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* Visuals for this presentation were projected directly and dynamically from Cytoscape network analysis software, but less interactive versions are incorporated here. Graphics may also be viewed here on gitHub.

Anti-Social Networks of Place in Southey's *Thalaba the Destroyer* (1801)

Can we think of a poem as a structured use of language that networks concepts together? Analogy and metaphor could constitute an edge that links nodes together in an exchange of some kind that gives poetic language a distinctive conceptual structure. The structural aspects of poetic language, the measured use of words in lines of patterned or non-patterned lengths, and harmonic, musical elements could be represented in locational terms as nodes of particular kinds through which concepts move with force or are held in stasis, repeated, looped for particular effects. To what extent are network graphs useful in representing poetic form as a linguistically mediated conveyance of ideas? When poems contain a variety of embedded and bounding structures, when they shift in voice and register, and in particular when they are very long and when the reader can recognize but have difficulty synthesizing a proliferation of references to proper names and esoteric concepts, we may find the distant reading tools we apply at a large scale to text corpora of interest in illuminating patterns at the level of singularly complex texts—such as annotated epic poems.

Epic poems at the turn of the nineteenth century conveyed a distinctive planetary consciousness responding to an eighteenth-century Information Age, connected with the Pacific voyages that mapped the world with increasing accuracy to something that looks like our contemporary imagined view of the Earth. Poems like Erasmus Darwin's *The Temple of Nature: Or, the Origin of Society* (1803) and Robert Southey's *Thalaba the Destroyer* (1801) represent in their own very distinctive ways a poetics that modelled world-systems in layered ways, studying

plant physiology in context with human belief systems, and incorporating empirical observations and experiments with speculative juxtapositions of ideas from the microcosmic to the macrocosmic. The complicated machinery of Southey's epics challenge us just as they did his immediate audience, and might well expose us in our twenty-first-century weakness: we cannot easily assess their elaborate interplay of contexts, their investigative reading of a centuries-old archive of records on cultural encounters, their blending of ancient and contemporary sources from voyage logs and travel narratives. Here is where network graphs can help us to examine a poem more thoroughly considering its unit structural parts—books, stanzas, prose notes and scholarly apparatus.

Robert Southey, the intellectual inheritor of an eighteenth-century Information Age, determined as a boy that he would write an epic poem on each of the world's major religions, and in fulfilling that goal he retooled the ancient epic poem to model and study mythic thinking and ritual practices around the planet. Southey's plan to produce epics "exhibiting the most remarkable forms of mythology" involved him in a complex modelling of diverse belief systems in complex juxtaposition. Back in the early 1990s, Javed Majeed described Southey as a kind of scientist-poet—in that he researched and wrote poems "as though he were in a laboratory of cultures, experimenting with and constructing different cultural identities." [1] As Dahlia Porter has discussed, Southey's common-place book documents the research that fed his annotations to the epics and demonstrates his systematic use of Enlightenment methods to collect evidence of cultural patterns.[2] This pseudo-scientific "lab experimentation" with cultural perspective on a planetary is exactly what is so difficult for Southey's readers to process. When we read epics and

[1] Javed Majeed, *Ungoverned Imaginings: James Mill's The History of British India and Orientalism* (Oxford: Clarendon Press, 1992), 53.
[2] Dahlia Porter, Poetics of the Commonplace: Composing Robert Southey, *Wordsworth Circle* (2011) 42: 1, 27-33.

romances we are caught up in characters and driving plot, and we tend to generalize "the background" in a way that loses track of the elements of complex systems that generate imagined worlds and reflections on culture. We may well be able to read more of Southey and study the worldviews he was modelling in epic poetry without getting lost in his labyrinthine notes if we deploy the tools of distant reading.[3] From Southey's compilation and composition process, then, we can see his epic poems as, indeed, conducting the laboratory work of "world cultural studies" at the turn of the nineteenth century during a pivotal moment when the British Empire shifted its direction of expansion from westward to eastward. This is why I have been working on a pointedly Anti-Social network of place referentiality in Southey's epic poem *Thalaba the Destroyer* as it was first published in 1801, so as to push the characters and the plot to the background in order to gain a clearer view of the dizzying variety of places and cultures that Southey stitches referentially together in his poetic text and paratext footnotes.

How do we read a poetic text with mostly-prose paratext footnotes together, and how can network analysis help us to read them differently? Southey's notes appear to be a pyrotechnical display of wide-ranging scholarship, and Southey scholars have commented on his annotation as a jeweled encrustation, or even a "wasteful" glamour which affects the way we look at the pages of his book as a kind of luxurious Orientalist embellishment.[4] When we look at Southey's first

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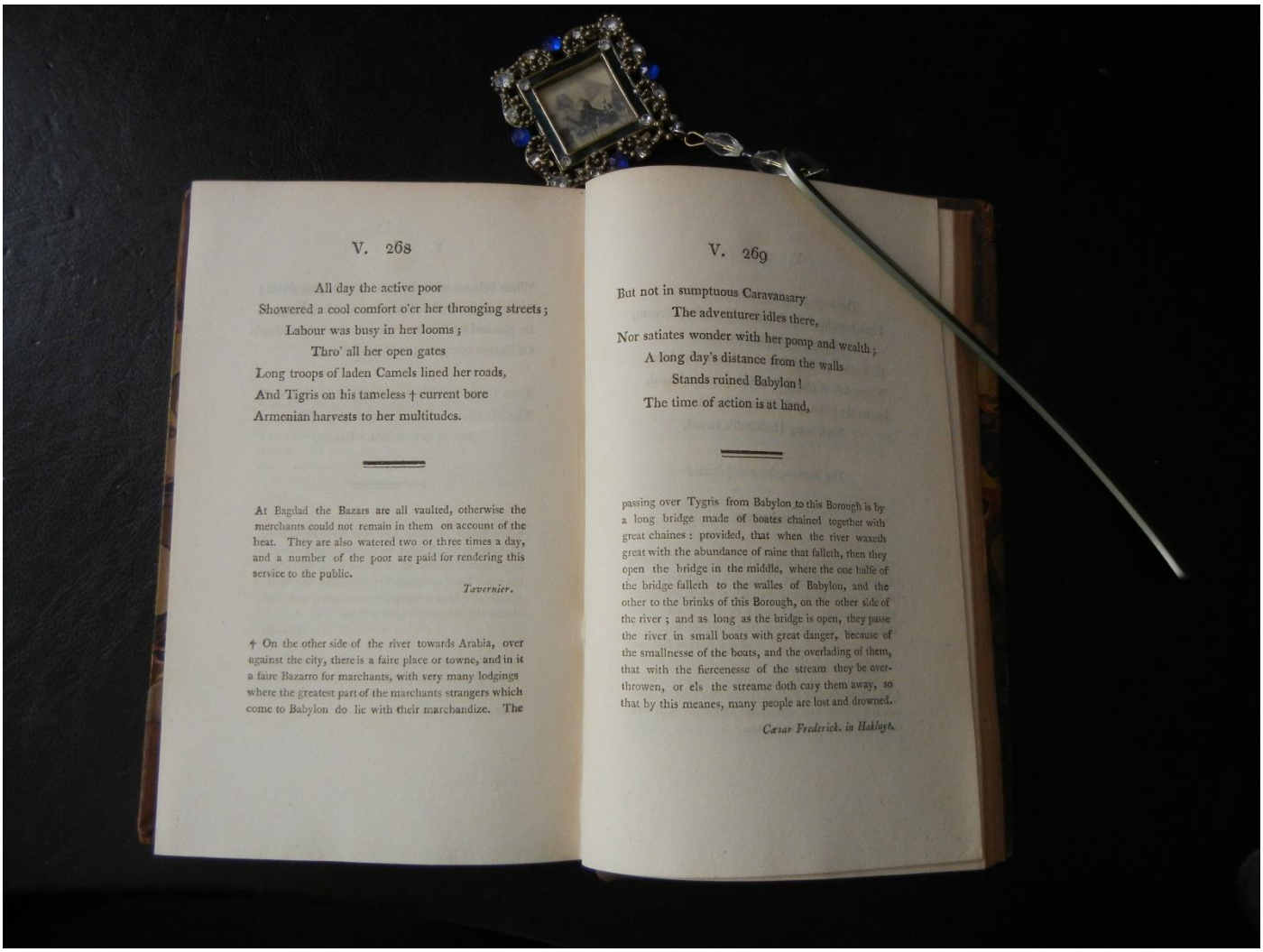
[3] Here I am loosely referencing Franco Moretti's provocative view of the novel as "planetary form," with a goal to study how models of the world were being developed in the machinery of scholarly poetry in an imperial era. Moretti's 2011 article, "Network Theory, Plot Analysis," republished in his 2013 book, *Distant Reading*, offers an accessible introduction to how network graphing can be applied to literary studies to illuminate patterns in individual texts that we could not have perceived with unassisted eyes.

