

DIGITAL ANALYSIS OF PLACE NAMES IN *DE RAPTU CERBERI*

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Professional paper

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Towards the end of the 15th century, Jakov Bunić published the oldest epic poem in Croatian literature, *De Raptu Cerberi*. Presenting Hercules as a figure of Christ, Bunić combines Catholic symbolism and ancient mythology. Part of the mythological *ornatus* are references to places, both real and imaginary. We wanted to study these references. To do so, we considered five aspects of each place reference: its »placeness« (the level of certainty that a word marks a place), lemma, morphology, and reference to the space and time of the external world. All of our annotations are connected in a digital framework, so it is possible to focus on the interesting cases. What are all the examples of a real place in an imaginary time? What morphological patterns exist in multiword expressions? What does the underworld consist of for Bunić? These are just a few of the possible research questions we can now begin to answer.

Keywords: Jakov Bunić, *De Raptu Cerberi*, digital analysis, placeness, lemma, morphology, space, time

For the benefit of those readers who may not be familiar with Bunić and *De Raptu Cerberi*, I will provide a very brief background. Jakov Bunić, also known by his Latin name – Iacobus Bonus Racusaeus, was from an important family in Dubrovnik. Writing in Rome at the end of the 15th and beginning of the 16th centuries, Jakov Bunić published his famous work, *De Raptu Cerberi*. As the title clearly indicates, this epic tells the story of Hercules' twelfth labor to capture Cerberus from the underworld. Consisting of about 1,000 lines of Latin hexameter, this poem is divided into three books. Book I includes an invocation of the muses, a description of the place where Hercules entered the underworld, and

the first description of Cerberus. Later in the book Hercules watches a procession of shades. Among them is Hylas, one of his old companions. They have a long conversation in which Hylas describes how he was abducted by water nymphs. In book II Hercules encounters Charon, who takes him across the river to the palace of Dis, the god of the underworld. Next Hercules subdues Cerberus with chains and his club. When he enters the palace, there is a description of the circles of the underworld and of Hercules' interaction with Dis. Book III is a bit different. It begins with the creation of the universe from Chaos. In this book Bunić writes about the separation of light and darkness, good and evil, and fate. At the end of the book Hercules successfully brings Cerberus out of the underworld to Corinth and is praised for all his accomplishments.

Bunić was very familiar with ancient mythology, and it shows in his writing. There are numerous references to both real and imaginary places. We, a team of people at the University of Zagreb, wanted to study these references and were able to do so through a Pelagios Commons Resource Development grant. We considered five aspects of each place reference: its »placeness« (the level of certainty that a word marks a place), lemma, morphology, and reference to the space and time of the external world. Next I will describe in more detail the information we collected for each place reference and what we can do with that information.

The first aspect we considered is what we call »placeness.« Typically we think of the concept of place as being binary – something either is or is not a place. Some references are obviously not places (e.g. *Alcides* refers to Hercules as the descendant of Alceus), and other references clearly point to a physical place (e.g. *Aetna* refers to a volcano in Sicily). We can also have a well-defined concept of a place. We cannot point to *Acheron* on a modern world map, but we can agree that it was understood to be a river in the underworld. These are the simple cases, but other references can be more complicated.

In our edition of the text, words that referenced places were capitalized. This made it easy to generate a list of potential place name references with a computer script. We manually went through this computer-generated list and assigned each word a »placeness« or what we called an »estlocus« value. We came up with five possible categories. »Estlocus0« is for words that definitely do not refer to a place. »Estlocus1« is for simple cases of physical places or well-defined concepts of places as described above with *Aetna* and *Acheron*. »Estlocus2« designates a multi-word reference to a place. This is used for phrases such as, »*Acherontis ad amnes*.« Here we are still talking about the Acheron river, which qualifies as a place, but this time we have a place name adjective and a noun that make up the reference together. »Estlocus3« is used for rhetorical references to places using figures of speech. Consider the following example: *Dixerat, et medios sol feruentissimus axes / Igniferis calcabat equis et lampade recta / Aethiopas duplices axemque uidebat utrumque.* (3, 294-296) The sun went to see the »double Ethiopians« (these would be the eastern and western ones according to Homer

(*Od.* 1, 21-25)). Here we have a metonymic *gens pro loco* reference to a place. The final category »Estlocus4« is reserved for special cases. We used this category of scholarly caution whenever we come across complicated references that we want to revisit. Many of the examples in this category seem to simultaneously refer to a person and a place. In the following example, »*Thracius ad sedes Erebi descendere uates / Si potuit...*« (2, 109-110) it is not entirely clear whether *Erebus* refers to the god of darkness or to the underworld itself.

We also collected data about the lemma and morphology of each place reference. Using the lemmata in combination with our other data (which will be described in the next section), we can write a computer script to see whether there are examples of a single place referenced by multiple names. The morphological data could be useful in a study of multi-word place references. What are the possible combinations of nouns and adjectives in different cases, and which combinations appear most frequently? These are just some examples of how we could use these data. We will think of more ways to use this information, but the important point is that we have this as part of our resource for future research. Sometimes it is good to start with a research question and to think about what you will need to answer it. Other times it is good to think about what questions you can ask and answer, or at least begin to answer, with the data you already have. We are building a collection of annotations that will be used as a resource for future researchers. Although we do not know what questions they will ask, we believe it is much better to have access to information you do not need than to not have information you do need. Since all our annotations are in a digital format, researchers will not have to worry about being overwhelmed by too much information. They will be able to view only the annotations they want to see.

