

## Podcast Transcript

Version 1.1, 1 October 2019

### When Archive Meets A.I.: Computational Humanities Research on a Danish Secular Saint



Podcast with **Katrine Frøkjær Baunvig** (7 October 2019).

Interviewed by **Sidney Castillo**

Transcribed by **Helen Bradstock**.

Audio and transcript available at:

<http://www.religiousstudiesproject.com/podcast/when-archive-meets-a-i-computational-humanities-research-on-a-danish-secular-saint/>

**Sidney Castillo (SC)**: *So, we are here at the [EASR](#) conference in Tartu, Estonia. And we are just moving around between different conferences! Today is the third day. We are tired, but very happy. And I'm also happy to have [Katrine Baunvig](#) here at the Religious Studies Project. Welcome, Katrine!*

**Katrine Baunvig (KB)**: Thank you so much for having me.

**SC**: *Thanks, as well, for coming with us. And if you will be so kind as to introduce yourself, so we know a little bit about what you do?*

**KB**: Yes, of course. I am an Associate Professor at Aarhus University, where I am the director for the [Grundtvig Study Centre](#). Yeah. And my background is that I'm an historian of religions. I did a PhD thesis on this guy, this Danish guy, [Grundtvig](#), and his thoughts on social cohesion. And I compared these thoughts with the ones found in the collected writings of [Emile Durkheim](#).

**SC**: *Excellent. So it's quite a broad work. Perfect. So let's just dive right into the questions. First, I think, to give a broader perspective of how digital humanities works, I will ask: how can the digital humanities aid in the study of religion?*

**KB**: Well, that's a really broad question!

**SC**: *Sorry about that!*

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**KB:** No, no! They are usually great to think with. So what can they aid? They can aid with a multitude of methods handling already known data sets, and they can produce new kinds of data. That would be my take. Yeah. Actually I kind of prefer to . . . I don't use the term “digital humanities” so much, as I prefer to speak of “computational humanities”. Because, in a certain sense, digital humanities already have gone into . . . Well it's like that with all fields of scholarship in their formative states, that they struggle to find the correct terms and produce new ones all the time. So for me, at least, digital humanities can signal anything from philosophical reflections, to what the consequences are for us, as a species, that we now have to deal with The Digital – sort-of with capital letters. So, for me, what I do and what we do at the Grundtvig Study Centre, is that we have digitalised the entire writings of Grundtvig – and I hope to get a chance to expand on who he was and why it is relevant to digitise his work – but we have now a digitised corpus of his writings. We scanned . . . OCR scanned and made HTML markup, so it's in a really good quality. And therefore we can do different kinds of computational investigations into this corpus. And that is what we do.

**SC:** *Excellent. So I stand corrected: computational humanities. The more precise, the better! So speaking about Grundtvig, who was Nicolaj Frederik Severin Grundtvig, and why do you think the preservation of his works is important for Danish society?*

**KF:** Yeah. Well, Nicolaj Frederik Severin Grundtvig – a really long and hard to pronounce name – he was and is, in the Danish self-understanding, on the one hand a nation builder or a founding father perhaps, and on the other hand a church father of a sort. He was born in 1783 and died in 1872. And that was a really, really important period of time in the Danish national history. This was the period where the nation went from . . . well, if you accept the idea of a long Middle Age period, you could say that he died on the eve of the Middle Ages. He died during, or just before, the feudal structures of Denmark collapsed. Well he was born, sorry, he was born just before these structures collapsed and then he died just when Denmark entered into Modernity. That is the general narrative on Grundtvig and that is the understanding of the nineteenth century in Denmark. And then he was active, within all of the domains, in change in Denmark. So he was active as a pastor: he was a priest and a kind of theologian. And then he was very much influenced by the [Romantic Movement](#), and sort-of rebooted, or went along with, the idea that the Old Norse mythology had to be revived within the Danish population. One of the ideas of his was that you had to make a sort-of social content, preparing people for feeling connected with the overall idea of “the people”. Because we now had this new governmental structure, democracy, and his idea was that you had to install responsibility and feelings of love in the population. So it was a nationalist logic. You have to get the people to really feel

