

Ontology and agreement domains in Archi

Dunstan Brown (Surrey)

‘From competing theories to fieldwork’,
Introductory Seminar, January 16, 2012

With thanks to the Arts and Humanities Research Council (UK)
(grant AH/I027193/1).



Our aims

- Understanding the substantive differences between the theories
- Checking the theoretical distinctions for consistency
- Incremental design of project
 - Determining the implications of the treatment of one set of problems for the next set



Introduction

- Ontology
 - Things that there are and the relationships between them.
- Typology
 - Controllers, domains, features, targets and the relationships between them.



GOLD

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Absolute Case (Concept)

<http://purl.org/linguistics/gold/AbsoluteCase>

[Thing](#)

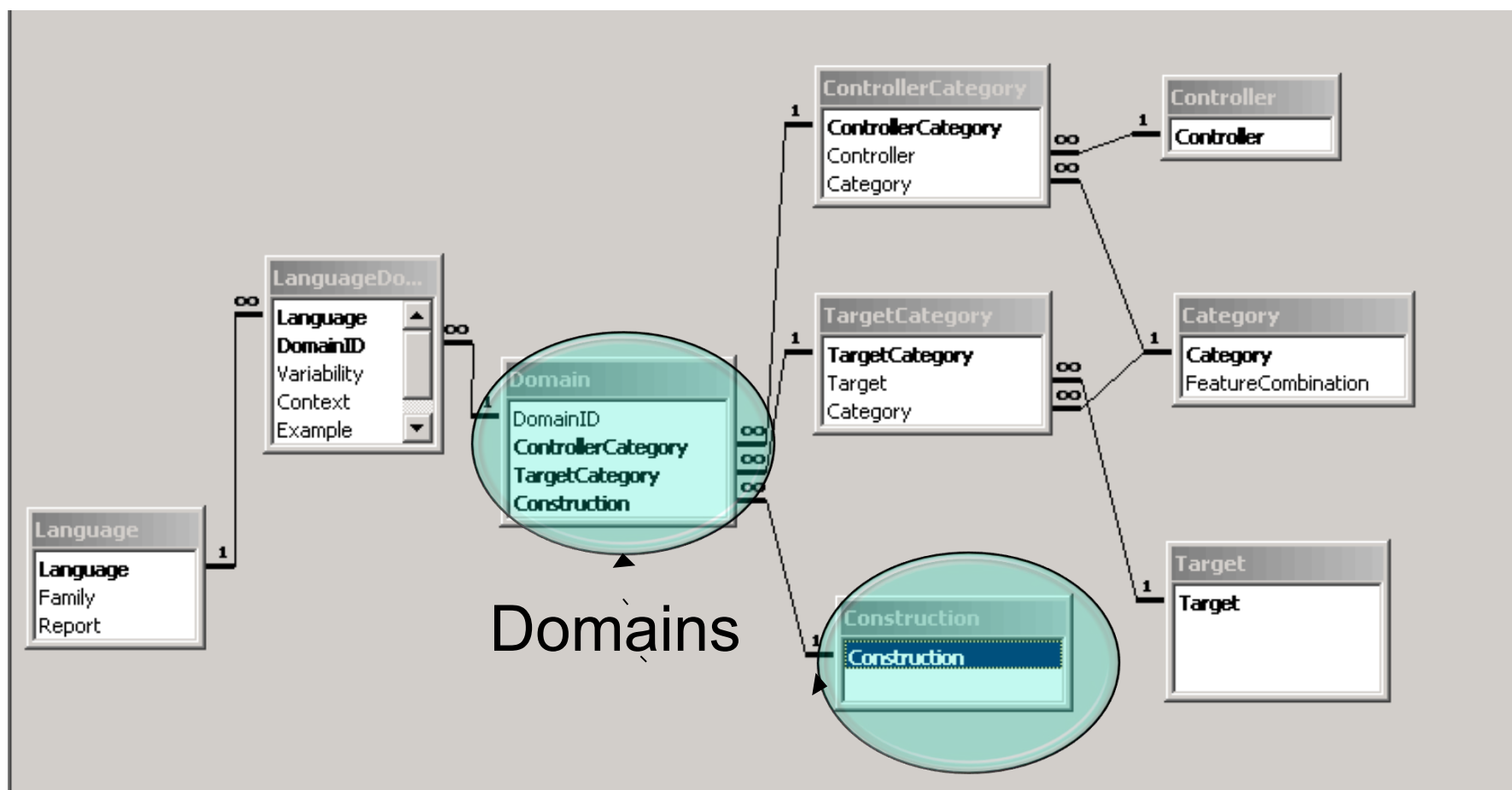
- |_ [Abstract](#)
- |_ [Linguistic Property](#)
- |_ [Morphosyntactic Property](#)
- |_ [Case Property](#)
- |_ Absolute Case

