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## Exploring Dante's Sources Online: Interactive Reading, Visualizations, and the Study of Dantean Intertextuality in the Digital Age

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***EXPLORING DANTE'S SOURCES ONLINE: INTERACTIVE  
READING, VISUALIZATIONS, AND THE STUDY OF  
DANTEAN INTERTEXTUALITY IN THE DIGITAL AGE***

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Dante's *Commedia* is a highly allusive text, and readers throughout time have noted the many parallels between Dante's verses and those of others. Now that the text of the *Commedia* and various scholarly and artistic interpretations of the poem (commentaries, translations, illuminated manuscripts) have become accessible online, also the concordance, the lists of parallel passages in Dante's poem and other works, has become a digital resource. In this essay I explore the study of Dante's sources in a digital environment mainly through the *Intertextual Dante* project and its Dante-Ovid edition, published on *Digital Dante*. *Intertextual Dante* visualizes moments of Dante's text reuse: its interactive reading interface presents parallel passages side by side, and allows users to search, analyze, and interpret these passages in their broader textual contexts. I further review the advances in (semi-)automated detection of text reuse are reviewed in the context of Dante's allusive and intertextual practices, and consider the knowledge base on Dante's use of primary sources and the commentaries on the *Commedia* that the *Hypermedia Dante Network* project will provide.

Keywords: Intertextuality, Text reuse, *Commedia*, Ovid, Digital humanities

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When reflecting on Dante as a reader and intertextuality in the *Commedia*, I keep coming back to Luca Signorelli's portrait of the poet in the Cathedral of Orvieto (1499–1502).<sup>1</sup> In this portrait (fig. 1) we see Dante sitting at a makeshift desk with two books open and a stack of two more on the side. Dante looks closely at a passage in the open book on the right, standing straight against the edge of the portrait, and places two fingers gently on the page. Dante's other hand rests on a passage in the second open book,

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<sup>1</sup> I am aware that also Christopher Kleinhenz opened his essay "Perspectives on Intertextuality in Dante's *Divina Commedia*" (*Romance Quarterly* 54, no. 3 [2007]: 183–94) with a reflection on the Signorelli portrait and Dante's intertextual practices (183–84). In the spirit of this essay's focus on adaptation and text reuse, I offer here my own reflection on Signorelli's portrait of Dante and the study of intertextuality in the digital realm.

laying in front of him. This is the image of “Dante doing intertextuality,” according to Christopher Kleinhenz’s description of the portrait.<sup>2</sup>

Indeed, it seems as if Dante is indicating the connection between the two passages in the books. Dante could not have written his treatises and the *Commedia* without the books of others;<sup>3</sup> citations and allusions feature widely in his work. In his writings, Dante engages with the ideas and the words of authors throughout time, and Luca Signorelli’s portrait provides a glimpse into that process. This is of course the work of a Renaissance painter representing a poet who was active two centuries earlier. But I find it also captures something timeless and recognizable: to write is to read widely, and while doing so, you may end up with a messy desk full of books.



Fig. 1. Dante Alighieri, detail from Luca Signorelli’s fresco, Chapel of San Brizio, Orvieto Cathedral. Credit: Georges Jansoone, used under a Creative

<sup>2</sup> Ibid., 184.

<sup>3</sup> Luciano Gargan aptly described Dante’s treatises as “libri scritti con i libri,” books written with other books. See “Per la biblioteca di Dante,” *Giornale storico della letteratura italiana* 186 (2009): 161–93, at 174. Also quoted in Julie Van Peteghem, *Italian Readers of Ovid from the Origins to Petrarch: Responding to a Versatile Muse* (Boston–Leiden: Brill, 2020), 54.

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Readers of Dante's *Commedia* today may find themselves in a similar situation as the medieval Latin poet in the Signorelli portrait, having a stack of books in front of them, in their case looking at texts of others in order to make sense of Dante's poem. Or they may have multiple digital editions and reference works lined up in tabs in their browser, trying to accomplish the same. Digital humanities (DH) projects often recognize the conventions of analog reading and research practices, transferring and enhancing them in the digital realm, relying on technology to address their limitations. In that sense, I consider the Signorelli portrait the emblem of the DH project *Intertextual Dante* (2013–), which I created in collaboration with Columbia University Libraries.<sup>4</sup> At the core of *Intertextual Dante*, a digital edition of the *Commedia* that highlights the many instances of intertextuality in Dante's poem, lies this notion that reading the *Commedia* means engaging with many other texts.<sup>5</sup> The DH project *Dante Lab* at Dartmouth College (also first presented in 2013), a customizable digital workspace for the study of Dante's *Commedia*, was likewise inspired by “the ‘analog’ workspace of the professional *Dantista*, who needs quick and easy access not only to the text of the poem's three canticles, but also to the early commentaries, notes from numerous recent editions, and a concordance that facilitates philological research and interpretive criticism.”<sup>6</sup> In its digital workspace *Dante Lab* offers access to the 77 commentaries on the *Commedia* originally collected in the *Dartmouth Dante Project*. This project, started in the 1980s and still accessible outside of *Dante Lab*, makes available in one digital space the full text of commentaries from the early fourteenth century to the beginning of the twenty-first century, several of which

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<sup>4</sup> The *Intertextual Dante* project grew out of my dissertation research on Dante and Ovid (Columbia University, 2013). Jack Donovan (Digital Library and Scholarly Technologies Division, Columbia University Libraries) coded and designed the interactive reading tool. *Intertextual Dante* is part of *Digital Dante*, a curated online scholarly site devoted to original research and ideas on Dante's works and world. The *Intertextual Dante* interface can be accessed at <https://digitaldante.columbia.edu/intertext/index.html>. See also Julie Van Peteghem, “What is Intertextual Dante?” *Intertextual Dante*, Digital Dante (New York, Columbia University Libraries, 2017), <https://digitaldante.columbia.edu/intertextual-dante-vanpeteghem/>.

<sup>5</sup> On the “limitations” that *Intertextual Dante* addresses, that is, the ways in which the project offers a “dynamic” and interactive digital version of the “static” analog lists of corresponding passages, see Julie Van Peteghem, “Digital Readers of Allusive Texts: Ovidian Intertextuality in the *Commedia* and the Digital Concordance on *Intertextual Dante*,” *Humanist Studies & the Digital Age* 4 (2015): 39–59, at 39, 45, <http://dx.doi.org/10.5399/uo/hsda.4.1.3584>.

<sup>6</sup> *Dante Lab*, <http://dantelab.dartmouth.edu>.

are otherwise “difficult to obtain.”<sup>7</sup> Also *DanteSources* (2013–16) and the *Hypermedia Dante Network* (2020–23), collaborations between ISTI-CNR and the Dipartimento di Filologia, Letteratura e Linguistica at the University of Pisa and part of their *Dante Network* projects, (will) provide enhanced digital workspaces and web applications to explore Dante’s primary sources to the experienced *Dantista* and the novice reader of Dante’s works alike.<sup>8</sup>

These projects all underscore the need to make existing Dantean resources more accessible and more widely searchable – a need particularly felt given the significant amount of works on Dante’s metaphorical bookshelf and the even larger number of editions, commentaries, and other scholarly writings on Dante’s *Commedia* and his other works dispersed on actual bookshelves in libraries across the world and in readers’ own collections. To start grasping the scope, consider, for instance, that the *DanteSources* project, which digitally presents the poet’s primary sources in the *Vita Nuova*, *De vulgari eloquentia*, *Convivio*, *De Monarchia*, and *Rime*, taking its data from “authoritative paper commentaries” on Dante’s so-called minor works, lists 273 authors and 714 works cited.<sup>9</sup>

In what follows, I will further explore the digital study of Dante’s sources in the *Commedia*, the Italian poet’s most allusive text. My starting and main reference point will be the *Intertextual Dante* project and its Dante-Ovid edition.<sup>10</sup> I will discuss the advances in (semi-)automated detection of text reuse in the context of Dante’s allusive and intertextual practices, and consider the knowledge base on Dante’s use of primary sources and the commentaries on the *Commedia* that the *Hypermedia Dante Network* will provide. Before fully turning to the digital realm, however, it is important to briefly consider how Dante’s sources have been

<sup>7</sup> *Dartmouth Dante Project*, <https://dante.dartmouth.edu>. The quotation is taken from the “About the Dartmouth Dante Project” page, <https://dante.dartmouth.edu/about.php>.

<sup>8</sup> *DanteSources*, <https://dantesources.dantenetwork.it>; *Hypermedia Dante Network*, <https://hdn.dantenetwork.it>.