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responsible for the broad spectrum of Denmark if we are to make this democracy work. So, in that sense, he was politically engaged and mythologically engaged. And he wrote quite a deal, and reflected quite a deal on pedagogical stuff, didactic stuff: how to get people to know of their cultural heritage, and how to make them want to engage with it and feel connected to it. So he was also an architect behind a new kind of educational form, or in a sense that is what we now say. Many other agents and men, mainly, were really influential in that movement. But now, today, his name is also connected with this loose and kind of lax form of education that you call [folk high schools](#). That's a phenomenon still living and alive in Denmark, and other places around the world. So, in that sense, Grundtvig is seen as a very important person during this period when the modern Denmark was created. And you can see that amongst politicians in Denmark today. So when they want to signal that they know stuff about Danish history, and at the same time sort-of signal that they're liberal, they can quote Grundtvig. And they tend to do so in the public media, oftentimes. And furthermore Grundtvig is a central name within the manifestos of every political party within Danish parliament, except one. So, in that sense, he is seen as a founding father for almost every politician . . . every part of the political spectrum in Denmark. So, in that sense, a non-controversial figure that everybody seems to agree is "our guy"! One more example of this is perhaps the centre where I'm the director – the Grundtvig Study Centre. We are governmentally funded and the main task is to digitise his entire works. And that is a thing that politicians can agree upon as a worthy task, and using money for this task. And it is actually quite expensive. So, in that sense, money talks here! And says that Grundtvig is important for Denmark. He's such an important figure that we want to spend money on digitising this work.

**SC:** *Definitely, yes. And I can imagine that he's also present in the mind of the people in everyday life, as a cultural reference?*

**KB:** He's a cultural reference. There are certain spheres where Grundtvig is more relevant than others. So we have cultural strands, we have one movement or . . . I struggle to find the correct term. But we call it Grundtvigianism: a movement driven by the ideas of Grundtvig. And what I forgot to mention was that Grundtvig was also a grand author of hymns, a composer of hymns. So, I kid you not, he wrote sixteen hundred hymns! And two hundred and fifty of them now constitute one third of the Danish hymnbook in the Danish folk church . . . the Danish church. So people know about, or know of him. I'm not quite sure whether, for the broad population, he's important in everyday life, as such. But when you discuss cultural heritage, and democracy, and liberal stances, and tolerance within the church and stuff like that, Grundtvig is sort-of seen as a gravitational point, or something along those

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lines, yes.

**SC:** *Excellent. Now, delving into your research, I would like to ask you, what was the procedure to developing the Grundtvig AI? Because there is one!*

**KB:** Yes! Because there is one, or we're building one! So the idea . . . this is actually a bit of fun!

**SC:** (Laughs).

**KB:** We are just teasing around with what to do with all this material! And, as a sort of branding strategy, we decided that we would resurrect Grundtvig as an artificial intelligence on the day of his 150th death day, or what have you, in September 2022. So we have quite some time. There is still time. So first of all we are almost done with the construction of a chatbot. It's based on the idea of recurrent neural network systems. So we built a chatbot and the idea was . . . I can develop that or expand that, but the overall idea was to take this chatbot and then put it into an actual robot. So that it's a physical robot who looks like Grundtvig – he was really spooky and people will recognise him as this gloomy, old, bearded man in black! And we want to do an actual physical robot that looks like Grundtvig, so that people can interact with him. And perhaps he can, I don't know, give a sermon, give a speech in parliament? Yeah. So we're really excited about this project. But in a certain sense we're just teasing around with the possibilities of this digital data. But I'm really looking forward to seeing the reactions to this resurrection, and how the different cultural reactions would be when it is possible to engage with Grundtvig as an artificial intelligence. And perhaps I should now expand a bit on how we sort-of built it? So what we do is . . . Let me just sort-of try not to get into all the acronyms! So the basic is that we have used machine learning. We train an algorithm on . . . first of all we take the Grundtvig corpus and train it on that. So the aim is to have users interacting with Grundtvig or the Grundtvig intelligence or what have we. And the corpus consists of what amounts to thirty-seven thousand standard pages. If you had to read through them it is in fact possible, but people turn out weird when they do so. So . . .

**SC:** (Laughs).

**KB:** So I really prefer not to . . . I like to pick specific bits, and then read through them. But no, just kidding. And that is only his published writings that we use. But we take that as a beginning point. But it is in fact, in this context, a really small data set. So we have to train the algorithm on relevant, other relevant stuff. So we are in fact very lucky that the Danish Royal Library has digitised every Danish

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newspaper published ever, since the late . . . I think it is 1660 or so. Yeah. So we can take the relevant nineteenth century material and the idea is that you sort-of furnish the intelligence with the period that it lived in, so to speak. And then we also have available relevant novels of the age, so we train it on that. And the idea is to find contextually relevant material, sort-of adding to the system.