Definition:
AbsoluteCase in ergative–absolute languages marks referents that would generally be the subjects of intransitive verbs or the objects of transitive verbs in the translational equivalents of nominative–accusative languages [Anderson 1985: 181; Crystal 1985: 1; Andrews 1985: 138].

[Usage Notes](#) [submit a usage note](#)

See linguistics-ontology.org/

Agreement domains



basis for www.smg.surrey.ac.uk/Agreement/

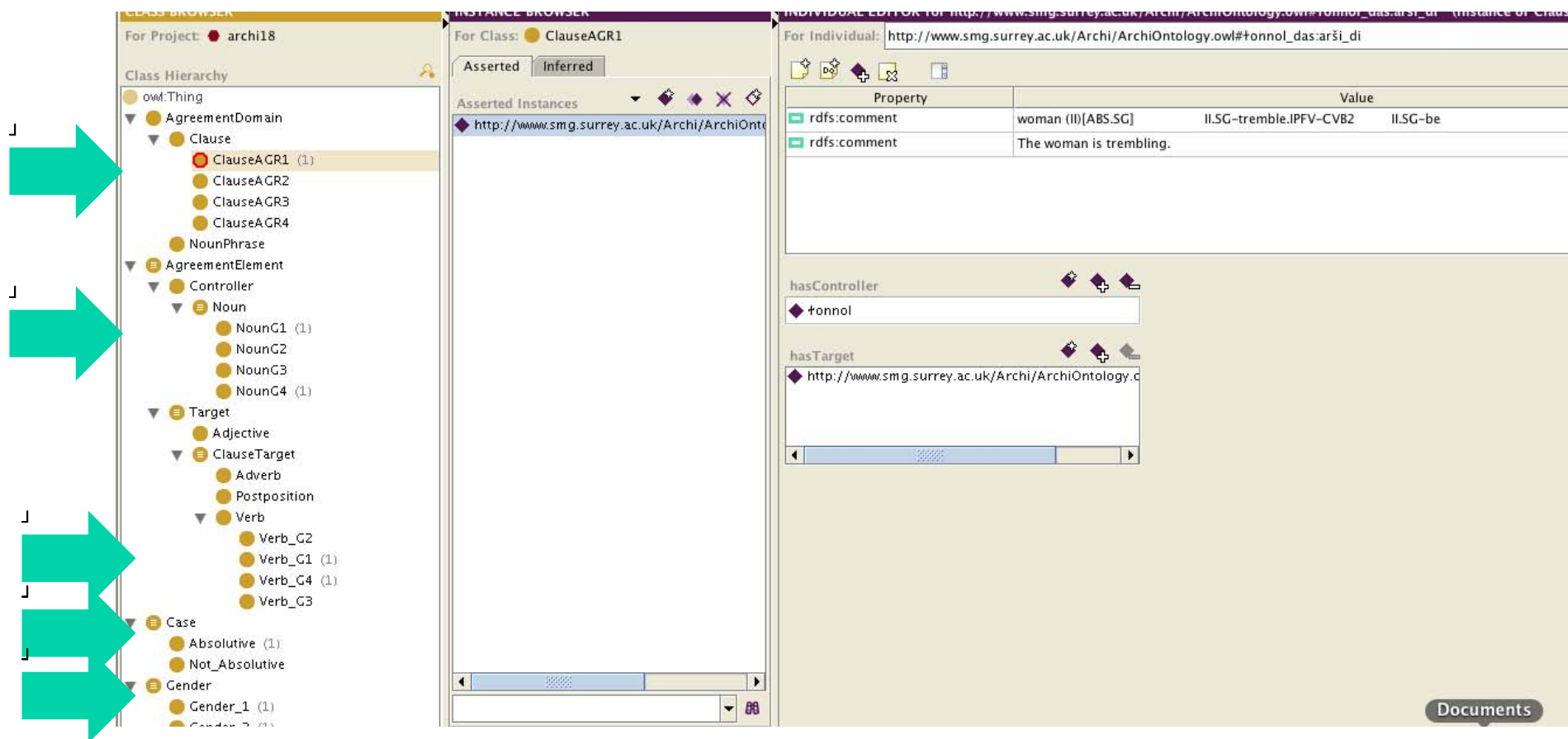


Agreement domains in Nakh-Daghestanian

Domain
A-Adjunct
A-Particle
Antecedent-Anaphor
Appositive
Clause
Embedded_O-matrix predicate
Head-Modifier
O-Adjunct
O-Complementizer
O-Particle
O-Predicate
O-Predicate_2
O-Subordinate predicate
S-Adjunct
S-Particle
S-Predicate
S-Predicate_2
S-Subordinate predicate

Kalinina's analysis of Tsakhur in Brown et *al.* (2002)₆

A simple ontology for agreement



The screenshot displays the Protege ontology editor interface, divided into three main panes:

- Class Hierarchy (Left Pane):** Shows a tree structure starting with `owl:Thing`. It includes classes like `AgreementDomain`, `Clause`, `ClauseAGR1` (highlighted), `ClauseAGR2`, `ClauseAGR3`, `ClauseAGR4`, `NounPhrase`, `AgreementElement`, `Controller`, `Noun` (with subclasses `NounG1` through `NounG4`), `Target`, `Adjective`, `ClauseTarget`, `Adverb`, `Postposition`, `Verb` (with subclasses `Verb_G2`, `Verb_G1`, `Verb_G4`, `Verb_G3`), `Case` (with subclasses `Absolute`, `Not_Absolute`), and `Gender` (with subclass `Gender_1`).
- Instance Browser (Middle Pane):** Shows the class `ClauseAGR1` with one asserted instance: `http://www.smg.surrey.ac.uk/Archi/ArchiOntology.owl#tonnol_das:arši_di`.
- Individual Editor (Right Pane):** Shows the instance `http://www.smg.surrey.ac.uk/Archi/ArchiOntology.owl#tonnol_das:arši_di` with its properties and values:

Property	Value
<code>rdfs:comment</code>	woman (II)[ABS.SG] II.SG-tremble.IPFV-CVB2 II.SG-be
<code>rdfs:comment</code>	The woman is trembling.

 Below the table, the `hasController` property is set to `#tonnol`, and the `hasTarget` property is set to `http://www.smg.surrey.ac.uk/Archi/ArchiOntology.c`.

Four green arrows on the left side of the image point to the `ClauseAGR1` class, the `Controller` class, the `Noun` class, and the `Case` class in the hierarchy.