<sup>9</sup> See Valentina Bartalesi et al., “A web application for exploring primary sources: The *DanteSources* case study,” *Digital Scholarship in the Humanities* 33, no. 4 (2018): 705–23, <https://doi.org/10.1093/lc/fqy002>. The six commentaries on the *Vita Nuova/Vita Nova*, *De vulgari eloquentia*, *Convivio*, *De Monarchia*, and *Rime* that provided this data are listed at 707–8. For the number of authors and works cited, see “Qualche numero!” at <https://dantesources.dantenetwork.it/progetto.html>.

<sup>10</sup> I first discussed the origins and methodology of the *Intertextual Dante* project in 2015 in “Digital Readers.” Since then, the project has expanded – the entries for *Purgatorio* and *Paradiso* were published, completing the Dante-Ovid edition – and more advances were made in the digital detection of quotations and allusions. This themed issue on Dante and DH offered an occasion to reflect on this progress, also in light of my ongoing work on the reception of Ovid in the Italian Due- and Trecento.

studied throughout time.<sup>11</sup> To search and identify parallel passages has been a main focus of commentators and editors of the *Commedia* for centuries.<sup>12</sup> This practice goes back to the earliest commentaries on Dante's poem. Most often, the relevance of certain passages in other works for Dante's verses under discussion is marked in brief mentions; many times, we simply find a "cf." or "cfr." with a reference to that other work. The use of the abbreviation of the Latin imperative "confer," compare, in those instances seems particularly apt: you, reader, will have to do this comparative work yourself.<sup>13</sup>

Commentaries and editions of the *Commedia* are not the only works where moments of intertextuality are recorded. Toward the end of the 19th century, scholars started to organize corresponding passages in more systematic ways, providing more guidance for readers interested in exploring Dante's sources. For instance, Edward Moore's study *Scripture and Classical Authors in Dante* (1896) dedicated individual chapters to the presence of the Bible and various Latin authors in Dante's works, and included indexes of quotations for each source text.<sup>14</sup> What Moore assembled were in fact concordances, lists of corresponding passages in Dante's writings and his source texts.<sup>15</sup> At the beginning of this century, Steno Vazzana published a series of concordances of the Latin poets of Dante's "bella scola," also dedicating separate chapters to Dante's engagement with the individual authors.<sup>16</sup> The creation of these intertextual reference works provided the foundation for a more extensive focus on how Dante featured various authors in his works, resulting in writings distilling Dante's Vergil, Dante's Ovid, and so forth, as well as numerous essays that break down this subject into very specific topics, such as Dante's reuse of a particular passage

<sup>11</sup> See Van Peteghem, "Digital Readers," 40–43; Simone Bregni, *Locus amœnus: nuovi strumenti di analisi della 'Commedia'* (Florence: Longo, 2020), 17–46.

<sup>12</sup> Van Peteghem, "Digital Readers," 40–41; Gaia Tomazzoli et al., "The Hypermedia Dante Network Project," in *AIUCD 2021- Book of Extended Abstracts*, ed. Federico Boschetti et al. (Pisa: AIUCD, 2021), 269–74, at 269.

<sup>13</sup> Neil Coffee made a similar point in "An Agenda for the Study of Intertextuality," *Transactions of the American Philological Association* 148, no. 1 (2018): 205–23, at 209, <https://doi.org/10.1353/apa.2018.0008>. He noted that one needs to figure out the significance of the "cf.": it could mean that "the passage under consideration echoes another one or just that it contains a similar grammatical usage."

<sup>14</sup> Edward Moore, *Studies in Dante. First series: Scripture and Classical Authors in Dante* (Oxford: Clarendon, 1896).

<sup>15</sup> In other occasions, I have described *Intertextual Dante* as a "digital concordance." See Van Peteghem, "Digital Readers"; "What is *Intertextual Dante*?"

<sup>16</sup> Steno Vazzana, *Dante e "la bella scola"* (Rome: Edizioni dell'Ateneo, 2002).

from a different text, or a specific author's influence on a canto or series of cantos.<sup>17</sup>

Such detailed analyses of intertextuality in the *Commedia* are not without criticism.<sup>18</sup> Zygmunt Barański cautioned against the tendency of treating Dante as “one of us” – as if he read texts in the same editions and ways as we do today – and considering a few similarities between Dante's works and those of other authors as the sure sign that Dante had direct knowledge of that author's work.<sup>19</sup> Albert Ascoli distinguished between instances where Dante read certain authors locally (i.e., focusing on only one or two verses or on a brief passage, which often did not require familiarity with the work as a whole), and instances where instead he read globally (i.e., integrating and engaging with extended passages from a certain work, which would require closer familiarity with the text).<sup>20</sup> When we see possible traces of Dante's readings in his writings, we must indeed consider medieval reading and citation practices, in which memory played a central role.<sup>21</sup> The scholarship on the cultural and material circumstances of reading and writing in Dante's Italy provides important context, especially since we do not possess Dante's “editions” of the texts he cites or appears to allude to. But while Dante of course did not read everyone and everything, we can establish his familiarity with some authors and texts with more certainty than others, whether he read them globally or locally.<sup>22</sup> DH projects can be instrumental in these determinations: by providing a more complete overview of the scholarship on a particular author or work, usually dispersed in individual pieces of textual criticism; by enabling targeted searches for all instances where

<sup>17</sup> See, for instance, Teodolinda Barolini, *Dante's Poets: Textuality and Truth in the “Comedy”* (Princeton: Princeton University Press, 1984); *The Poetry of Allusion: Virgil and Ovid in Dante's “Commedia,”* ed. Rachel Jacoff and Jeffrey T. Schnapp (Stanford: Stanford University Press, 1991); *Dante e la “bella scola” della poesia: autorità e sfida poetica*, ed. Amilcare A. Iannucci (Ravenna: Longo, 1993). On the scholarship on Dante's Ovid, see Van Peteghem, *Italian Readers of Ovid*, 169–70, n. 1.

<sup>18</sup> Responding to the general criticism on the study of intertextuality, Bregni titled the first section of his study of intertextual *imitatio* in the *Commedia*, “L'intertestualità non è morta,” intertextuality is not dead (*Locus amœnus*, 9–10).

<sup>19</sup> Zygmunt G. Barański, “L'iter ideologico di Dante,” in *Dante e i segni: Saggi per una storia intellettuale di Dante Alighieri* (Naples: Liguori, 2000), 9–39, at 13–14.

<sup>20</sup> Albert Russell Ascoli, “Reading Dante's Readings: What? When? Where? How?” in *Dante and Heterodoxy: The Temptations of 13th Century Radical Thought*, ed. Maria Luisa Ardizzone (Newcastle upon Tyne: Cambridge Scholars Publishing, 2014), 126–43.

<sup>21</sup> See Mary Carruthers, *The Book of Memory: A Study of Memory in Medieval Culture*, 2nd ed. (Cambridge: Cambridge University Press, 2008).

<sup>22</sup> For an extended reflection on Barański's and Ascoli's positions, see Van Peteghem, *Italian Readers of Ovid*, 179–80.

Dante's text shows similarities with other texts; and by visualizing their distribution throughout the *Commedia*.

Let us start with how *Intertextual Dante* makes Dante's reading of Ovid visible. *Intertextual Dante* is an interactive digital edition of Dante's *Commedia* that allows users to search and read parallel passages in the *Commedia* and Dante's sources side by side (2013–). On the *Intertextual Dante* interface (fig. 2), Dante's *Commedia* and his Ovidian sources appear in two columns; both text columns can be scrolled up and down, and accessed via interactive tables of contents. Each instance of intertextuality is marked by the icon of a pointing finger – a nod to the *manicula*, drawings of hands with the index finger pointing to passages of particular interest in medieval and early modern manuscripts, as well as to Dante's pointing gestures in the Signorelli portrait. The presence of these icons in either text column therefore provides the first visual indications of moments of intertextuality, regardless of the starting point of one's search: when looking for icons in the cantos of the *Commedia*, we easily see where Dante is alluding to other texts, or, when scrolling through these source texts, the presence of the icons clearly signals passages of interest to Dante.

The screenshot displays the landing page of the *Intertextual Dante* interface. At the top, a text box explains: "The first phase of Intertextual Dante highlights the Ovidian intertextuality in Dante's 'Commedia.' The left column is Dante's text, the right column contains most of Ovid's works. All intertextual passages are indicated with an icon of a pointing finger. Clicking on this icon brings up the two corresponding passages in Dante and Ovid, highlighted and side by side. (More on the project)".

