BUT useful for:

- Linking GLML type system to a more structured set
- Constructing sense inventory (for verbs, and possibly for nouns)
- Constructing a qualia relations system to be annotated in coercive contexts.

[Hide instructions]

For general instructions, please click [here](#).

E: Usem68924

Gagliardi ha scritto che preferisce leggere Accame (ex-ms)

SIMPLE: Usem

- look at and grasp the meaning of some info contained in written material
- utter or render out loud some info contained in written material
- decipher or attribute a certain interpretation or meaning to something
- N/A
- boundary case, impossible to assign
- creative/metaphoric use
- insufficient context
- sense not in the inventory

SIMPLE: U

Verb Templates

[Human] legge 'reads' [Document]

[Human] ascolta 'listens to' [Sound]

Or
[PhysObj.Info]

- Verb sense disambiguation phase → OK (agreement 0.70/0.90)
- Noun source type annotation → agreement 0.65/0.70...

Some problems can be resolved with better guidelines

BUT often problems arise when the type in verb terms is a part of the semantics of the noun, but not directly its “ontological” type. → frequent mismatch between annotators

E.g. listen to the first 3 *Sonata*

- *Sonata* ISA **Sound**??? But **Sound** is part of the meaning of *Sonata*, activated in this context (same with e.g. *canzone* ‘song’, ...)

Task I

- We propose to integrate Qualia annotation in Task I possibly with the specific Qualia dimension/relation at play in the coercive context
 - “ascoltare il pianista” ‘listen to the pianist’
human ⊗_{telic} **produces: sound** → **sound**
 - “ascoltare il concerto” ‘listen to the concert’
event ⊗_{const} **has: sound** → **sound**
- Of course, there are many practical difficulties, also for manual annotation of qualia dimensions esp. bigger effort would be required in data preparation

- Step I: verb sense disambiguation (sense inventory taken from SIMPLE, with possible adjustments: sense collapsing)
- Step II: identify argument type mismatch with verb template/selection restriction (type templates taken from Italian verbs in CPA)
- Step III: if there is mismatch, ask for source type noun
- Step IV: if there is mismatch, also ask for how N related to the target type → select the relevant meaning dimension, the specific Qualia relation (taken from the SIMPLE EQS structure, present first or only those relations pertinent to the

Next steps

- Step II&III: identify argument type mismatch → use noun senses from resources (e.g. SIMPLE) to guide annotator in better selecting noun source types
- Trial annotation of Qualia relations in coercive contexts to explore agreement and practical feasibility
- Finally, improve/create a lexical resource for coercion recognition
- Use of annotation results for further theoretical investigation of distinction between coercion subtypes: Exploitation and Introduction