[4] See Diego Saglia, "Words and Things: Southey's East and the Materiality of Oriental Discourse," in *Robert Southey and the Contexts of English Romanticism*, ed. Lynda Pratt (Aldershot: Ashgate, 2006) 167-86; and Clare Simmons, "'Useful and Wasteful Both': Southey's *Thalaba the Destroyer* and the Function of Annotation in the Romantic Oriental Poem," Genre 27 (Spring-Summer 1994) 83-104. Simmons calls at the end of her piece for a Southey's notes to be studied not so much as secondary unnecessary appendages but as "part of a creative whole" deliberatively designed (102). Her view coincides with Gerard Genette's view of paratext and text as integrally bound--particularly in English Romantic-era texts with tonal registers of irony and humor: See *Paratexts: Thresholds of Interpretation* (trans. Jane E. Lewin (Cambridge University Press, 1997), 322, 328.

edition of *Thalaba*, we often see passages like this from Book V, where the small-print annotations take up more space on the page than the larger-print lines of poetry. [5] Quite frequently in these paratext notes, we see that the notes radiate outward from the poem in their



V. 268

All day the active poor
Showered a cool comfort o'er her thronging streets;
Labour was busy in her looms;
Thro' all her open gates
Long troops of laden Camels lined her roads,
And Tigris on his tameless † current bore
Armenian harvests to her multitudes.

At Bagdad the Bazars are all vaulted, otherwise the merchants could not remain in them on account of the heat. They are also watered two or three times a day, and a number of the poor are paid for rendering this service to the public.

Tavernier.

† On the other side of the river towards Arabia, over against the city, there is a faire place or towne, and in it a faire Bazarro for marchants, with very many lodgings where the greatest part of the marchants strangers which come to Babylon do lie with their marchandize. The

V. 269

But not in sumptuous Caravansary
The adventurer idles there,
Nor satiates wonder with her pomp and wealth;
A long day's distance from the walls
Stands ruined Babylon!
The time of action is at hand,

passing over Tygris from Babylon to this Borough is by a long bridge made of boates chained together with great chaines: provided, that when the river waxeth great with the abundance of raine that falleth, then they open the bridge in the middle, where the one halfe of the bridge falleth to the walles of Babylon, and the other to the brinks of this Borough, on the other side of the river; and as long as the bridge is open, they passe the river in small boats with great danger, because of the smallnesse of the boats, and the overlading of them, that with the fiercenesse of the stream they be overthrowen, or els the streame doth cary them away, so that by this meanes, many people are lost and drowned.

Cæsar Frederick. in Hakluyt.

treatment of place--that for any given place mentioned in a line of the poem in context with a footnote in this text, there is likely to be a plurality of places in that footnote. Thus, as on the page above, a description of Babylon leads to a note that mentions 13 other places--typically a heterogeneous mix of Middle Eastern, European, and English locations--in this case, Heaven,

[5] Later editions of *Thalaba* pushed the annotations to the end of the multi-volume poem, so that the notes moved away from their position immediately beneath specific lines.

Arabia, the Tigris River, the Euphrates River (mentioned here separately from the Tigris), the Tower of Babel, St. Paul's Steeple in London, Assyria, Sodom and Gomorrah, Naples, the kingdom of Judah, and Media.

The relational connection of places that appear in main text and those that appear in notes might be helpful to see on a larger scale with an "anti-social" (or pointedly multicultural) network analysis, combined with a structural TEI XML markup of this formally structured multi-volume poem across its twelve books--conveniently available in a clean-coded HTML form of the 1801 edition through Project Gutenberg (easily convertible to XML). TEI is an international standard markup language of the Text Encoding Initiative for encoding texts and cultural materials, and we benefit from its representation of an ordered hierarchy of content objects in studying relationships within the formal structural units of a long annotated poem. **See the figure on the next page representing the Text, Notes, and TEI encoding of the passage from Book V photographed above.** Since annotations are signaled on particular lines and appear in the 1801 text in context with specific line-groups or stanzas, the structure of the markup language provides a conceptual way to define a bridge or edge unit in a network context. According to the conventions of markup, notes are embedded directly within the lines which signal them, so that I can write XPath (XML Path Language) in XSLT (eXtensible Stylesheet Language) to associate and extract the place elements coded in the main text of a line-group and their associated notes. I extract this data in a tab-separated text format to work with in network analysis software of my choice, in this case Cytoscape because this open-source software commonly used in the biological sciences and genetics provides especially helpful options to analyze network statistics and map networks based on geodesic measures of stepwise path distance and eccentricity, as well as the more conventionally depicted patterns of between-ness centrality and degree

connectivity. Each edge in the network graphs that follow represents a specific line-group linkage of a place either in the lines of poetry in that line-group or to a note signaled there.

In all of the network graphs that follow I have color-coded edges to distinguish **main-text bridges** (in solid dark blue) from **paratext note bridges** (in dotted gold), and this is immediately useful to distinguish the places that are referenced in both places (having edges of both colors), from those that only ever appear in paratext. I have also produced a bipartite distinction of the nodes, to identify **"places"** in turquoise as historically recorded places, plottable on a map and visitable by human beings at some point in history up to 1801. I am distinguishing these from magenta **"metaplaces"** which include cosmic or mythic places that could not be plotted on a world map after the eighteenth-century, as well as any locations that were not historically or realistically accessible to people up to Southey's time. Thus, the category of metaplace includes "sky" locations as well as "under the roots of the ocean," since these were not accessible to human travelers in Southey's time or before, so far as we know. Metaplaces in the poem also include Heaven, Hell, Purgatory, Eden, and the Mahumetical Paradise (as well as a few other kinds of "paradises.") Such metaphysical realms connect with the tradition of European epics of the sixteenth century and later--the cosmic stuff of Western epic--but Southey's rendering of a proliferation of historic world locations in context with supernatural or inaccessible territories draws just as much upon sixteenth- to seventeenth-century fantastical compilations of travel tales from Samuel Purchas and Richard Hakluyt, among others.[6] Due to conflicting commitments, at the time of this writing I have not completely finished the careful work of coding all places and metaplaces in the poem, and am about two thirds of the way

[6] The fourth edition of Samuel Purchas's *Purchas his Pilgrimage, or, Relations of the world and the religions observed in all ages and places discovered* seems especially relevant to Southey for its maps and illustrations, combining fantastical places with accounts of contemporary European travels. Southey cites Purchas frequently throughout *Thalaba*.