Below this, the interface is split into two columns. The left column is titled "Inferno" and shows lines 1 through 31 of the text. The right column is titled "Amores" and shows lines 1.0 through 1.1. A small icon of a pointing finger is visible in the left column next to line 4. On the far left, a vertical menu lists "Dante: The Divine Comedy" with sub-items "Inferno", "Purgatorio", and "Paradiso". On the far right, another vertical menu lists "Ovid: Works" with sub-items "Amores", "Heroides", "Ars amatoria", "Metamorphoses", "Fasti", "Tristia", and "Ex Ponto".

At the bottom of the page, there are four dropdown menus labeled "Word Choice", "Simile", "Place", "Character", and "Event".

Fig. 2. Landing page of *Intertextual Dante*.

When you click on the icons, the two corresponding passages in the *Commedia* and Dante's sources become highlighted and aligned (fig. 3). In the text box on the top of the page appears a short comment explaining the connection between the two passages. Thus, the interactive interface of *Intertextual Dante* in the first place facilitates the reading process, visualizing the actual passages that we sometimes find as bibliographical citations in the notes of editions of the *Commedia*, displaying them in full alongside Dante's verses, and even providing some short commentary on the relationship between the corresponding passages. This brief note orients the reader for the real comparative analysis between the



passages – an analysis that, given the scrollability of both text columns in the *Intertextual Dante* interface, can easily take in consideration what comes before and after the two highlighted, aligned passages. In fact, the Dante-Ovid edition on *Intertextual Dante* not only illustrates the widespread textual presence of Ovid's works in the *Commedia*, but also invites to explore what these Ovidian presences mean. The *Intertextual Dante* interface greatly facilitates this kind of close readings, since it allows the user to easily focus on specific passages in the *Commedia* or in Ovid's poems, and pay close attention not only to the corresponding verses but also to the larger passages from which Dante selected them.

The screenshot displays the *Intertextual Dante* interface. At the top, a search bar contains the text: "Francesca explains to Dante that her and Paolo's faces turned pale when they read together. In the 'Ars amatoria,' Ovid explains that every lover is pale. (word choice)". Below this, the interface is split into two columns. The left column shows Dante's *Commedia* with the text: "126 airo come cotar che piangere si dice: / 127 Noi leggiavamo un giorno per diletto / 128 di Lanciotto come amor lo strinse; / 129 soli eravamo e senza alcun sospetto. / 130 Per più forte li occhi ci sospinse: / 131 quella lettura, e scolorocci li visi / 132 ma solo un punto fu quel che ci vinse. / 133 Quando leggemmo il disiato riso / 134 esser baciato da cotanto amante, / 135 questi, che mai da me non fu diviso, / 136 la bocca mi baciò tutto tremante. / 137 Galeotto fu 'l libro e chi lo scrisse: / 138 quel giorno più non vi leggemmo avante. / 139 Mentre che l'uno spirto questo disse, / 140 l'altro piangia; sì che di pietade / 141 io venni men così com' io morisse. / 142 E caddi come corpo morto cade." The right column shows Ovid's *Ars amatoria* with the text: "726 turpis et agnoscas, qui vomitare semper alicui / 727 Et tibi, Palladiae pettur cui fama cornae, / 728 Candida si fuerint corpora, turpis eris. / 729 Palliat omnis amans, hic est color aptus amanti; / 730 Hoc decet, hoc stulti non valuisse putant. / 731 Pallidus in Side silvis errabat Orion, / 732 Pallidus in lenta naide Daphnis erat. / 733 Arguat et macies animum: nec turpe putaris / 734 Palliolum nitidis inposuisse comis. / 735 Attenuant iuvenum vigilatae corpora noctes / 736 Curaque et in magno qui fit amore dolor. / 737 Ut voto potare tuo, miserabilis esto, / 738 Ut qui te videat, dicere possit 'amas.' / 739 Conquerar, an moneam mixtum fas omne nefasque? / 740 Nomen amicitia est, nomen inane fides. / 741 Et mihi, non tutum est, quod ames, laudare sodali; / 742 Cum tibi laudanti credidit, ipse subit. / 743 At non Actorides lectum temeravit Achillis: / 744 Quantum ad Pirithoum, Phaedra pudica fuit. / 745 Hermoniam Pytades quo Palladia Phoebus, amabat, / 746 Quoque tibi geminus, Tyndar, Castor, erat. / 747 Siquis idem speret, latus poma myricas / 748 Speret, et a medio flumine mella petat. / 749 Nil nisi turpe iuvat: curae sua cuique voluptas: / 750 Haec quoque ab altaris grata dolore venit. / 751 Heu facinus! non est hostis metuendus amanti; / 752 Quos credis fidos, effuge, tutus eris. / 753 Cognatum fratremque cave carumque sodalem: / 754 Praebeat veros haec tibi turba metus. / 755 Finitus eram, sed surt diversa puellis / 756 Pectora: mille animos excipie mille modis. / 757 Nec tellus eadem parit omnia, vitibus illa / 758 Convenit, haec oleis; hac bene farra vident." The interface also includes a navigation bar at the bottom with dropdown menus for "Word Choice", "Simile", "Place", "Character", and "Event".

Fig. 3: Passages in Dante's *Commedia* and Ovid's works highlighted and aligned on the *Intertextual Dante* interface.

The *Hypermedia Dante Network* (HDN) is a DH project on Dante's primary sources in the *Commedia* with a much broader scope than *Intertextual Dante*. A collaboration between ISTI-CNR and the Dipartimento di Filologia, Letteratura e Linguistica at the University of Pisa (2020–2023), HDN expands on their *DanteSources* project (2013–2016), which focused on Dante's primary sources in his so-called minor works, and was the first to apply Semantic Web standards to Dante studies.<sup>23</sup> As noted before, *DanteSources* allows users to search and visualize Dante's sources as identified in select commentaries on the *Vita Nuova/Vita Nova*, *De vulgari eloquentia*, *Convivio*, *De Monarchia*, and *Rime*,

<sup>23</sup> Gaia Tomazzoli et al., "The Hypermedia Dante Network Project," 270. For a first orientation on Semantic Web standards, see <https://www.w3.org/standards/semanticweb/>. At the time of this writing, the tool and workspace are only accessible by request. The following video demonstrates the functionality of the tool: Hypermedia Dante Network, "Demo per il tool di annotazione di HDN" (2021), <https://youtu.be/gTkeQ3CVKnM>.

creating this digital library “based on a formal ontology expressed in Resource Description Framework Schema (RDFS) language.”<sup>24</sup> Given the more complex nature of Dante’s text reuse in the *Commedia* and the much larger amount of commentaries on the poem, the HDN team further developed this ontology.

The “fundamental concept” of the HDN ontology is the reference. This is how a “reference” is expressed:<sup>25</sup>

A says that knowledge about B can be enriched through C where A, the *source* of the reference, is a fragment of text that asserts the reference, and usually comes from a commentary; B, the *subject* of the reference, is a fragment of text that is clarified by the reference – and in our case study it occurs within a work of Dante’s (“belongs to the *Commedia*”); C is the *object* of the reference, i.e., the entity that is being referred to (“the textual or conceptual entity that the source considers useful for explaining the subject”).

To make this concrete, I apply the notion of “reference” to a passage in Dante’s *Inf.* 5 that I will soon discuss in more detail: Anna Maria Chiavacci Leonardi’s commentary (A) says that knowledge about Dante’s *Inf.* 5.131 (B) can be enriched through Ovid’s *Ars amatoria* 1.729 (C). HDN further divides references into “external supports,” “*loci paralleli*,” and “citations.” As Gaia Tomazzoli et al. write, citations are “clearly the most specific references, and they lie at the centre of our ontology.”<sup>26</sup>

Both projects digitally present Dante’s sources in the *Commedia* mediated through analog scholarship. In the case of *Intertextual Dante*, it is a scholar, expert in the reception of a certain author or work in the *Commedia*, who establishes the intertextual entries to be displayed on the site. The research of this expert (open to corrections and suggestions for further additions), presented on the interactive digital interface of *Intertextual Dante*, then offers opportunities for further contextualization and interpretation. In the case of the HDN, ten Dante experts participating in the project populate the ontology, based on the primary sources mentioned in

<sup>24</sup> Valentina Bartalesi et al., “A formal representation of the *Divine Comedy*’s primary sources: The Hypermedia Dante Network ontology,” *Digital Scholarship in the Humanities* 37, no. 3 (2022): 630–43, at 630, <http://doi.org/10.1093/llc/fqab080>. For an entry point into RDFS, see <https://www.w3.org/wiki/RDFS>. For more on *DanteSources*, see Bartalesi et al., “A web application for exploring primary sources.” One can search for primary source, source author, thematic area, type of reference.