**SC:** *Right.*

**KB:** Yeah. And so, of course, there are many, many problems with this! So if you have to sort-of philosophically discuss “would this be a representative of who Grundtvig really was?” – well, no! Of course it wouldn't! It is based on not what he wrote, but what he published. And in fact Grundtvig himself was very eager to point out that there is a long way from the way you communicate with your mouth and with your hands. So he had this catch phrase, or he was really keen on the idea of the so-called “living word”. That was his term. And that was the oral communication, as the correct way, or the easiest way, to transport ideas and feelings, and stuff like that. So this idea of us taking his writings as sort-of a proxy for who he was, goes against what he would have himself . . .!

**SC:** (Laughs). *He wouldn't agree!*

**KB:** He would not have agreed. So the hope is, because we also have outreach obligations at our centre, the hope is that people will find it interesting, and a fun thing to discuss, and then I can tell them a bit more qualified information about Grundtvig during that process. When that is said, I think it will be interesting to see how one can interact with this thing. And what will people do with it? What will they think of it? That is a sort-of anthropological observational study waiting, a few years ahead!

**SC:** *Definitely! And going back to how you proceed to develop the Grundtvig AI and your presentation at the EASR 2019: you work pretty much on this work that's coming up all the time, “word embedding”, and how this works throughout his writings, and how this also represents his own thoughts?*

**KB:** Yeah.

**SC:** *Could you share some of your findings with us?*

**KB:** Yeah. For sure. What I presented here yesterday was an investigation that used some of the basic methods we used to construct . . . or at least the same material we used to construct the chatbot. But here we used it to embed, or deeply contextualise in a semantic network, specific key words that I, as a

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Grundtvig scholar, was interested in seeing the network between. And this study was, for me, interesting because I'm an historian of religions, and I'm interested in cosmologies. So I would like to see what is, in fact . . . how to tease out the worldview of Grundtvig. Can you do that with these texts? Obviously I have read a lot of them. Almost all . . . Ok, so I haven't read all of them because you turn out, as I said, really weird when you do so. But I have read quite a lot of them. So I had an idea of what I would find. But as it turned out, it was actually really . . . Ok, so the interesting thing is that we have this modernist figure on the one hand – that is what we think of him as in Denmark: the father of Danish modernity, as it were. And I know, because I've read a lot of his works, that he held a sort-of geocentric medieval worldview. Yeah. He's really explicit on the fact that he thinks of the world, or the earth, as the centre of the universe. And uses ideas of earthly paradises, and earthly skies, and a heavenly sky with God and angels, and stuff like that. And hell – a literal idea of hell. And that was not typical in the nineteenth century for mainstream Christian thinking . . . or at least not within educated elites. And he, as a theologian, Grundtvig was one of those. And I would like to see if I could sort-of find that, visualise this fact. So what we did was to see how the key words heaven, earth and hell, how they related to each other. And we did so by using a specific approach called [ELMo](#). And the idea is that you take, for each key word, ten associations. The ten nearest associations at sentence level. So you go through the total corpus and see . . . if I'm interested in heaven in which way and – how to say this? Which other words does this significantly cling to, through the corpus?

**SC:** *That you will find tied in with this, in the corpus?*

**KB:** Yes exactly. What is the semantic context of this word? So we call that a cap. Then we had three caps, or three associations for each association, to sort-of see, how do these words that you find clinging to heaven, how does this integrate into their semantic network? And I did that for three key words and then collapsed the networks and see how they integrate, to then have a semantic network of these different spheres. And the interesting thing from that is that you can take this analysis and then, from that, gather or see there arising semantic clusters within the network. And the very interesting finding here was that there is a clearly demarked cluster for sort-of earthly surroundings. Or you have earth in the centre and then you have a semantic cluster of things going from the earthly sphere and the earthly sky and then you have a sort-of earthly paradise – words signalling earthly paradise. And then you have a nether world, kind of thing, connected to death, but on earth. And then you have an entirely different cluster in the network that is ontologically seen further from earth than the first one. That one has to do with heaven and hell. So you can sort-of see that the clusters surround the earth in a way that it would do if you have geocentric worldviews. The earth is sort-of the centre and then you have the