Text, Notes, and Context Code in TEI XML

```
<lg xml:id="B5_lg317">
        <l rend="i0" n="2460"><rs type="place" ref="Bagdad">Then Pomp and Pleasure dwelt within her walls</rs></l>
        <rs type="building" subtype="commerce"><l rend="i0" n="2461">The Merchants of <placeName>the East</placeName> and of <placeName>the West</placeName></l>
        <l rend="i4" n="2462">Met in her arched<ref target="#N_90">
          <note type="author" anchored="true" xml:id="N_90">
            <p part="N"> <rs type="building" subtype="house">The houses</rs> in <placeName>Persia</placeName> are not in the same place with <rs type="building" subtype="commerce">their
              shops, which stand for the most part in long and large arched
              streets 40 or 50 foot high, which streets are called Basar or the
              market</rs>, and make the heart of the city, the houses being in the out
              parts, and having almost all <rs type="earthworks" subtype="garden">gardens</rs> belonging to 'em. <bibl default="false" status="draft">Chardin.</bibl>
            </p>
            <p part="N"> At <placeName>Tauris</placeName> he says, "there are the fairest Basars that are
              in any place of <placeName>Asia</placeName>, and it is a lovely sight to see their vast
              extent, their largeness, their beautiful Duomos and the arches over
              'em." </p>
            <p part="N"> At <placeName>Bagdad</placeName> the Bazars are all vaulted, otherwise the
              merchants could not remain in them on account of the heat. They are
              also watered two or three times a day, and a number of <orgName>the poor</orgName> are
              paid for rendering this service to <orgName>the public</orgName>. <bibl default="false" status="draft">Tavernier.</bibl>
            </p>
          </note>
        </ref> Bazars;</l></rs>
        <l rend="i4" n="2463">All day the active poor</l>
        <l rend="i0" n="2464">Showered a cool comfort o'er her thronging streets;</l>
        <l rend="i2" n="2465">Labour was busy in her looms;</l>
        <l rend="i4" n="2466">Thro' all her open gates</l>
        <l rend="i0" n="2467">Long troops of laden Camels lined her roads,</l>
        <l rend="i0" n="2468">And <placeName>Tigris</placeName> on his tameless<ref target="#N_91">
          <note type="author" anchored="true" xml:id="N_91">
            <p part="N"> On the other side of the river towards <placeName>Arabia</placeName>, over
              against the city, there is a faire place or towne, and in it a
              <rs type="building" subtype="commerce">faire Bazario for marchants</rs>, with very many lodgings where the
              greatest part of the <orgName ref="travelling_merchants">marchants strangers</orgName> which come to <placeName>Babylon</placeName> do
              lie with their marchandize. The passing over <placeName ref="Tigris">Tygris</placeName> from <placeName>Babylon</placeName> to
              <rs type="place" ref="Bagdad">this Borough</rs> is by a long bridge made of boates chained  together with great chaines: provided, that when the river waxeth great with
              the abundance of raine that falleth, then they open the bridge in
              the middle, where the one halfe of the bridge falleth to the walles
              of <placeName>Babylon</placeName>, and the other to the brinks of this Borough, on the
              other side of the river; and as long as the bridge is open, they
              passe the river in small boats with great danger, because of the
              smallnesse of the boats, and the overlading of them, that with the
              fiercenesse of the stream they be overthrowen, or els the streame
              doth cary them away, so that by this meanes, many people are lost
              and drowned. <bibl default="false" status="draft">Cæsar Frederick,
                in Hakluyt.</bibl>
            </p>
            <p part="N"> Here are great store of victuals which come from <placeName>Armenia</placeName>
              downe <geogFeat>the river of <placeName ref="Tigris">Tygris</placeName></geogFeat>. They are brought upon raftes made of
              goate's skinnes blownn full of wind, and bordes layde upon them;
              which being discharged they open their skinnes, and carry them
              backe by Camels. <bibl default="false" status="draft">Ralph Fitch
                in Hakluyt.</bibl>
            </p>
          </note>
        </ref> current bore</l>
        <l rend="i0" n="2469"><rs type="earthworks" subtype="farm"><placeName>Armenia</placeName>n harvests</rs> to her multitudes.</l>
      </lg>
```

through. All Books of the poem contribute something to the network graphs, but I have most thoroughly at this point encoded Books 1-2, 6-9, and 11-12, and need to work more closely with Books 3-5 and 10. Since my data set is incomplete at this point, readers should be skeptical about drawing firm conclusions from the connectivity of these graphs, though patterns of "proximity" and "distance" in path steps do provide illuminating perspective on Southey's conceptual place-mapping.

In experimenting with making network graphs of juxtaposed, mutually referenced places, I have chosen to create undirected network graphs, because it is not clear that a reader's eyes must necessarily always move from main text to notes or vice versa. There is not necessarily a determining factor in the 1801 edition which portion of the text leads to the other, though an argument could be made for prioritizing directions from main text into notes. Experimenting with place in this poem has inspired me to investigate stepwise "distance" and "closeness" measurements in network graphing, a task for which Cytoscape's network analyzer tools are especially well suited. Graphing networks of place bears some resemblance to plotting them geographically on a map, except that "distance" measurements here refer not to geographic distance, of course, but to Southey's juxtapositions of worldly and supernatural places within the structural machinery of poetic and prose language in *Thalaba*--as a textual machine that constructs its own distinctive abstract worldviews. What places and metaplaces in the poem are mentioned most frequently in the same contexts with each other? These may be considered "close" neighbors. Which places and metaplaces are most remote from conceptual connection or discussion with others? These are comparatively "distant." Cytoscape's network analyzer yields a table of numerical data that helps to organize nodes according to (among many other factors) their Closeness Centrality, which is correlated inversely to their Average Shortest Path to other

nodes, and the combination of the table view and statistically-based graph plots yields readable information about Southey's juxtapositioning of places. On the graph of all of poem's Places and Metaplaces coded thus far, arranged by Closeness Centrality, the nodes on the bottom right, "the world" and "Arabia" are calculated as having the highest degrees of Closeness to the other nodes in this completely connected network. This means that their Average Shortest Path length to any other node is the shortest of all, so that "the world" and "Arabia" are, then, the most frequently referenced places in context with other places and metaplaces in the poem. Average Shortest Path length veries from 1.7 (close to two steps away from everywhere else), to 5.02 (or 5 steps away), and Cytoscape's layout for Closeness Centrality helpfully orients us to this pathwise distance, by placing the nodes with the highest degree of closeness at the bottom right of the graph, and laying out the more distant nodes, those increasingly remote, as we move up and to the left of the graph.