<sup>25</sup> I mainly cite from Tomazzoli et al., “The Hypermedia Dante Network Project,” 270. A similar discussion is found in Bartalesi et al., “A formal representation of the *Divine Comedy*’s primary sources,” 633. I added between parentheses and in quotation marks some further clarifications from this later discussion.

<sup>26</sup> Tomazzoli et al., “The Hypermedia Dante Network Project,” 270.

51 commentaries on the *Commedia*.<sup>27</sup> The HDN team developed a semi-automated tool to extract data about Dante's sources from these commentaries digitized by the *Dartmouth Dante Project*, and created a digital workspace for the scholars to analyze and insert specific information about this data, such as the kind of reference, the source author, the source text, and so forth.<sup>28</sup> At a later point, this knowledge base will be available and searchable through a web application, with the option to visualize results in "simple and user-friendly formats, such as tables, graphs and CSV files."<sup>29</sup> Not only Dante's sources then will become a topic of the study, but also the commentators identifying and qualifying these sources in different ways throughout time.<sup>30</sup>

Let us now look more closely at this passage in Dante's *Inf.* 5 and its Ovidian source in the *Ars amatoria*, also in light of the previously-mentioned criticism that commentators, editors, and scholars at times may too quickly identify references to other texts in Dante's poem. It is a fair question to ask whether Ovid was really on Dante's mind, when he wrote "quella lettura ... scolorocci il viso" (*Inf.* 5.131), Francesca's description of how her lover Paolo's and her own face turned pale while reading together.<sup>31</sup> Ovid memorialized the image of the pale lover in the *Ars amatoria*: "palleat omnis amans; hic est color aptus amanti" (1.729).<sup>32</sup> While Ovid's verse is the standard reference, this physical effect of love had become a well-known literary motif, and did not require much or any familiarity with Ovid's didactic poem. Finding the essence of this Ovidian verse captured in Dante's *Inf.* 5, in other words, does not automatically mean that the Italian poet read all three books of the *Ars amatoria*.

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<sup>27</sup> Bartalesi et al., "A formal representation of the *Divine Comedy's* primary sources," 640.

<sup>28</sup> The semi-automated tool is described in Bartalesi et al., "A formal representation of the *Divine Comedy's* primary sources," 640–42. The eleven pieces of information are specified at 640–41.

<sup>29</sup> *Ibid.*, 642.

<sup>30</sup> Cf. Carlo Meghini and Michelangelo Zaccarello, "Un nuovo progetto di biblioteca digitale con mappatura semantica dei commenti alla «Commedia»: L'Hypermedia Dante Network," *Griseldaonline* 20, no. 2 (2021): 103–13, at 104, <https://doi.org/10.6092/issn.1721-4777/12552>; Tomazzoli et al., "The Hypermedia Dante Network Project," 273.

<sup>31</sup> The text is quoted from Dante Alighieri, *La Commedia secondo l'antica vulgata*, ed. Giorgio Petrocchi, 2nd rev. ed. (Florence: Le Lettere, 1994).

<sup>32</sup> The text is quoted from Ovid, *Amores, Medicamina faciei femineae, Ars amatoria, Remedia amoris*, ed. E. J. Kenney (1961; repr., Oxford: Oxford University Press, 1995).

Dante was a reader of Ovid at a time when “reading Ovid” could take on various forms.<sup>33</sup> The text of the Ovidian poems was often accompanied by commentary of varying length and content. Isolated Ovidian verses and passages appeared in anthologies, treatises, and other intermediary forms – to the lover of a good quote, Ovid’s poems are full of catchy phrases and solemn *sententiae*. “Palleet omnis amans” is the kind of Ovidian verse that by Dante’s time already had a rich life of its own. In Andreas Capellanus’s 12th-century treatise *De amore*, one of the “rules” for love is “Omnis consuevit amans in coamantis aspectu pallescere” (2.8.46).<sup>34</sup> The motif is found in other poems by Dante and contemporaries.<sup>35</sup> In Lapo Gianni’s *Ballata, poi che ti compuose Amore*, to be in love means to be “palidetta quasi nel colore” (v. 24).<sup>36</sup> Already in the *Vita Nova*, Dante writes that “ovunque questa donna mi vedea, si facea d’una vista pietosa e d’un colore palido quasi come d’amore” (25.1); and describes his loss of color in similar terms as in *Inf.* 5 (“scolorocci il viso,” v. 131): “quando questa battaglia d’Amore mi pugnava così, io mi movea quasi discolorito tutto per vedere questa donna” (9.4).<sup>37</sup> Moreover, between the end of the 13th and 14th century, Ovid’s *Ars amatoria* and the *Remedia amoris* were translated three times – the first *volgarizzamenti* of Ovid’s works in Italian – providing other context to be introduced to Ovidian verses and notions outside of Ovid’s Latin works in their entirety.<sup>38</sup>

The full text of *Ars amatoria*, the Italian translation of the poem, commentaries in Latin or Italian, citations of this verse in other works with or without attribution to Ovid, mentions of the concept in poetry and prose – these are all possible places to learn about the lover’s paleness. Francesca’s description of how her face and her lover Paolo’s lost color in *Inf.* 5 in itself, therefore, does not undeniably place the *Ars amatoria* on Dante’s bookshelf, so to speak, but is certainly testimonial to the widespread diffusion of

<sup>33</sup> On the history of reading Ovid during the Italian Due- and Trecento, see Van Peteghem, *Italian Readers of Ovid*, 13–69.

<sup>34</sup> The text is quoted from *Andreas Capellanus on Love*, ed. with an English translation by P. G. Walsh (London: Duckworth, 1982).

<sup>35</sup> I found the following examples in Ginetta Auzzas, “Violetta,” in *Enciclopedia Dantesca* (Rome: Istituto della Enciclopedia italiana, 1970), [https://www.treccani.it/enciclopedia/violetta\\_Enciclopedia-Dantesca/](https://www.treccani.it/enciclopedia/violetta_Enciclopedia-Dantesca/).

<sup>36</sup> The text quoted from *Poeti del Dolce stil nuovo*, ed. Mario Marti (Florence: Le Monnier, 1969).

<sup>37</sup> The text is quoted from Dante Alighieri, *Vita Nova*, ed. Guglielmo Gorni, in *Opere*, ed. Marco Santagata, Vol. 1, *Rime, Vita Nova, De vulgari eloquentia* (Milan: Mondadori, 2011), 745–1063.

<sup>38</sup> Vanna Lippi Bigazzi, *I volgarizzamenti trecenteschi dell’Ars amandi e dei Remedia amoris*, 2 vols. (Florence: Accademia della Crusca, 1987). For a general discussion, see Alison Cornish, *Vernacular Translation in Dante’s Italy: Illiterate Literature* (Cambridge: Cambridge University Press, 2011).

Ovid's verses and concepts during the Italian Due- and Trecento. Citing Ovid's Latin verse "palleat omnis amans" in the context of Francesca's words, as we find on *Intertextual Dante* and in some commentaries on the *Commedia* (the HDN web application should make these easily identifiable), provides an incomplete rather than an incorrect picture – the focus on only the Latin text does not recognize the different texts and contexts where a medieval reader could encounter Ovid's poetry.<sup>39</sup> As indicated before, Anna Maria Chiavacci Leonardi is one of the scholars who in her commentary on *Inf.* 5 cites Ovid's verse in the *Ars amatoria*. Chiavacci Leonardi mentions Ovid together with Andreas Capellanus's rule on the lover's paleness in *De amore*, calling these "necessary and traditional citations," which she shares "with some hesitation," and emphasizes the profound difference between Ovid's and Capellanus's "theoretical discourse" and the personal and unique human story Dante's verse evokes.<sup>40</sup>

The differences between Dante's verses and passages in other works can indeed provoke hesitation and reservation in those who establish parallel passages, and those who evaluate them. Chiavacci Leonardi's explicit expression of hesitation to include Ovid's verse in her commentary may address the criticism that some detect moments of intertextuality too easily. Edward Moore, who in *Scripture and Classical Authors in Dante* compiled lists of corresponding passages between Dante's works and the Latin writings of more than 20 authors, dividing these passages into "direct citations," "obvious references or imitations," and "allusions and reminiscences,"

<sup>39</sup> Early mentions of the Ovidian citation include the commentaries of Cristoforo Landino (1481), Bernardino Daniello (1547–68), and Baldassare Lombardi (1791–92). (This search was performed on the Dartmouth Dante Project.) On this passage and Dante's readings of the *Ars amatoria*, see also Ettore Paratore, "Ovidio e Dante," in *Nuovi saggi danteschi* (Rome: A. Signorelli, 1973), 47–100, at 52–53.