Issues for agreement

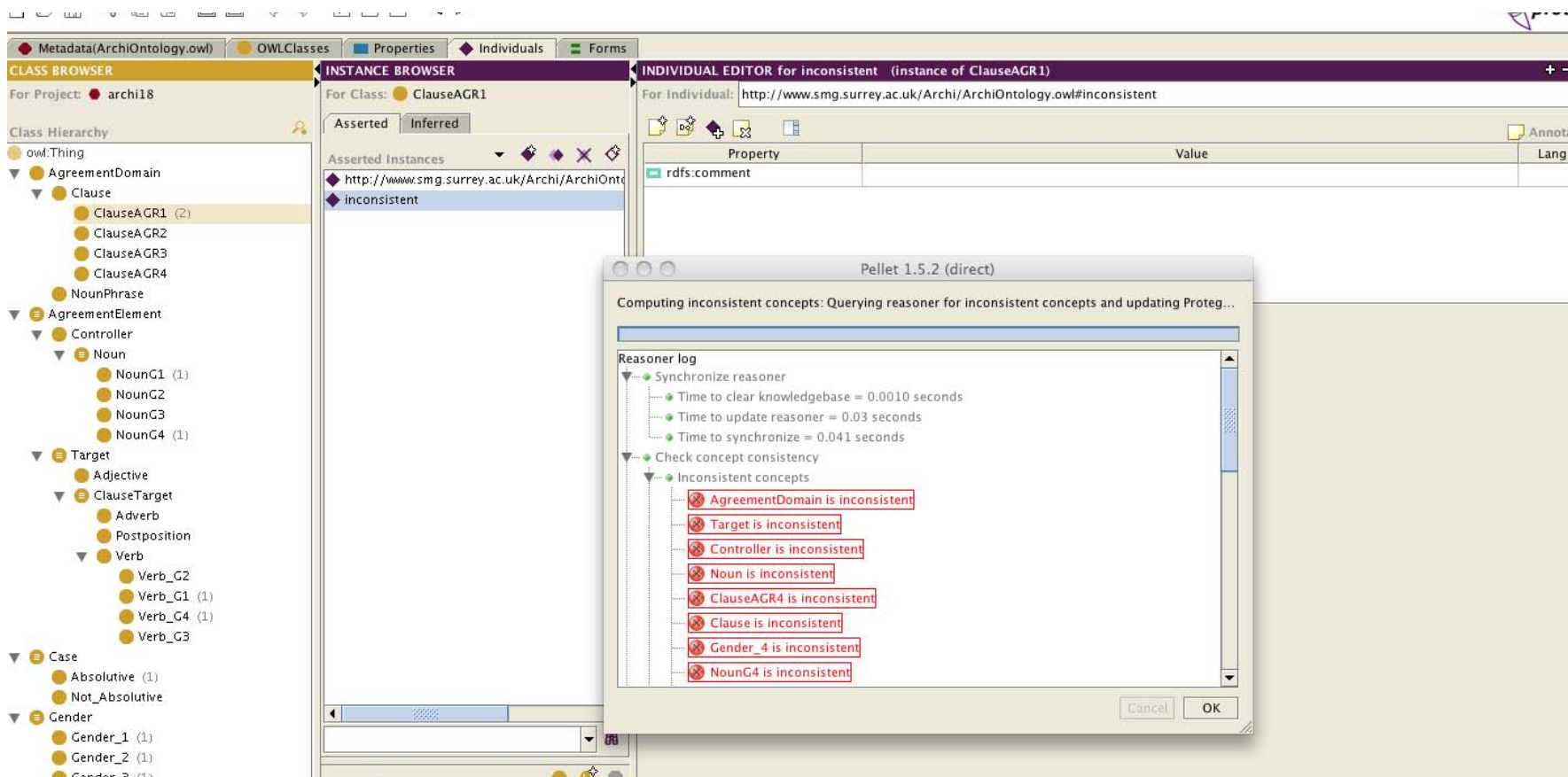
- Agreement is asymmetric
 - How do we express the fact that the controller determines the agreement?
 - We use properties
 - `agreesinGender` (Targets → Genders)
 - `externalFeature` (Genders → Targets)
 - `hasGender` (Nouns → Genders)
 - `inherenttoNoun` (Genders → Nouns)



Domain Issues

- How do we treat the structure in the domains:
 - definition in terms of phrase structure
 - use of other different levels
 - determine the extent to which domains present a homogeneous concept

Inconsistent Examples



The screenshot shows the Protege ontology editor interface. On the left, the 'CLASS BROWSER' displays a hierarchy starting with 'owl:Thing', followed by 'AgreementDomain', 'Clause', and 'NounPhrase'. Under 'Clause', there are four subclasses: 'ClauseAGR1 (2)', 'ClauseAGR2', 'ClauseAGR3', and 'ClauseAGR4'. Below this are 'AgreementElement', 'Controller', 'Noun', 'Target', 'Adjective', 'ClauseTarget', 'Adverb', 'Postposition', 'Verb', 'Case', and 'Gender'.