Viewing the layout in this way helpfully diffuses our nodes across a two-dimensional space (teasing them out of the stereotypical "hairball" network representation), and further helps to expose many "cliques" or "clusters" formed in the paratext notes, apparently a recognizable pattern in Southey's proliferation of place references that within a specific annotation that rarely appear anywhere else but in the notes. The most distinctive of these is the "Vampire Cluster" of Book 8 line-group 475--the largest clique on our map, with one metaplace reference to the origins of Vampires which has been cited as the first reference to vampires in English literature.[7] I present a filtered view of the Vampire cluster and its nearest two-steps of neighbors on p. 11.

[See Graphs on pp. 10-11. Text continues on p. 11.]

[7] See James B. Twitchell, *The Living Dead: A Study of the Vampire in Romantic Literature* (Durham: Duke University Press, 1981) 35-36.

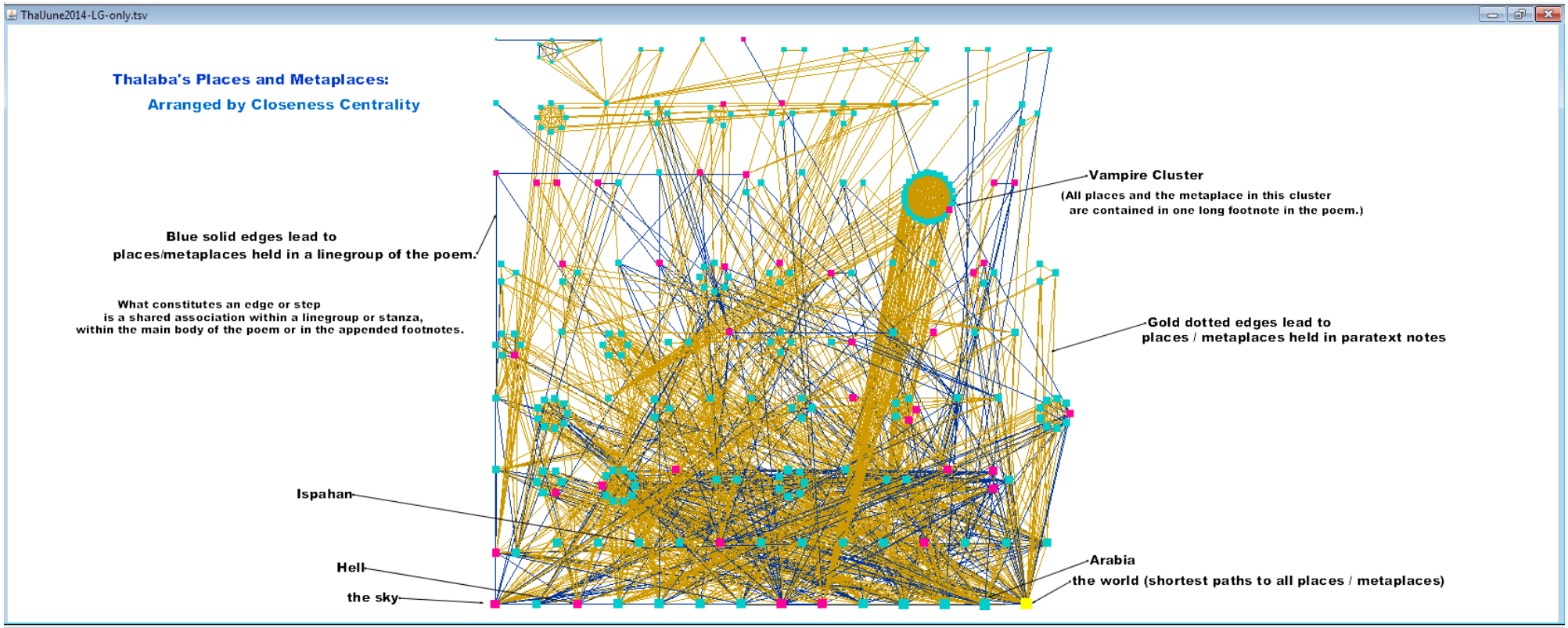


Table Panel

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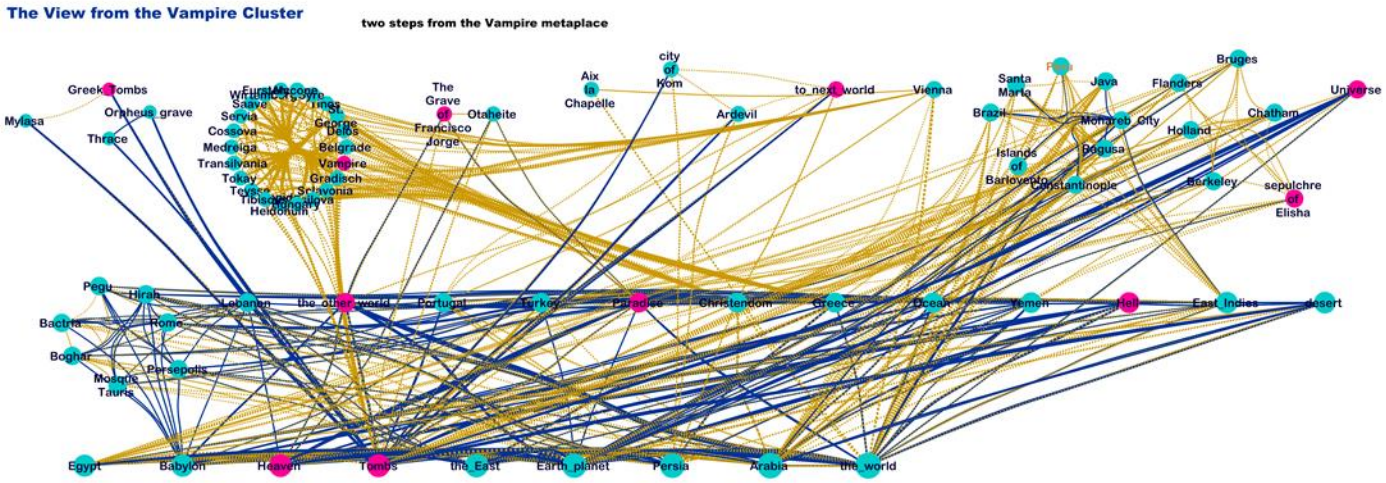
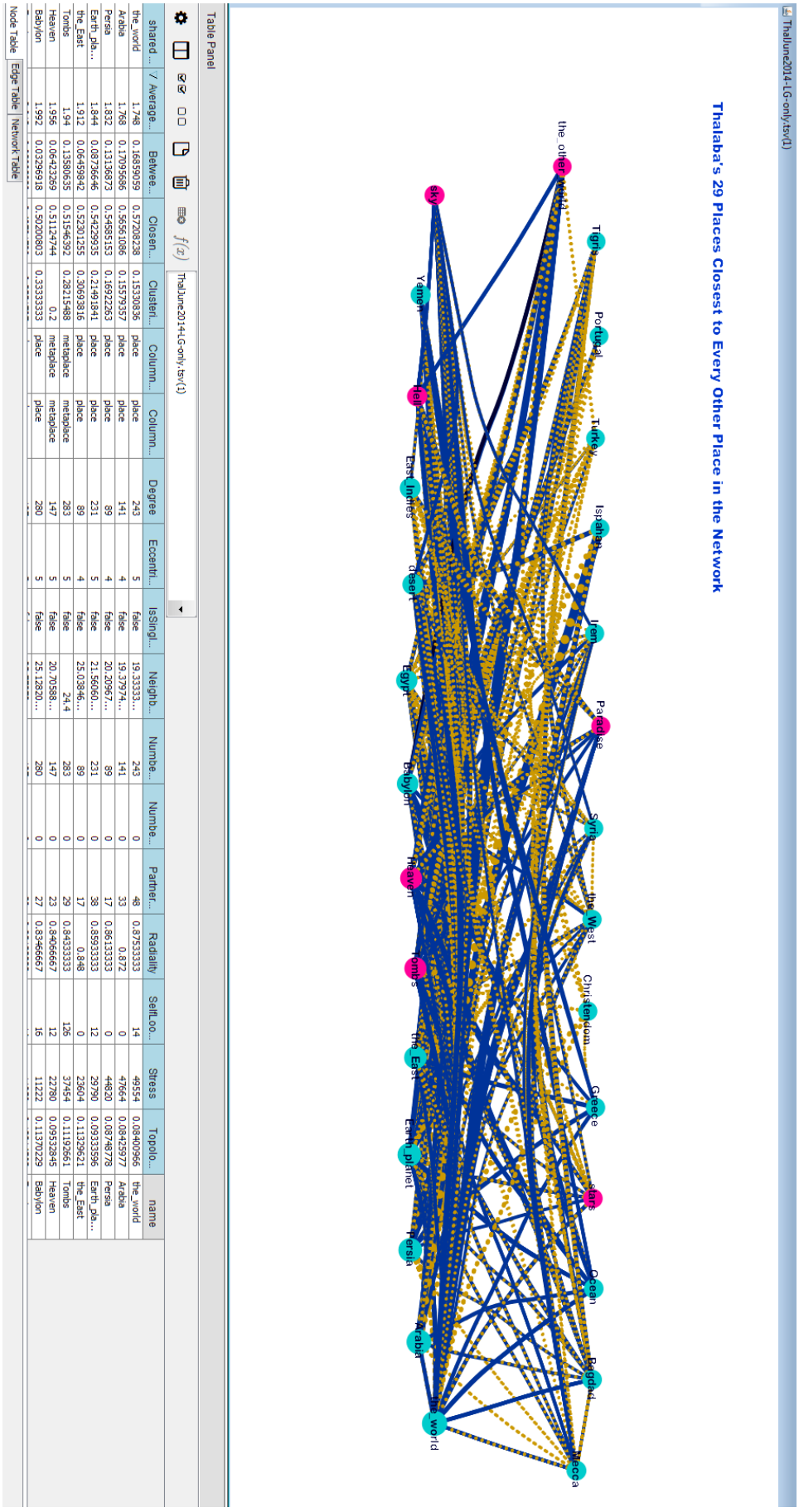
shared ...	name	Column...	Column...	Clusteri...	AverageSh...	ClosenessCent...	Eccentri...	IsSingl...	Partner...	SelfLoo...	Stress	Degree	Betwee...	Neighb...	Numbe...	Numbe...	Radiality	Topolo...
the_world	the_world	place	place	0.15330836	1.748	0.57208238	5	false	48	14	49554	243	0.16859059	19.33333...	243	0	0.87533333	0.08400966
Arabia	Arabia	place	place	0.15579357	1.768	0.56561086	4	false	33	0	47664	141	0.17095686	19.37974...	141	0	0.872	0.08425977
Persia	Persia	place	place	0.16922263	1.832	0.54585153	4	false	17	0	44820	89	0.13136873	20.20967...	89	0	0.86133333	0.08748778
Earth_pla...	Earth_pla...	place	place	0.21491841	1.844	0.54229935	5	false	38	12	29790	231	0.08736646	21.56060...	231	0	0.85933333	0.09333596
the_East	the_East	place	place	0.30693816	1.912	0.52301255	4	false	17	0	23604	89	0.06459842	25.03846...	89	0	0.848	0.11329621
Tombs	Tombs	metaplace	metaplace	0.28215488	1.94	0.51546392	5	false	29	126	37454	283	0.13580635	24.4	283	0	0.84333333	0.11192661
Heaven	Heaven	metaplace	metaplace	0.2	1.956	0.51124744	5	false	23	12	22780	147	0.06423269	20.70588...	147	0	0.84066667	0.09532845
Babylon	Babylon	place	place	0.33333333	1.992	0.50200803	5	false	27	16	11222	280	0.03296918	25.12820...	280	0	0.83466667	0.11370229

Node Table | Edge Table | Network Table



The layout of *Thalaba*'s places by Closeness Centrality is easily filtered to isolate the most highly "close" nodes laid out in the bottom two rows. (See the graph of "Thalaba's 29 Places Closest to Every Other Place in the Network on the following page.) Ranked from highest to lowest closeness centrality, these 29 most closely connected places include the world, Arabia, Persia, the planet Earth, the East, Tombs (a metaplace controlled by spirits and sorcerers in the