<sup>40</sup> This is Chiavacci Leonardi's full note on "scolorocci": "ci fece impallidire; era il segno tipico del l'amore, diffuso in tutta la letteratura, ritrovabile in Dante con lo stesso verbo in *Vita Nuova* XVI 4 («quasi discolorito tutto»); per la sua codificazione, si cfr. Ovidio, *Ars amatoria* I 729: «palleat omnis amans: hic est color aptus amanti»; e Andrea Cappellano, *De Amore* II 8, *Reg.* XV: "omnis consuevit amans in coamantis aspectu pallescere." Tuttavia queste necessarie e tradizionali citazioni, che diamo con qualche esitazione, non traggano in inganno il lettore, quasi fossero tasselli di un mosaico. Quanto è lontano l'oriente dall'occidente è infatti lontano da tali dissertazioni teoriche il verso di Dante, che esprime nell'irripetibile forma della poesia la personale ed unica storia di un essere umano. Ben altro caso è il rapporto più volte notato con i grandi versi virgiliani (cfr. sopra le note ai vv. 82 e 124–5), dove assistiamo a un profondo scambio di forme poetiche, diverse e pur analoghe, tra i più sorprendenti della storia dell'umana poesia." Cited from the commentary to *Inf.* 5.131 in Dante Alighieri, *Commedia con il commento di Anna Maria Chiavacci Leonardi*, Vol. 1: *Inferno* (Milan: Mondadori, 1991), as found on Dante Lab, <http://dante-lab.dartmouth.edu> .

noted in the introduction to have hesitated several times when classifying the entries.<sup>41</sup> When assembling the list of parallel passages between the *Commedia* and Ovid's works that appear on *Intertextual Dante*, I have hesitated, too, at times.<sup>42</sup> My guiding principle in compiling this list was to follow the language – I was looking for two or more words in Dante's poem that signaled a connection with Ovid's verses – but also to capture as best as possible different forms of engagement with the Ovidian tradition, recognizing that not every citation or allusion is the result of a thorough reading of Ovid's works. That meant in the case of “palleat omnis amans,” possibly the result of an indirect reading of Ovid, deciding that the concept of the pale lover was “Ovidian” enough to be included. This less obvious allusion to Ovid could be called a stretch, but I chose this particular example here to illustrate how examining medieval reading practices enrich our study of Dante's sources and his engagement with a popular author such as Ovid, and how this knowledge may factor into the scholar's decision-making process.

The HDN project will also address the variety in Dante's citation practices. Like in *DanteSources*, HDN team members evaluating the primary sources mentioned in commentaries on the *Commedia* will distinguish between “explicit,” “strict,” and “generic” citations.<sup>43</sup> At least two scholars are thus involved in this process: the commentator on the *Commedia* deciding to include the reference to a source in their notes, and the scholar on the HDN team deciding what type of reference this constitutes. The reference to Ovid's *Ars amatoria* in *Inf.* 5 is clearly not an explicit citation, but is it a “strict” one, a reference to “a specific work and fragment as identified by a scholar,” or a “generic” one, a reference to “a concept or set of works put forward by a scholar”?<sup>44</sup>

In contrast with this fully human decision-making process, automatic detection of intertextuality requires to formulate in the

<sup>41</sup> Moore, *Scripture and Classical Authors in Dante*, 46: “I do not attach much importance to this classification, since opinions would often differ to the proper letter [corresponding to one of the three categories] to be assigned, and I have often hesitated myself. But I have thought it might sometimes be of use, and it can at any rate do no harm.”

<sup>42</sup> As I wrote about this process in Van Peteghem, “Digital Readers,” 47: “I collected and evaluated the entries from the works on Ovidian intertextuality in the *Commedia* by [Giochino] Szombathely, [Edward] Moore, [Ettore] Paratore (“Ovidio e Dante”), and [Steno] Vazzana, and complemented them with own findings.”

<sup>43</sup> Bartalesi et al., “A formal representation of the *Divine Comedy's* primary sources,” 634. For the use of these definitions on *DanteSources*, see Bartalesi et al., “A web application for exploring primary sources,” 710–11.

<sup>44</sup> The definitions are taken from Bartalesi et al., “A formal representation of the *Divine Comedy's* primary sources,” 634. It is rare that commentators provide insight on their choice whether to include a citation of Dante's sources or not, as Chiavacci Leonardi did in her note (see n. 40 for the entire comment).

clearest terms what qualifies as an intertextual passage. While scholars compiling analog lists of corresponding passages do not need to document their criteria for inclusion and can make these decisions on a case-to-case basis, their colleagues writing computational models to detect text reuse must clearly prompt what to look for.<sup>45</sup> Nevertheless, existing digital tools and algorithms often operate on different, occasionally even contradictory, definitions of text reuse.<sup>46</sup> Even the term “text reuse,” which digital humanists often seem to prefer over intertextuality,<sup>47</sup> could be misleading: while sometimes used in this restricted meaning, the term should not be automatically understood as synonymous to quotation, the verbatim or near verbatim repetition of a phrase from one text into another.<sup>48</sup> Tools such as TRACER (Marco Büchler et al., the *Electronic Text Reuse Acquisition* Project, University of Göttingen) can detect a wide range of text reuse, much more than only straightforward quotations: its users can combine features of TRACER’s “suite of 700 algorithms” to “create the optimal formula for detecting those words, sentences and ideas that have been reused across texts.”<sup>49</sup> Focusing on what constitutes “an allusion” in Latin poetry, David Bamman and Gregory Crane’s proposed method considers identical words and word order, as well as syntactic, metrical, phonetic, and semantic similarity.<sup>50</sup> The *Tesserae* tool (Coffee et al., University at Buffalo), developed to detect allusions in Latin and Greek poetry, matches lemmas or dictionary headwords at the sentence level – adhering to the “traditional

<sup>45</sup> As Coffee put it in “An Agenda for the Study of Intertextuality,” 206: “In order for a digital tool to find an intertext, it must have a description of what an intertext is.” For an example of such detailed documentation, see Mees Gelein’s outline of the comparison algorithm *Comparativus*: <https://github.com/MGelein/comparativus/blob/master/algorithm.md>.

<sup>46</sup> A problem discussed in Regula Hohl Trillini and Sixta Quassdorf, “A ‘key to all quotations’? A corpus-based parameter model of intertextuality,” *Literary and Linguistic Computing* 25, no. 3 (2010): 269–86, <https://doi.org/10.1093/lc/fqq003>. Coffee, “An Agenda for the Study of Intertextuality,” 217–18 discusses the progress made toward formalization.

<sup>47</sup> Coffee, “An Agenda for the Study of Intertextuality,” 210, n. 16.

<sup>48</sup> To get an idea of the various kinds of text reuse, see the manual of TRACER (see also n. 49), which includes a chart on “Reuse styles,” dividing parallel texts in two main branches, syntactic text reuse and semantic text reuse, each with further subdivisions and sub-subdivisions: <https://gfranzini.gitbooks.io/tracer/content/manual/introduction/text-reuse.html>.

<sup>49</sup> <http://www.etrapp.eu/research/tracer/>. See Marco Büchler et al., “Towards a Historical Text Re-use Detection,” in *Text Mining: Theory and Applications of Natural Language Processing*, ed. Chris Biemann and Alexander Mehler (Berlin–Heidelberg: Springer, 2014): 221–38, [https://doi.org/10.1007/978-3-319-12655-5\\_11](https://doi.org/10.1007/978-3-319-12655-5_11).