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other spheres interacting around it. And in order to situate, or to furnish this investigation I found it necessary to take each key word and see how they perform without, not within, the network. So can I sort-of word-embed them for themselves, and see if there is something dragging it in a specific direction? And what I found was that one of the interesting findings here was that earth, in Grundtvig's writings, is a thing preserved for, or a place thought of in biblical terms, in archaic style, biblical style or in Old Norse style. So you think of the earth as a tent: this Semitic idea embedded in the Bible, in the Old Testament, of the world as a tent. Or there is this idea of the world as God's footrest, also an idea from the Bible. And finally, one example more could be the idea of the world as [Ymir](#) the Old Norse god, whose corpse was made into the earth. So it is an extremely non-scientific, non-naturalistic kind of way of speaking or writing about life on earth. And from there we could sort-of feel secure or have the idea that Grundtvig, in that sense, could be said to be a representative of a medievalist. . . . Medievalism as such, as a cultural stream or flow within the nineteenth century, was rather prominent. And in this way, Grundtvig's worldview could be seen within that context. Yes.

**SC:** *And it's quite good way of plotting his thought to implement the AI, as well – it crossed my mind. My last question is one thing that you addressed as a consequence of the previous question: what does the Grundtvig AI imply for the creation of Grundtvig's legacy in the current day imaginary? I think that's a very interesting question because, as you said, when people are going to interact with the AI, something is going to happen!*

**KB:** Yes. I'm really not sure! (Laughs). I'm really not sure what is going to happen. I think that there will be some, you know, Grundtvig enthusiasts – and these are mainly old people – they will be quite angered or, yes . . . . At least, I hope so! I hope that it will be something that you could have the opportunity to have a debate in the public media about. But I think that, for others, it would be just a fun fact that now you can try to engage with this collection of writings in another way. But I'm interested in just observing the idea of agency – because it's a robot looking like Grundtvig – what that does to the whole thing. I'm really not sure. I'm really not sure. As it happens we're really happy that the Danish National Museum has agreed to host him, as it were. So when the robot is to be . . . or when Grundtvig is to be artificially revived, he will have a home at the Danish National Museum and you can visit him in his office. And you can go and ask him questions: “What's up with the living word?” and the ideas of the folk high school. And then we hope that he will perform, and answer in ways that are sort-of sensible. Because that is, of course, what is almost . . . that will be very interesting for us to see how well we can make him respond. I think we're in luck that he was from the nineteenth century, and in order to get some authenticity we have to make him a bit weird and archaic.

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But it is also a fact that almost everyone who knows of Grundtvig will know that he was, himself, really weird, and polemic, and colourful, and – in a certain sense – culturally, a bit off-beat. That was how he was conceived within his time. And so, if the robot doesn't perform closely to human interaction skills we can tell the story about the weird guy Grundtvig!

**SC:** *He was like that!* (Laughs).

**KB:** He was like that! He was awkward, and off-beat, and stuff like that, yeah. But so I would like to have a better answer to your good question. But I am just not sure!

**SC:** *Sure. I think we'll have to see in 2022?*

**KB:** Yes. I hereby invite you to come and see what happens!

**SC:** *Thank you so much Katrine – and not only what people think about the Grundtvig AI, but also what the Grundtvig AI will think about the current state of society!*

**KB:** Precisely!

**SC:** *I think that will be also interesting anthropological, philosophical . . .*

**KB:** Well, yes. Now you've mentioned it yourself, that is one thing that many politicians, and scholars, or people engaging in the public debates of Denmark tend to do. Only last week I heard a scholar from the University of Southern Denmark proclaiming that if Grundtvig was alive today, he would have voted for Trump!

**SC:** *Oh, Wow!*

**KB:** Yeah. (Laughs). So those types of proclamations or suggestions can now be tested! (Laughs). “Would you . . .?”

**SC:** *We'll have to do another podcast in 2022.*

**KB:** Yeah. And we will ask Grundtvig. You can interview him!

**SC:** *We will interview him next time! (Laughs). That would be bizarre and fun at the same time!*

**KB:** (Laughs).

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*SC: Well Katrine it's very nice to have you here and we hope to see you again in the future.*

**KB:** I hope to get the opportunity to introduce you to the Grundtvig robot. Thank you so much for having me.

*SC: Thank you, as well, for being part of the RSP.*

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