poem), Heaven, Babylon, Egypt, unnamed desert regions, the East Indies, Hell, Yemen, the sky (a metaplace again controlled by sorcerers), Mecca, Bagdad, the Ocean, the stars, Greece, Christendom, the West, Syria, Paradise, Irem, Ispahan, Turkey, Portugal, the Tigris River, and "the other world" (frequently referenced as an unspecified metaplace for life after earthly death). The range of place types here, from the wide-ranging unspecified Ocean and desert realms of the poem to the more specific references to Arabian or Persian cities (Irem and Ispahan), demonstrate a range of locational reference in cultural and geographical space, and though I have found it illuminating to tease out metaplaces from places as attempting to distinguish imaginative from realistic topographies, this need not be the most meaningful or only distinction of place

types that one might work with, and the unpecified yet demonstrable remoteness in time as well as place (long ago and far away) makes few of Southey's locations "realistic" or appropriate to map on, say, Google Earth.



My attempts to distinguish "places" from "metaplaces," reflect an attempt to engage quantitatively with varying degrees of the fantastical vs. historical in an epic poem. To the extent that "places" reflect what could potentially be plotted "realistically" (in eighteenth-century Enlightenment terms) on maps of the world and its past, they coexist and connect with "metaplaces" that would need to be plotted with divergent models of the "known" world as it exists in context with the "unknowable" and "metaphysical." In a longer-range study of epic poems, I hope to continue my work with place referentiality to compare the patterns of Southey's historic and cosmic place references to those of his contemporaries and to writers of previous centuries. More immediately, in studying this poem, I filtered "places" from "metaplaces" to see if either made a coherent network on their own. I have coded many more "places" than "metaplaces" in this poem, and teasing these out provides an opportunity to reflect on which historic parts of Southey's world are more closely referential to each other, and which are not so frequently represented as comparable or relational to other places. In the graph of "Places Only" that follows I would point out the China and Tibet cluster at the upper left as the most "remote" parts of Southey's network of places. These seem likely to represent a frontier of knowledge to Southey in his time, when the British were just beginning to explore the borders of East Asia beyond India.[8]

[See Graph on p. 14. Text continues on p. 15]

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[8] On Southey and English interest in Qing Empire at the turn of the nineteenth century, see Peter J. Kitson, "Robert Southey and the Romantic Failure of China," in *Wordsworth Circle* 42.1 (Winter 2011) 77- 85.