<sup>50</sup> “The Logic and Discovery of Textual Allusion,” in *Proceedings of the 2008 LREC Workshop on Language Technology for Cultural Heritage Data (LaTeCH 2008)* (Marrakech: LREC, 2008), <http://www.cs.cmu.edu/~dbamman/pubs/pdf/latech2008.pdf>.

scholarly identification of *loci similes*, which takes two-word pairs as the most basic and common form of intertextuality” – and further considers word frequency and phrase density to filter the most meaningful results.<sup>51</sup>

Such computational methods have, to my knowledge, not yet been applied to Dante’s *Commedia*. *Intertextual Dante* displays on its digital reading interface the lists of corresponding passages established by scholars specializing in the reception of a certain author or text in the *Commedia*. *DanteSources* and HDN use various semi-automated tools, but ultimately rely on what they call “authoritative commentaries,” i.e., the fruits of traditional scholarship.<sup>52</sup> While computational applications could lead to the discovery of previously unknown and unstudied parallels, there are various reasons that render the automatic detection process more complicated in the case of Dante’s *Commedia*. In most cases, we are comparing texts in two different languages, which means capturing lexical and semantic similarities through two different dictionaries.<sup>53</sup> Explicit citations, the easiest form of text reuse to detect, are frequently found in Dante’s other works, but are a minority in the *Commedia* – Dante much more often translates or paraphrases words or verses from other texts in his poem, and, as we have seen above, various factors may contribute to turning a passage into an allusion. Moreover, search algorithms designed to detect this more complex kind of text reuse often match at the line or sentence levels, but even the sentence level can be insufficient to capture Dante’s intertextual practices.

Take, for instance, Dante’s mentions of Argus, the hundred-eyed giant Ovid features in Book 1 of the *Metamorphoses*. There we read that the goddess Juno, suspicious of her husband Jupiter, assigned Argus to guard over a beautiful heifer – in reality the young girl Io whom Jupiter had turned into a cow to hide his love

<sup>51</sup> <http://tesserae.caset.buffalo.edu/>. See Christopher Forstall et al., “Modeling the scholars: Detecting intertextuality through enhanced word-level n-gram matching,” *Digital Scholarship in the Humanities* 30, no. 4 (2015): 503–15, <https://doi.org/10.1093/llc/fqu014>. The quotation is taken from Neil Coffee et al., “Intertextuality in the Digital Age,” *Transactions of the American Philological Association* 142, no. 2 (2012): 383–422, at 386, <https://doi.org/10.1353/apa.2012.0010>.

<sup>52</sup> For instance, Bartalesi et al., “A formal representation of the *Divine Comedy*’s primary sources,” 633; Bartalesi et al., “A web application for exploring primary sources,” 707: “Authoritative commentaries are those written by notable scholars and the scientific validity of them is recognized by the scientific reference community.”

<sup>53</sup> This would not be the case when featuring vernacular Italian poets on *Intertextual Dante*. Akash Kumar is preparing the parallel passages between Guido Guinizzelli’s poetry and the *Commedia* for the project; for a first example of the kind of analysis the Guinizzelli-Dante edition could produce, see Kumar, “Digital Dante,” in *The Oxford Handbook of Dante*, ed. Manuele Gagnolati, Elena Lombardi, and Francesca Southerden (Oxford: Oxford University Press, 2021), 96–108, at 106–7.



interest from Juno (*Met.* 1.622–41).<sup>54</sup> Mercury, sent by Jupiter to free Io, lulled Argus to sleep by telling the story of Syrinx, the wood nymph pursued by the god Pan and transformed into a reed, which Pan then turned into his signature musical instrument. When all the giant's eyes were closed, Mercury killed Argus, but Juno sent a fury after the freed Io. She also transferred Argus's hundred eyes to the wings of the peacock (*Met.* 1.668–727). The giant's eyes briefly become Dante's focus in the description of the procession he witnesses in earthly paradise (*Purg.* 29). Guiding his readers through the different participants in the procession, he mentions the four animals (the four evangelists), each with six wings, full of eyes (*Purg.* 29.94–96):

Ognuno era pennuto di sei ali;  
le penne piene d'occhi; e li occhi d'Argo,  
se fosser vivi, sarebber cotali.

In this tercet Dante does not specify the number of eyes on the animals' wings, but by comparing them to Argus, known for his hundred eyes (*Met.* 1.625–27), he implicitly does. He also does not explicitly mention Mercury's killing of Argus (*Met.* 1.717–21), but the phrase “se fosser vivi” fills in the blanks. The animals' wings-with-eyes further bring to mind the peacock's wings, where, according to Ovid's account, Argus's eyes live on (*Met.* 1.722–23).<sup>55</sup>

While thus far we can match Dante's mention of Argus's eyes with Ovid's verses on the sentence level, Dante's full intertextual strategy becomes clear with his second reference to Argus in a simile in *Purg.* 32 – still part of the larger textual unit dedicated to earthy paradise (*Purg.* 28–33). After the reunion with Beatrice (*Purg.* 30–31), the procession resumed in this canto, but sleepiness overcame the pilgrim after a stop by a barren tree (*Purg.* 32.61–63). Referring again to Argus's fateful drowsiness, this time Dante does not mention the giant's name, only his sleepy eyes, “listening” to Mercury's story of Syrinx. The entire passage is not only about falling asleep, but also about how to describe that moment (*Purg.* 32.64–69):

S'io potessi ritrar come asonnaro  
li occhi spietati udendo di Siringa,  
li occhi a cui pur vegghiar costò sì caro;  
come pintor che con essempro pinga,

<sup>54</sup> The text is quoted from Ovid, *Metamorphoses*, ed. R. J. Tarrant (Oxford: Oxford University Press, 2004).

<sup>55</sup> The peacock, in the classical world considered Juno's bird, became a Christian symbol for immortality. See “birds, symbolic,” in *The Oxford Dictionary of Christian Art and Architecture*, ed. Tom Devonshire Jones, Linda Murray, and Peter Murray (Oxford: Oxford University Press, 2013).

disegnerei com' io m'addormentai;  
ma qual vuol sia che l'assonnar ben finga.

Dante the poet expresses his failure to capture the moment in the language of the arts: another artist would be able to depict how both Argus and the pilgrim fell asleep. Just as Dante mixes the senses (“li occhi ... udendo”) in these verses, he mixes forms of artistic expression, applying words to describe the work of a painter (“ri-trar,” “disegnerei”) to the craft of writing, and including a direct comparison with a “painter who paints from a model.” It was not a painter, however, but indeed Ovid who was capable of portraying Argus’s “occhi spietati” falling asleep (*Met.* 1.713–16).

This metapoetic intermezzo in *Purg.* 32 draws again the attention to the previous mention of Argus in *Purg.* 29. There, too, Argus’s eyes appear in a longer passage written in the voice of the poet (*Purg.* 29.94–105). After drawing the comparison between Argus and the eyed wings of the animals in the procession, Dante announces, as he did in *Purg.* 32.64–69, that his picture of the scene will be incomplete: he addresses the reader, telling them “A describer lor forme più non spargo / rime, lettor” (*Purg.* 29.97–98), and assigning them to instead read Ezekiel who “depicts” the animals in more detail in his pages – also here Dante uses a painterly term, “dipigne” (*Purg.* 29.100).<sup>56</sup> In both *Purg.* 29 and 32 Dante features the story of Argus in authorial reflections about artistic limits, indicating what he cannot or does not want to render in poetic form. The narrative “jumps” that occur in both passages in the *Commedia*<sup>57</sup> mirror Ovid’s narrative strategy in the Argus episode: there, too, the poet does not record the entire soporific story Mercury tells Argus about Pan and Syrinx, but instead replaces Mercury’s initial direct discourse with a bullet-point-style outline of the plot elements (*Met.* 1.700–12). Ovid’s self-referential reflection on poetry<sup>58</sup> is the kind of metapoetic passage in the Latin poet’s works that Dante seems to be drawn to, as I have proposed elsewhere.<sup>59</sup>

<sup>56</sup> By further specifying that the Old Testament prophet Ezekiel got the number of their wings wrong (four instead of six), and that John, author of *Revelation*, agrees with him – “Giovanni è meco e da lui si diparte” (*Purg.* 29.105) – Dante inserts himself into a “visionary genealogy,” as Teodolinda Barolini wrote: “Dante moves from Ovidian Argus, to an Old Testament prophet, to a prophet of the new dispensation, the author of the text that will appear at canto’s end in visionary posture, as the *senex* who approaches ‘dormendo, con la faccia arguta.’” *The Undivine Comedy: Detheologizing Dante* (Princeton: Princeton University Press, 1992), 156.

<sup>57</sup> *Ibid.*, 218–56 (Chapter 10, “The Sacred Poem is Forced to Jump”).

<sup>58</sup> See, for instance, Alessandro Barchiesi’s commentary on this passage in Ovid, *Metamorfosi: Volume I (Libri I–II)*, ed. Alessandro Barchiesi, trans. Ludovica Koch (Milan: Mondadori, 2005), 226.

