ONSET Documentation

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ONSET, the foundational ontology selection tool, assists the domain ontology developer in selecting the most appropriate foundational ontology. The domain ontology developer provides the requirements/answers one or more questions, and ONSET computes the selection of the appropriate foundational ontology and explains why. The current version (v1.2) includes DOLCE, BFO, GFO and SUMO. To download ONSET and access supplementary information go to http://www.meteck.org/ files/onset/. The ONSET application was developed by Zubeida Khan as part of her BSc(honours) thesis in Computer Science at the University of KwaZulu-Natal, supervised by Maria Keet. It was further refined afterward to include other foundational ontologies and more data.

Documentation Guide

There is no installation required for ONSET. Simply opening the file 'ONSETv1.2.jar' begins the program run. This brings you to the start screen. Additional questions are those that do relate to foundational ontologies but do not make a difference to the output of ONSET due to the implemented foundational ontologies at present. Scaling involves assigning a rating to each category, depending on how important a category is to your ontology. If you're unsure on what is most important/least important in your ontology, you may skip this step or assign equal scaling to all the categories.

		. 🗆
elp		
		Exit
	ONSET	-
	Untology Stlection Fool V1.2	
	Additional Questions	
	Would you like to include additional questions that won't affect the results of ONSET because of the foundational ontologies employed in the algorithm at present?	
O Yes	i i de la companya d	
O No		
	Scaling Categories	
	to the following estagonies in terms of importance to your domain optology	
0 repres	ents categories to leave out.1 represents the least important and 5 represents the most	
importa	nt categories.	
You may	use the same scaling value for categories you feel equally important.	
	Skip step	
Ontolog	jical Commitments- Philosophical choices taken by foundational ontologies	0 🔻
Donuoc	antation Language. Languages used to represent a demain entelenu	
Repres	entation Language- Languages used to represent a domain ontology	0
Softwa	re engineering-like- General properties associated with various foundational ontologies	0 .
Subject	Domain- Existing domains expressed using foundational ontologies	0 •
Applica	tions- Application scenarios of domain ontologies	0 .
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Figure 1: Start screen of ONSET

In the next screen, you are brought to a tabbed pane of categories. Your input is captured by

radio buttons and check boxes in some cases. At any stage, you are able to exit or go back to the start screen to restart.

Ontological Commitments	Representation Language	Software Engineering Properties	Subject Domain	Applications Submit
Useful Tip: Make use of the 'Explain' but found throughout ONSET to I more about what may apply your ontology.	tton earn to			Back to Start Menu
ſ	Ontol	ogical Commitments	5	
	You m	ay skip unnecessary questions		
Ontology of Universals/ Classes/Co	asses/Concepts or Particula oncepts	rs/Individuals?		Explain
 Particulars/ Individual Both 	s			
Descriptive or Realist onto	logy?			Explain
 Realist (Prescriptive) 				
O Both				
Multiplicative or Reduction	ist approach?			Explain
O Multiplicative				

Figure 2: Mixed tab pane of ONSET

In order to assist you with unknown and complicated terms and concepts, 'Explain' buttons are found throughout ONSET. Clicking it opens up a small informative window.

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Return to ONSET
Universals vs. Particulars
Universals are objects that can have instances. Particulars are
objects that cannot have instances, e.g. Dog is a universal while Bruno' the dog is a particular which cannot be instantiated.

Figure 3: Explain button window of ONSET

Once you have provided all your inputs for a particular tab, click on the Submit button at the bottom of it and you are automatically taken to the next tab.

Ontological Commitments Representation Language Software Engineering Properties Subjec	t Domain Applications Submit
Will you use your domain ontology for any of the following application scenarios?	
Ontology driven information systems	Explain
Database integration	Explain
The semantic web	Explain
Information Retrieval	Explain
☑ For scientific research	Explain
To formally represent scientific theory	
Ontologies for natural language processing	Explain
☐ To model methodologies and languages to be used in software applications making them more explicit	
Ontological foundation of conceptual modelling	Explain
Domain specific semantic wikis	
Search	Explain

Figure 4: Tab submission of ONSET

Once you're in the Submit tab, click on the calculate button to allow ONSET to select an appropriate foundational ontology based on your requirements. A foundational ontology is selected. All results are displayed and grouped neatly. Reasons as to a particular foundational ontology is selected is provided.

Ontological Commitments	Representation Language	Software Engineering Properties	Subject Domain Applications Submit
			Back to Start Menu
			Exit
	Su	bmit All Answers	
		Calculate result	
		Clear result	
		View Results	
	Based on your responses	, the selected foundational ontolog	y for you is GFO
	Reasons	why GFO is the selected ontology:	
1. GFO is an ontology of	Universals and Particulars.		
2. GFO is Realist in natur	e.		
3. Temporal Aspects are	provided in GFO.		
4. GFO may be represent	ed in OWL DL.		

Figure 5: Output of ONSET

Also, conflicting results are provided. Conflicting results occur when a particular foundational ontology is selected but not all of your requirements are supported by it.

A list of subject domain ontologies that implement foundational ontologies for the subject domain you've chosen is provided.

If your criteria correspond equally to the foundational ontologies (a tie), you must choose the one that best fits your requirements or modify your inputs, where possible. In the example below, you may choose the foundational ontology, based on how you prefer temporality to be implemented.

	Co	nflicting Answers		
	A single foundational	l ontology doesn't cover all your r	equirements.	
	Features that a	are met by another foundational o	ntology	
1. DOLCE is sensitive to c	ifferent levels of granularity.			
	Features that are pro	blematic for the selected foundat	ional ontology	
1. GFO is not sensitive to	tifferent levels of granularity.			

Figure 6: Conflicting results of ONSET



Figure 7: Subject domains of ONSET

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Ontological Commitments	Representation Language	Software Engineering Properties	Subject Domain Applications Subm	it
ONSET was not able to se	lect a foundational ontolog	y because your choices correspond	l equally to three foundational ontologie	s
	Reasons why D	DOLCE should be the selected ontol	ogy:	٦
1. Temporal Aspects are pro	ovided in DOLCE by the tem	poral quality and temporal region ca	tegories.	
	Reasons why	GFO should be the selected ontolo	gy:	
1. Temporal Aspects are pro	ovided in GFO by basic time	entitites called chronoids.		
	Reasons why S	5UMO should be the selected ontol	ogy:	
1. Temporal Aspects are pro	ovided in SUMO by wrapping	statements with temporal knowled	ege.	

Figure 8: A tie in ONSET