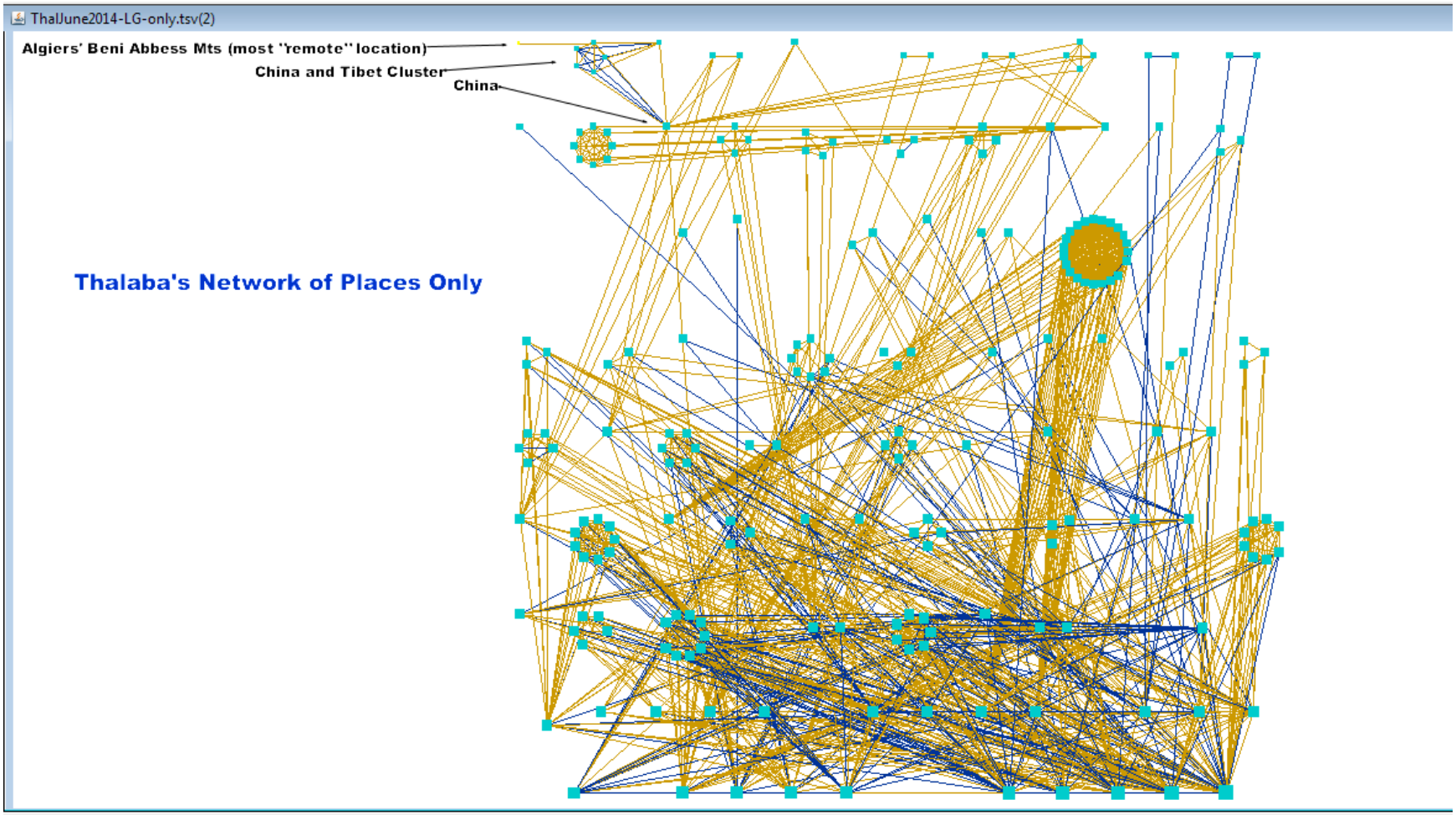

Table Panel

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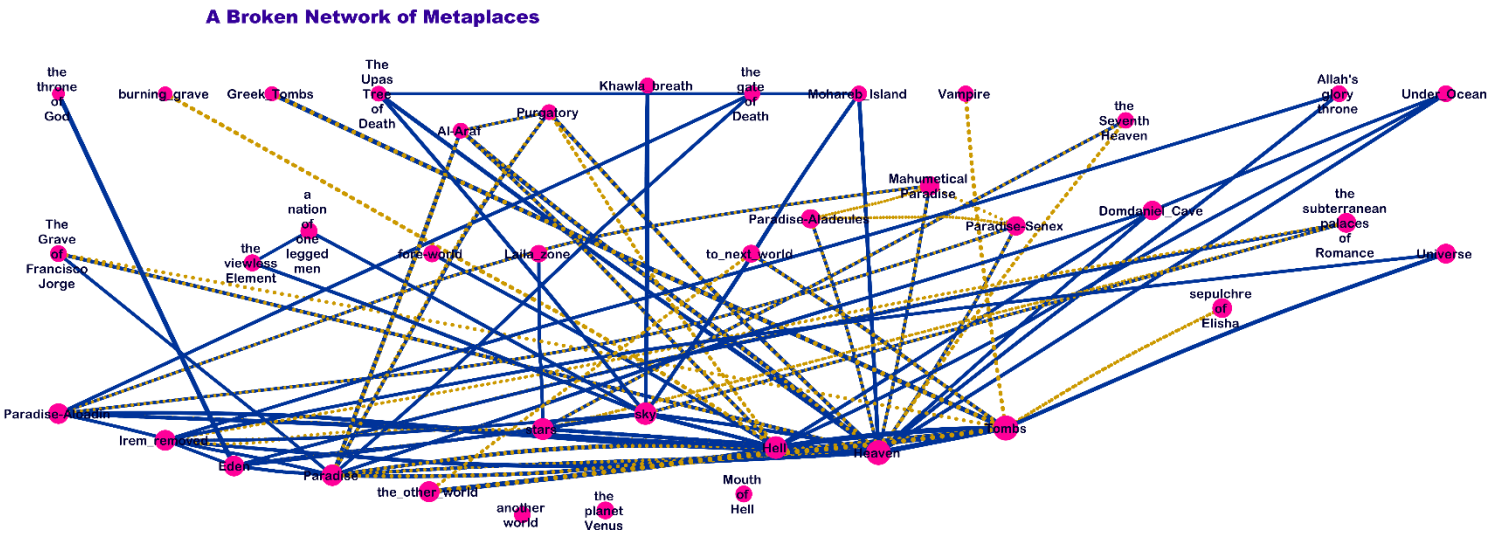
shared name	AverageShortest...	Betwee...	Closen...	Clusteri...	Column...	Column...	Degree	Eccentri...	IsSingl...	Neighb...	Numbe...	Numbe...	Partner
Algiers_Beni_Abbess_Mts	5.02	0.0	0.19920319	0.0	place	place	1	6	false	7.0	1	0	
Whang-ho_River	4.028	0.0	0.24826216	1.0	place	place	16	5	false	7.66666667	16	0	
Bohai_Sea	4.028	0.0	0.24826216	1.0	place	place	8	5	false	7.66666667	8	0	
#Hotun_Nor	4.028	0.0	0.24826216	1.0	place	place	8	5	false	7.66666667	8	0	
Hotun_Nor	4.028	0.0	0.24826216	1.0	place	place	16	5	false	7.66666667	16	0	
Tibet	4.028	0.0	0.24826216	1.0	place	place	8	5	false	7.66666667	8	0	
Tartarian_Mts	4.024	0.008	0.24850895	0.71428571	place	place	9	5	false	6.57142857	9	0	