The 'INSTANCE BROWSER' shows 'Asserted Instances' for the class 'ClauseAGR1', with one instance listed as 'inconsistent'. The 'INDIVIDUAL EDITOR' window is titled 'INDIVIDUAL EDITOR for inconsistent (instance of ClauseAGR1)' and shows a table with one row: 'rdfs:comment'.

The 'Pellet 1.5.2 (direct)' dialog box displays the following 'Reasoner log':

```

Reasoner log
- Synchronize reasoner
  - Time to clear knowledgebase = 0.0010 seconds
  - Time to update reasoner = 0.03 seconds
  - Time to synchronize = 0.041 seconds
- Check concept consistency
  - Inconsistent concepts
    - AgreementDomain is inconsistent
    - Target is inconsistent
    - Controller is inconsistent
    - Noun is inconsistent
    - ClauseAGR4 is inconsistent
    - Clause is inconsistent
    - Gender_4 is inconsistent
    - NounG4 is inconsistent
  
```



What we intend to do

- Use the ontology to describe a “theory neutral” version of the Archi agreement system
- Compare the different theoretical distinctions and check for consistency.



The role of Canonical Typology

- Canonical Typology
 - Defines an ideal of a particular construction
 - Employs 'criteria' to define the dimensions along which differences may occur



The role of Canonical Typology

- Canonical Typology
 - Defines an ideal of a particular construction
 - Employs ‘criteria’ to define the dimensions along which differences may occur
- We shall
 - Implement taxonomies of controllers, domains and targets



The project wiki

Edited Yesterday at 9:39 AM by Brown DP Dr (English & Languages)...

From competing theories to fieldwork (ARCHI)

Welcome to the Wiki for the project 'From competing theories to fieldwork' funded by the Arts and Humanities Research Council (AHRC) under grant AH/I027193/1.

Contributing

Anyone can contribute a comment to pages which have an 'Add a new comment' button. We welcome discussion, short or long, on the analysis of Archi agreement.

- For details of preparations for the 'introductory seminar' go to the link on the right.
- Read a description of the project [here](#).
- For a quick guide to creating pages etc, look [here](#).

HPSG Pages	LFG Pages	Minimalism Pages
Expert: Bob Borsley	Expert: Louisa Sadler	Expert: Maria Polinsky
Topic 1: The HPSG approach to the domain problem	Topic 1: The LFG approach to the domain problem	Topic 1: The Minimalism approach to the domain problem

Project Members:

- Bob Borsley (Essex)
- Dunstan Brown (Surrey)
- Marina Chumakina (Surrey)
- Greville Corbett (Surrey)
- Maria Polinsky (Harvard)
- Louisa Sadler (Essex)

What's Hot

January 16: Introductory Seminar
January 3, 2012 10:51 AM

Recent Changes

The Minimalism approach to the domain problem
Yesterday at 9:50 AM

The LFG approach to the domain problem
Yesterday at 9:49 AM

The HPSG approach to the domain problem
Yesterday at 9:49 AM

From competing theories to fieldwork (ARCHI)
Yesterday at 9:39 AM

Getting Started
Yesterday at 9:18 AM

Upcoming Events

[Introductory seminar](#)
Jan 16, 2012

Reminder: Intro Seminar on January 16
Jan 2, 2012 - Jan 15, 2012

My Page Log In Help

fahs-wiki.surrey.ac.uk (click on 'Archi')



Conclusion

- Exploiting existing resources (agreement database and Archi electronic dictionary) and using an ontology will:
 - enable detailed modelling of agreement in one language
 - provide fruitful grounds for comparison of different theoretical frameworks
 - suggest new areas for fieldwork investigation