<sup>59</sup> Van Peteghem, “Dante lettore di Ovidio: Influssi ovidiani e riflessioni metaletterarie nella *Commedia*,” *Studi Danteschi* 83 (2018): 149–71.

A strict search at the verse or sentence levels would not have matched these passages in *Purgatorio* with the corresponding verses in Ovid's *Metamorphoses*, and definitely not have picked up Dante and Ovid's similar authorial gestures. Such a sustained pattern of engagement with Ovid's poetry throughout a narrative unit in the *Commedia* is not uncommon, though, and in order to automate the search for intertextual passages in the *Commedia* a variety of units should be considered: in addition to the verse and sentence levels, also entire cantos, the circles in hell, terraces in purgatory, and heavens in paradise, and larger narrative units dedicated to specific spaces such as the dark wood, antepurgatory, and earthly paradise. Also Ovid's works contain larger units for consideration: while almost all his works consist of more than one book, the more meaningful units are the individual poems of the *Amores*, entire letters from the *Heroides*, *Tristia*, and *Epistulae ex Ponto*, and especially, as the example above has shown, the various stories told in the *Metamorphoses*.

Focusing on larger narrative units – in either Dante or Ovid or in both – brings forth several instances where the claim that Dante simply considered one or two verses from Ovid, which he could have encountered outside of the entire Ovidian work, becomes difficult to sustain. The mention of Erysichthon's name alone (*Purg.* 23.25–27), for example, is not sufficient to connect this classical figure with Ovid's story in Book 8 of the *Metamorphoses*; what does establish the connection are the hungry souls described in the preceding tercet (*Purg.* 23.22–24) who display the same physical characteristics of Fames, the personification of hunger, sent to Erysichthon – hollow eyes, pale skin, protruding bones (*Met.* 8.801–6).<sup>60</sup> In the following canto, still part of the terrace of gluttony, the pilgrim sees the souls Ubaldin da la Pila and Bonifazio “out of hunger use their teeth in vain” (*Purg.* 24.28), biting empty air just as Ovid's Erysichthon did (*Met.* 8.825).<sup>61</sup> Finding these two Ovidian allusions, about 20 verses apart in Ovid's poem, within the same narrative unit in purgatory strongly suggests that Dante was considering the whole story of Erysichthon, and not just the strictly corresponding verses, to portray the souls on the terrace of gluttony. In the same canto 24, we also find not one, but two passages from the same programmatic opening poem of Book 2 of Ovid's

<sup>60</sup> Compare “hirtus erat crinis, caua lumina, pallor in ore /.../ ossa sub incuruis exstabant arida lumbis” and “Ne li occhi era ciascuna oscura e cava, / palida ne la faccia, e tanto scema / che da l'ossa la pelle s'informava.”

<sup>61</sup> Compare “oraque uana mouet dentemque in dente fatigat” and “Vidi per fame a vòto usar li denti.” See also Van Peteghem, “*Digital Dante*: Raffigurare Dante online,” in *Immaginare la 'Commedia'*, ed. Ciro Perna (Rome: Salerno Editrice, 2022), 215–23, at 222.

*Amores* echoed in Dante's famous statement, "I' mi son un che, quando / Amor mi spira, noto, e a quel modo / ch'e' ditta dentro vo significando" (*Purg.* 24.52–54). Both the use of the phrase "I am one who" to make a statement about writing poetry, and the image of the Love dictating poems are found in Ovid's poem (*Am.* 2.1.3 and 2.1.38). These two textual similarities reinforce the relevance of Ovid's entire poem in a Dantean tercet abounding with intertextual echoes, as I have discussed elsewhere.<sup>62</sup> While in one set of corresponding verses two words match on the sentence level ("Amor ... ditta" in Dante, "... dictat Amor" in Ovid), there is a reason why the other parallel ("I' mi son un che" in Dante, "ille ego" in Ovid) could go unnoticed during computational detection: it contains several common words that usually are excluded from searches. Stop words, as they are called, are extremely common words – such as articles, personal pronouns, certain prepositions, conjugations of the verb "to be" – that are removed from automatic searches, since their inclusion yields too many meaningless results.<sup>63</sup> In this case, however, the combination of the ubiquitous words "I," "am," "one," "who" does establish a meaningful parallel.

Several of the narrative units mentioned thus far – individual Ovidian poems and stories of the *Metamorphoses* – are directly searchable on *Intertextual Dante*, and the ones that are not labeled – the circles of hell, terraces of purgatory, heavens of paradise, and places such as earthly paradise – can still quite easily be found and accessed on the interface, since the text columns can be scrolled up and down, and the icons of the pointing fingers signal every intertextual passage. This search functionality of *Intertextual Dante* is valuable when trying to understand the Ovidian presence in a particular canto or the relevance of a specific Ovidian story within the *Commedia* as a whole, but its reading interface serves a different purpose as well. As mentioned before, clicking any icon of a pointing finger on *Intertextual Dante* will highlight and align the corresponding passages in Dante's *Commedia* and Ovid's works. Only the strictly corresponding verses are marked in yellow, but users now have side by side both the larger passages to which these verses belong. Often Dante's engagement with a particular passage calls for consideration of these larger narrative units; as Christopher

<sup>62</sup> See the full discussion in Van Peteghem, *Italian Readers of Ovid*, 211–19.

<sup>63</sup> See "Dropping common words: stop words," in Christopher D. Manning, Prabhakar Raghavan, and Hinrich Schütze, *Introduction to Information Retrieval* (Cambridge: Cambridge University Press, 2008), 27. One can search for word frequency in the digital edition of the *Commedia* on *IntraText* (<http://www.intratext.com>), a digital library "offering books and corpora as lexical hypertexts." The twenty most frequent words in the *Commedia* are: e, che, la, a, di, l', non, per, io, in, si, ch', 'l, è, le, sì, mi, il, più, come.

Kleinhenz wrote about Dante's citational practices, "the citation is generally intended to evoke the larger context of the referenced text."<sup>64</sup> We have already seen the relevance of larger narrative units in the examples of Dantean intertextuality previously discussed in this essay. This is how *Intertextual Dante* functions as a research tool: users can explore the *loci similes* directly in context and consider how much of the larger context is relevant to the interpretation of Dante's text reuse. Not every set of corresponding verses opens up rich and meaningful connections with Ovid's content and themes, but even when the similar verses only constitute an intertextual flourish, it still marks a point of contact between Dante and his sources.

Dante-Ovid edition on *Intertextual Dante* presents over 150 points of contact between the two poets. The project's features discussed so far all contribute to creating a reading and research environment where connections between these intertextual passages and Dante's sustained engagement with a particular story or poem can more easily be detected and analyzed. The organization of the entries according to the categories of word choice, characters, events, places, and similes provides further opportunities for exploration.<sup>65</sup> "Word choice" is the default category: as mentioned earlier, I looked for at least two verbal connections (translations or synonyms in Italian) to match Dante's verses with Ovid's.<sup>66</sup> Consider the following example. On the sphere of the moon, Beatrice explains, in the context of Piccarda's broken vow, that sometime people do things they normally would not do in order to avoid danger (*Par.* 4.100–2). To further illustrate her point, Beatrice cites the example of Alcmaeon, who killed his mother to avenge his father Amphiaraus, one of the Seven against Thebes (*Par.* 4.103–5). Ovid is not the only poet to tell Alcmaeon's story, but his version is included on *Intertextual Dante* as Dante's source because of lexical similarities. Ovid called Alcmaeon's act both "pius" and "sceleratus" (*Met.* 9.408), which becomes "pietà" and "spietato" in the *Commedia* (*Par.* 4.100–5):

<sup>64</sup> Kleinhenz, "Perspectives on Intertextuality," 184.

<sup>65</sup> I described these different categories in more detail in Van Peteghem, "Digital Readers," 47–48. This organizing principle, attentive to "specific stylistic, structural, and rhetorical aspects" of Dante's *Commedia*, is different from Moore's, who developed a system for all of Dante's works based on the degree of similarity between the corresponding passages (*Scripture and Classical Authors*, 45–47).

<sup>66</sup> As I noted in Van Peteghem, "Digital Readers," 47, "in that respect, [my] approach resembles Coffee et al.'s [approach for the *Tesseræ* project], whose algorithm searches for at least two matches of dictionary headwords in both source and target texts, with the difference that I do not limit the text reuse to the sentence level as they did." In this manual evaluation process of possible parallel passages between Dante's Italian and Ovid's Latin, I considered both lexical and semantic similarities.