Node Table | Edge Table | Network Table

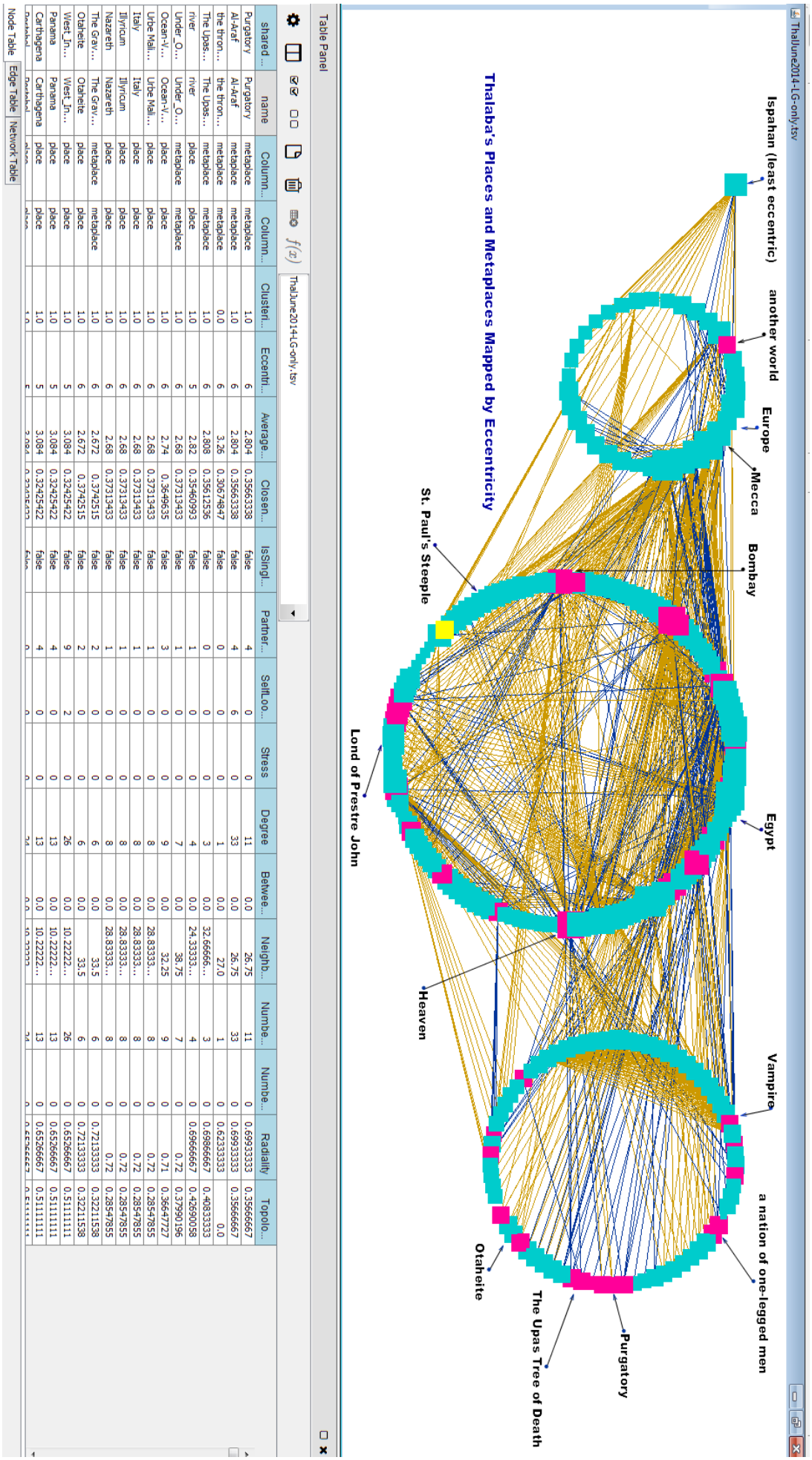
When I began this project in the summer of 2013 and produced my first network graphs, my filtering out of metaplaces resulted in a broken network graph of places only. However, now that I have coded about two thirds of the poem, the reverse is true. My "place" network remains coherent when "metaplaces" are removed, but now the "metaplace"-only network is broken. I would caution the reader not to make too much of the brokenness of the "metaplace"-only graph below, since I am not finished with thoroughly marking places in four books of the twelve-book poem. Notice that where the "metaplaces" break are nodes that might be combined in at least one case ("the Mouth of Hell" metaplace might well be considered the same as "Hell" after all). However, the small size of this metaplace network does illuminate that the cosmic dimensions of *Thalaba the Destroyer* may not be correlated to each other as much as they are to realistic, historic places. The "metaplaces" seem most significant as they help to connect the plural belief systems of mappable "places" in Southey's meta-imperial multicultural epic.



As long as we are plotting the "proximity" of places based on their correlation with each other, we might gain a different view of our network "map" of *Thalaba*'s worldview by plotting with the network measure of eccentricity. A node's eccentricity refers to the longest of the shortest paths that one must take to reach a neighboring node. Since there could be an infinite number of steps between one node and the next, the "shortest path" concept is still relevant here. Instead of plotting places by the shortest paths to other nodes, what if we plot them based on the longest direct distances they share with other nodes? This would be a different way of representing our network's geodesic shape, and to my surprise when I plotted my set of Thalaba's places and metaplaces so far by their eccentricity, I discovered much more uniformity across the graph. Eccentricity varies by whole numbers, with the longest shortest paths of six steps shown at the far right, and the longest shortest paths of three steps for just one node, Ispahan (an ancient city in Persia near modern-day Tehran, Iran). Ispahan is alone in being just three steps away from its most distant neighbor. The other circles are uniformly four, five, and six steps away by comparison.

What might this Eccentricity plot tell us about place referentiality in Thalaba? The nodes seem more related to each other in their eccentricity than in their proximity. That is, more nodes are equidistant from their "frontiers" than they are uniformly close together. Perhaps the Eccentricity plot shows us a measure of diversification on a different scale than what we have been seeing in the network graphs based on Closeness Centrality to this point. The cliques and clustering I've been mapping in Southey's notes disappear in this plot, and perhaps demonstrate something of a typical experience of eccentric wandering and distance appropriate to the varied experiences of the poem's far-journeying title character.

From the point of view of the least eccentric node, Ispahan, if we look two steps in any direction, we view something, perhaps, of the usual experience of wide-ranging wandering in this poem, from an ancient city in Persia to Aleppo, to France, Germany, Spain, Russia, Canton, and Malabar, and to "another world" metaplace entirely that couldn't be reached beyond the imagined topographies of epic.