The fourth aspect we considered is the reference to space of the external world. Although we could not point to every one of these place references on a standard map, for many of them we could and we did. We linked our place references to the Pleiades gazetteer, which contains the coordinates of many ancient places based on data from the Barrington Atlas. Instead of linking imaginary places, such as those in the underworld, to coordinates on a map, we linked these references to their corresponding Wikidata entries because they are still well-defined concepts of places and should be linked in some way. These stable references to wikipedia articles are great for citation purposes.

Finally we considered the reference to time of the external world. It is difficult to talk about places without also talking about time. Usually a place reference is connected to not only a specific place, but a specific place at a specific time. Since space and time often cannot be separated, each of our place references belongs to a period. Throughout history borders change. If we are talking about Rome, we also need to know the century. Another factor to consider is that different cultures have their own way of dividing history into different periods. The Renaissance did not happen at the same time in every place. To address the complexity of defining

periods, we linked our place references to the Period 0 database, which contains scholarly definitions of periods for many different cultures. This was very useful, but it did not solve another problem for many of the places in *De Raptu Cerberi*. How do we handle imaginary periods of mythological events?

There were no defined imaginary periods in the Period 0 database. To solve this problem, I proposed my own periods. Although some people have tried, I did not think it would be productive to try to assign dates to mythological events; however, a relative chronology definitely exists within ancient mythology. I divided mythological history into six broad periods. Period 1 starts with the formation of the world from Chaos and ends with the birth of the Titans. Period 2 begins when Chronos overthrows Ouranos and continues to the birth of the Olympian gods. In Period 3 Zeus overthrows Chronos, Prometheus gives fire to mankind, and Pandora opens her box containing all the evils of the world. Period 4 includes the Zeus flooding the earth, the Oedipus cycle, the story of Orpheus and Eurydice, and the twelve labors of Hercules. Period 5 contains the beauty contest, the Trojan war, and the capture of Troy. Period 6 includes Odysseus' journey back to Ithaca and Aeneas' quest to found Rome. It would not be a good idea to have more specific periods than this because there are variances in the chronology of specific events depending on the source.

As one would expect, most of the place names in *De Raptu Cerberi*, about 90% of them, belong to Period 4 which includes all twelve labors of Hercules. This was expected since the story is focused on Hercules' twelfth labor. Since the periods are broad, there are examples of references to a different time which happens to fall within the same period, such as when Hylas describes how he was abducted by water nymphs. We know that these events did not occur at the same time, but the time difference is not huge when we think about all the time between the creation of the world to the founding of Rome. In addition to the references that are outside the main mythological period for this story, there are also place references that belong to a category not yet mentioned: references that are outside of time such as those in similes which could be relevant for any or all time.

After a few rounds of reviewing the place annotations with revised definitions and better understanding, there are currently 24 examples of place references outside of Period 4. The following numbers may change slightly after future rounds of review, but it should be noted that we automatically record the date and time each annotation is made. If we change our mind or our definitions of a certain category, we know which annotations are accurate as of which date. Of the 24 examples outside the main mythological period: three belong to Period 6 containing the events of the Trojan war; six belong to Period 1 including the beginning of the world; there is one reference to Virgil calling him the »Andean prophet,« pointing to his birthplace – this belongs to the corresponding period of Roman history; in a header outside the main body of text, there is a reference to a bishop of Naples belonging to the period of Renaissance Italy; the remaining

thirteen examples are classified as being outside of time, similes in which time is irrelevant or inapplicable. There are also some lemmata which occur with two periods. In addition to appearing in the main Period 4, instances of *Achelous*, *Aetna*, and *Oceanus* belong to the period of being outside time, and instances of *Acheron*, *Olympus*, and *Orcus* belong to Period 1, the creation of the world.

Thousands of annotations have been recorded already, and more will be added in the future – many more than any human could hope to study. Since all the data are collected in a digital database, we can write queries to isolate only relevant information for our questions. We can search for all the examples of imaginary places in a real time and see whether there are examples of imaginary places in a real time. We can ask what does the underworld consist of for Bunić by studying all the places he includes and noting which ones are absent. Since the results of our queries are produced by computer programs, they are not only much faster, but also much more reliable than a human trying to do the same thing. Now we have this database of annotations as a resource. We can think about the information we have available to us and what other questions we can ask and begin to answer with that information.

Resources:

One can browse all of our annotations here: <http://croala.ffzg.unizg.hr/basex/cp-loci-id/urn:cts:croala:bunic02.croala1761880.croala-lat2w>

One can find a more detailed description of why and how we did everything in the annotation process on our GitHub page: <https://github.com/nevenjovanovic/croala-pelagios>

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DIGITALNA ANALIZA IMENA MJESTA U BUNIĆEVU EPU
DE RAPTU CERBERI

Da bismo proučili brojne reference na mjesta što ih sadrži ep Jakova Bunića *Otmica Kerbera*, uzeli smo u obzir pet vidova svakog spomena mjesta: njegovu »mjesnost« (stupanj sigurnosti da se u djelu označuje mjesto), lemu, morfologiju te odnos spram prostoru i vremenu izvanjskog svijeta. Odredili smo općenita mitološka razdoblja i proveli neke druge prilagodbe radi obradbe imaginarnih mjesta, kao što su ona u podzemnom svijetu. Tisuće anotacija okupljene su u bazi podataka koja će se dalje uvećavati i postat će korisnim izvorom budućim istraživačima. Ta baza neće samo olakšati odgovore na postojeća pitanja nego će omogućiti da se razmišlja o tome kakva se nova pitanja i odgovori mogu pronaći na temelju već dostupnih podataka.

Ključne riječi: Jakov Bunić, *De raptu Cerberi*, digitalna analiza, mjesnost, lema, morfologija, prostor, vrijeme