Molte fiato già, frate, addivenne  
 che, per fuggir periglio, contra grato  
 si fè di quel che far non si convenne;  
 come Almeone, che, di ciò pregato  
 dal padre suo, la propria madre spense,  
 per non perder pietà si fè spietato.

The other categories on *Intertextual Dante* further refine these results and recognize the specific nature of Dante's engagement with Ovid's works: the user can further look for Ovidian characters, places, and events, and for similes – a highly distinguishing feature of Dante's writing<sup>67</sup> – inspired by Ovidian verses. This way of organizing the entries, for instance, provides insight into the textual presence of Ovid throughout the *Commedia*. Since we find fewer and fewer Ovidian characters as we read beyond *Inferno*, one may expect that Ovid's presence in the poem likewise decreases, but when we focus on the similes based on Ovidian verses, we see this number remains more or less the same in all three canticles.<sup>68</sup> This enhanced search function can also yield interesting results when focusing on specific entries. For instance, among the Ovidian characters featured in the *Commedia*, we find in *Inf.* 25 the nymph Arethusa. There is no doubt Dante considers her an Ovidian character: in claiming himself to be a superior poet of metamorphosis, Dante mentions Arethusa, together with Cadmus, as two characters Ovid should stay silent about: “Taccia di Cadmo e d'Aretusa Ovidio, / ché se quello in serpente e quella in fonte / converte poetando, io non lo 'nvidio” (*Inf.* 25.97–99). This is the only mention of the character Arethusa in the poem, but Dante does not remain completely silent about her. When we scroll through the story of Arethusa in Book 5 of the *Metamorphoses* (part of the story of Persephone) on *Intertextual Dante*, we find a passage further on in *Inferno* where Arethusa's words convert Dante's poetry. The nymph tells the goddess Ceres, in search for her missing daughter Persephone, that she saw her daughter in the underworld while traveling as a stream underneath the earth, and then resurfaced to see the stars again (*Met.* 5.501–3). In the well-known final verses of the first canticle, the pilgrim and Virgilio conclude their journey in hell, and, when finally exiting the underground cavern, they, too, see the stars again (*Inf.* 34.133–39).

The HDN project will also distinguish references in its digital library according to specific characteristics. While the categories on

<sup>67</sup> Richard Lansing, “Simile,” in *The Dante Encyclopedia*, ed. Richard Lansing (New York-London: Garland Publishing, 2000), 778–81.

<sup>68</sup> A point also made in Van Peteghem, “What is *Intertextual Dante*?”

*Intertextual Dante* were chosen specifically with Dante's engagement with Ovid in mind, the characteristics to be identified by the HDN team in all of Dante's primary sources capture at times similar features. In addition to the division into explicit, strict, and generic citations, references will also be further categorized by the type of content: textual content (image or stylistic feature – "word choice" and "simile" on *Intertextual Dante* come to mind); thematic content (character, episode, topography – similar to *Intertextual Dante's* categories of character, event, and place); and conceptual content (motif, theory).<sup>69</sup> As the HDN web application will feature all the references in the *Commedia*, it would be interesting, for instance, to explore whether Arethusa, who was not only an Ovidian character, as we have just seen, but also a Vergilian one, contains characteristics that connect her to Vergil's poems as well.

One could ask how much more insight on Dante's intertextual practices there is to gain after centuries of reading and writing about Dante's *Commedia*, with many commentators eager to identify those moments where Dante refers to the writings of others. If detection of parallel passages were the end goal, this would be a reasonable question, but discovery is only one step, albeit a necessary one, in analyzing what Dante's text reuse might mean. And, as I have learned from my research on Dante and Ovid, some intertextual passages in the *Commedia* have flown under the radar of the commentators for centuries. Take, for instance, the passage in *Inf.* 9 where Dante and Virgilio finally gain access to the city of Dis thanks to the intervention of a messenger sent from heaven ("messo di ciel"), who opened the gate to the infernal city with a wand or "verghetta" (*Inf.* 9.89–90). This episode, as only few have noted, recalls a passage in Book 2 of Ovid's *Metamorphoses*.<sup>70</sup> There it is the winged messenger god Mercury who with a celestial wand ("caelesti ... uirga") opens the doors ("fores") to the chambers of the girl Aglauros (*Met.* 2.819). Scrolling through the passage on *Intertextual Dante*, the complete Ovidian story becomes clear. The goddess Minerva had a bone to pick with Aglauros, daughter of the Athenian king Cecrops. Poisoned by Envy whom Minerva sent her way, Aglauros jealously opposed Mercury, who had taken an interest in her sister Herse. When the girl refused to let Mercury enter

<sup>69</sup> For some examples, see Bartalesi et al., "A formal representation of the *Divine Comedy's* primary sources," 634–36. The third classification focuses on the relationship between subject and object, and distinguishes between correction, extension, and confirmation.

<sup>70</sup> Vazzana, *Dante e la "bella scola,"* 149. Robert Hollander is most attentive to the Ovidian intertext in this passage. See Dante Alighieri, *Inferno*, translated by Robert and Jean Hollander, Introduction and notes by Robert Hollander (New York: Doubleday, 2000), 180.

their chambers, he opened the door with his divine wand and turned Aglauros into stone. In this case, the details from the Ovidian story do little to enrich our reading of the passage in Dante's *Inferno*. Some scholars have explored the Mercury connection, but without reference to the Ovidian intertext.<sup>71</sup> But that does not mean the allusion to Ovid is a dead interpretative end. In fact, in my view, the key question here is how the Ovidian contours of the angelic messenger in hell contributes to the “pall over antiquity” in this canto, as Teodolinda Barolini put it, “a low point for classical culture.”<sup>72</sup>

The *Intertextual Dante* project aims to stimulate such new avenues of research. The broad scope of the HDN project promises various in-depth explorations of Dante's use of primary sources throughout the *Commedia*, but also of the long and rich commentary tradition on Dante's poem. In this essay I have provided several examples of the directions in which such explorations can lead. I have also recognized the ways in which the current structure of *Intertextual Dante* is still incomplete: in the case of Ovid, it only considers the Latin text of the Ovidian poems, not capturing the commentaries, translations, and adaptations of Ovid's works. Moreover, having only one author displayed on *Intertextual Dante* does not allow to explore the many moments where Dante draws on different sources at once, at times combining classical sources with biblical or vernacular ones. It will be exciting to see what kind of searches and visualizations the HDN web application, containing this rich knowledge base, will allow users to carry out. Also exploring the automated detection of allusions in the *Commedia* should not be ruled out, even given the complexities mentioned above. The *HyperHamlet* project offers an interesting model in this respect: the project documents numerous references from Shakespeare's play included in “annotated editions or publications in the fields of Shakespeare studies or literary and cultural studies in general,” but these references have also been spotted “by private reading of contributors worldwide or by searches in electronic full text databases.”<sup>73</sup> Numerous readers of Dante's *Commedia* throughout the centuries have registered moments where Dante quotes,

<sup>71</sup> See, for instance, Susanna Barsella, “The Mercurial *Integumentum* of the Heavenly Messenger (*Inferno* IX 79–103),” in *Letteratura italiana antica: rivista annuale di testi e studi* 4 (2003): 371–95; Pietro Cagni, “Il messo celeste e la liturgia alle porte di Dite (*Inferno* IX),” *Le forme e la storia* 2 (2016): 229–50.

<sup>72</sup> Teodolinda Barolini, “*Inferno* 9: Virgilio's Dark Past: From Erichtho to Medusa,” in *Commento Baroliniano, Digital Dante* (New York: Columbia University Libraries, 2018), <https://digitaldante.columbia.edu/dante/divine-comedy/inferno/inferno-9/>.

<sup>73</sup> *HyperHamlet*, Corpus of references to and quotations from Shakespeare's *Hamlet*, <http://www.hyperhamlet.unibas.ch>.



translates, paraphrases, and adapts the words of others, and many are well suited to evaluate the results automated detection may yield, and provide the feedback needed to finetune the model. This is how the researchers of the previously mentioned *Tesserae* project conceptualized their approach: in “modeling the scholars,” they designed an algorithm to detect allusions in Latin and Greek poetry guided by established scholarly definitions and practices.<sup>74</sup> Such endeavors will inevitably hit stumbling blocks, but we can always keep in mind what Dante wrote in *Inf.* 25, arguably the most Ovidian canto of the *Commedia*, in the context of his own poetic experimentation and innovation: “e qui mi scusi / la novità se fior la penna abborra” (*Inf.* 25.143–44).

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<sup>74</sup> Forstall et al., “Modeling the scholars.”