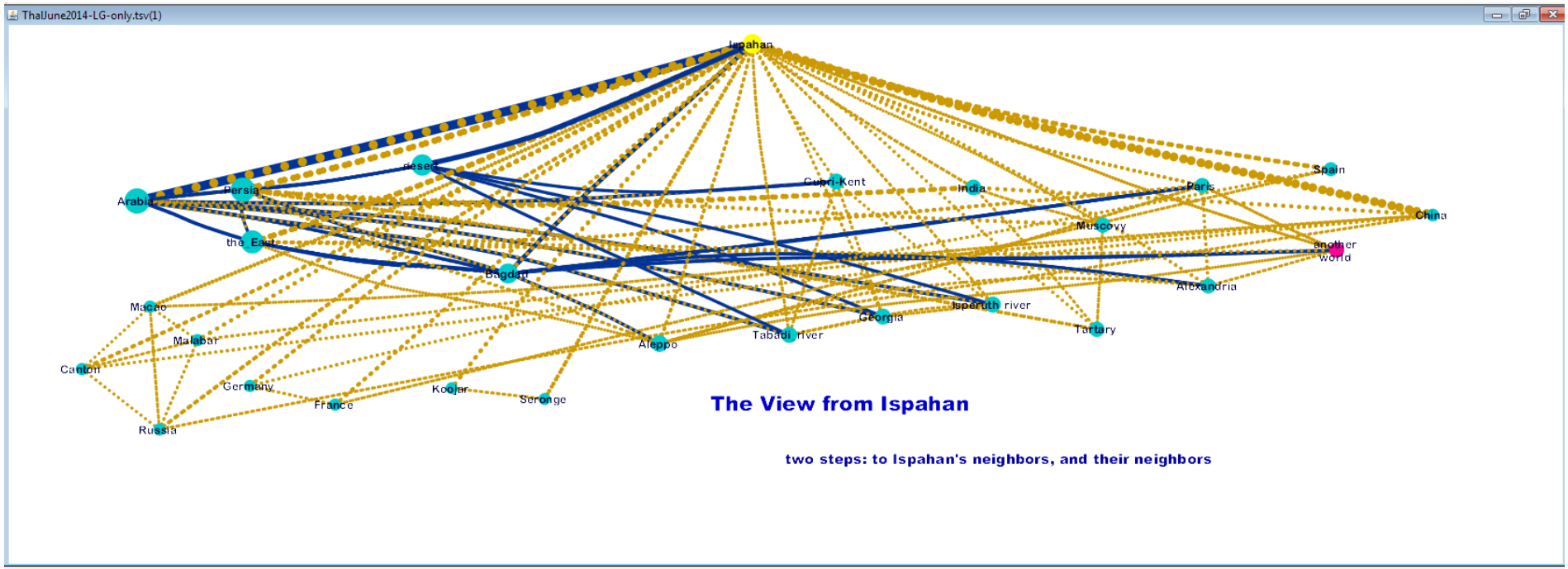


Table Panel

ThalJune2014-LG-only.tsv(1)

shared ...	Betwee...	Clusteri...	Column...	Column...	Degree	Closen...	AverageShortestPath...	⁄ Eccentricity	IsSingl...	Neighb...	Numbe...	Numbe...	Partner...	Radiality	SelfLoo...	Stress	Topolo...	degree.layout	name
Ispahan	0.10894095	0.17538462	place	place	36	0.45207957	2.212	3	false	14.38461...	36	0	6	0.798	0	28388	0.08412056	72	Ispahan
France	0.0	1.0	place	place	3	0.31605563	3.164	4	false	13.66666...	3	0	0	0.63933333	0	0	0.39047619	6	France
Germany	0.0	1.0	place	place	3	0.31605563	3.164	4	false	13.66666...	3	0	0	0.63933333	0	0	0.39047619	6	Germany
Spain	0.01038157	0.59090909	place	place	29	0.3511236	2.848	4	false	10.08333...	29	0	9	0.692	2	1698	0.23449612	6	Spain
Alexandria	0.0	1.0	place	place	9	0.37037037	2.7	4	false	21.16666...	9	0	3	0.71666667	0	0	0.27136752	18	Alexandria
Paris	0.0	1.0	place	place	16	0.37037037	2.7	4	false	21.16666...	16	0	6	0.71666667	0	0	0.27136752	32	Paris
Aleppo	0.00323204	0.53333333	place	place	14	0.39936102	2.504	4	false	22.2	14	0	4	0.74933333	0	1020	0.18655462	20	Aleppo
another ...	0.0	1.0	metaplace	metaplace	9	0.37037037	2.7	4	false	21.16666...	9	0	3	0.71666667	0	0	0.27136752	18	another ...
Persia	0.13136873	0.16922263	place	place	89	0.54585153	1.832	4	false	20.20967...	89	0	17	0.86133333	0	44820	0.08748778	22	Persia
Bagdad	0.02245338	0.31908832	place	place	139	0.46468401	2.152	4	false	24.74074...	139	0	23	0.808	22	10014	0.13301474	60	Bagdad
Isperuth...	0.0	1.0	place	place	6	0.3875969	2.58	4	false	25.0	6	0	0	0.73666667	0	0	0.24752475	12	Isperuth...
Cupri-Kent	0.0	1.0	place	place	6	0.3875969	2.58	4	false	25.0	6	0	0	0.73666667	0	0	0.24752475	12	Cupri-Kent

Node Table | Edge Table | Network Table

As a sort of textual machine of poetry and prose paratext, we begin to see how *Thalaba the Destroyer* works as a world modelling exercise to map correlations across cultures. By collecting the places and their correlations with each other in the poem, we begin to see how important they are to characterizing the poem's culturally plural experiences of the supernatural, and how frequently multiple cultures are brought to bear on the protagonist Thalaba's ostensibly monotheistic and culturally singular view of Heaven and Hell**.** Our network analysis, then, helps us to see the profusion of places that Southey generates by moving Thalaba around on the topography of the main text, and developing his plural place-referencing mechanism in his extensive paratexts running alongside, forking, and branching from Thalaba's journeys.

My network graphs will certainly look different when the Thalaba's places are thoroughly marked, double-checked, and plotted in a publicly accessible placeography. As of June 2014, I am beginning to plot new graphs from *Thalaba* that redefine edges not just by line group but extending to neighboring line groups, and I hope to be able to weight the edges more heavily for correlations within a line group vs. correlations to places in sibling line groups. *Thalaba* has provided me a useful course of study thus far in plotting by various measures of centrality, but beyond this, the experience of graphing networks of place may serve to investigate some long-range questions about the epic genre and its often densely allusive place referencing. Building on my work with *Thalaba the Destroyer*, working with TEI markup and network plots of step-wise distance, I hope to investigate the following long-range questions: Just how eccentric is Southey's patterning of place references, and who are his nearest neighbors in the poetic/annotative compilation of places? How does his place referencing compare, for example, to Helen Maria Williams's *Peru*, or Erasmus Darwin's in *The Temple of Nature*, or William

Blake's *Jerusalem*? Or to place referencing in Byron's in *Childe Harold* and *Don Juan*? Panning back, we might consider how the "antisocial" networks of place in eighteenth- and nineteenth-century epic poetry compare to those of epics in prior centuries. Is there a definable "shape" to the epics of Southey's day, and how might Southeyan place referentiality compare to that of Milton's *Paradise Lost* or Dante's *Commedia*? The work I have begun here offers many opportunities for continuation, for considering the extent to which place-referencing is a measurable dimension of literary forms.