

Personality ML

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Presentation

In recent years, many researchers have studied how human psychological aspects may influence the human decision-making process and how these aspects could be used to improve the computer decision-making process. However, the greatest problems faced by these researchers are how to effectively use, model and implement those psychological aspects in computers. The objective of this comic book is to present PersonalityML, a markup language created at the Federal University of Sergipe to standardize the computational representation of personality and enable computers to understand and use it.





Nothing... a few days ago I was walking at the mall and went into a bookstore, and a salesperson, just by looking at me...



... recommended a book to me. I decided to buy it, and it was pretty cool.

But, right now I'm logged in on a bookshop website where I usually buy books, and many recommendations are showing up for me to see, but, sadly, nothing really interesting...



Hmmm... the website's personalization must not be good. I guess it doesn't use Affective Computing. If the site could recognize your emotions, it would understand that at this moment you no longer want to receive recommendations.



Actually, I just wanted the website to recommend some products I'd probably be interested in, not this junk.



And exactly how could personality help in this case?

I understand, but if the site had used personality, it could have easily recommended something more to your liking, don't you think?



Think a moment, who could give you a more pleasing gift? Your mom or... somebody else??

My mom, of course.

Because my mom knows me, right? She would know exactly what I like...

And why?



So, people who know you, like your mother, know what you like or dislike. The longer you spend with somebody, the more things you discover and learn about them, don't you agree?



Hmm, that's true, but what do you want to tell me exactly?



Take it easy,
I'm coming to that...
I mean, when somebody
really knows you, they can
be sure about your
likes and dislikes,
don't you think?

Then, do you
think somebody you
just met will be able
to buy you an
appropriate gift
without knowing
much about you?

That's
true.



I think so!!!
They might get clues from my
voice intonation, my speech, my
dressing style, for instance.

So, what do you think is
behind your likes and
tastes? What enables
somebody who knows you
well to be sure about your
likes and dislikes? Or
somebody you just met to
imagine about your likes?
...while the website you're
buying books from has no
idea at all. So, do you know
what's behind all this?



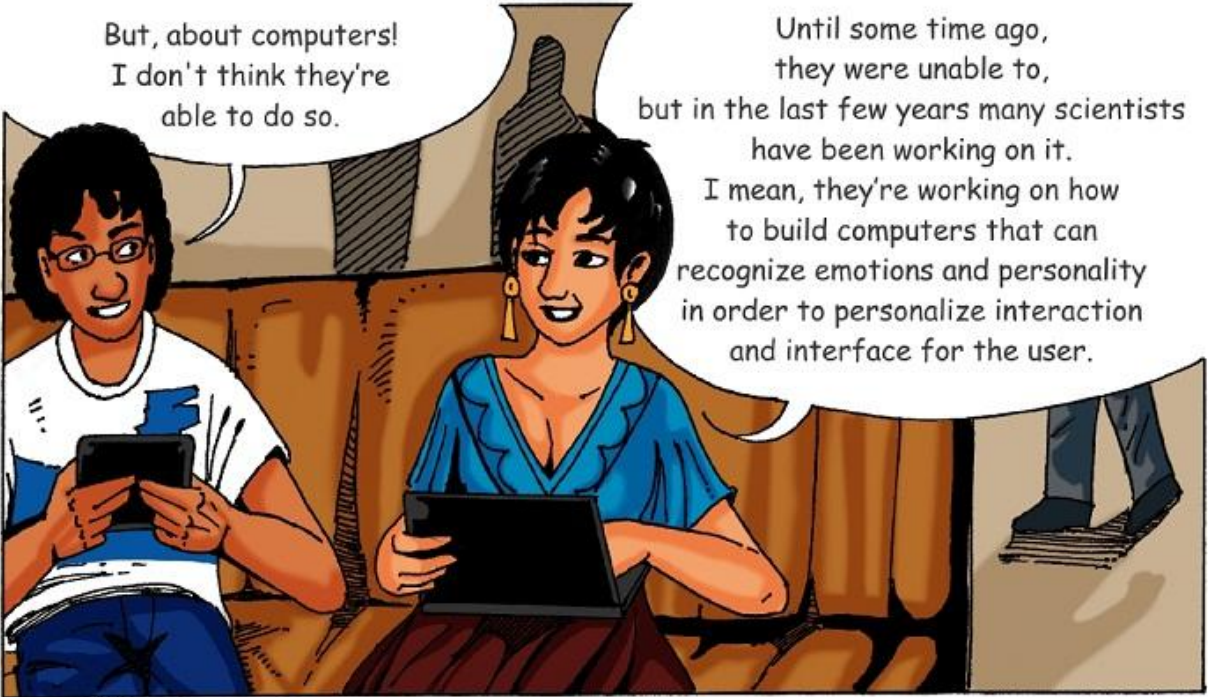
Oooh!!! It's easy, it's my personality!!!
It's a pity computers can't understand
this kind of thing... personality, emotions...
Could it be that computers will someday
evolve to understand these features?
I really doubt it...



You shouldn't be so doubtful. Computers might surprise you!



Are you telling me that there are already computers able to "read" my personality? Or understand how I feel? People knowing that, I understand.



But, about computers! I don't think they're able to do so.

Until some time ago, they were unable to, but in the last few years many scientists have been working on it. I mean, they're working on how to build computers that can recognize emotions and personality in order to personalize interaction and interface for the user.



This is Affective Computing. In this area, they're trying to approximate computer decision-making to human decision-making by considering some subtle aspects used naturally by humans during their interactions.

Wow! That's cool! Now, I'm interested. I'd like to know everything about it!



Hmmm.



I knew you would fall in love with it. It's a wonderful area and still has much to be done... Right now, I'm going to a W3C conference. Some of their scientists created the "EmotionML," a markup language to represent emotions.



Wow, just the emotions? How about personality?



Jo, unfortunately there isn't a markup language to standardize personality. Do you want to help me work on this subject when I come back?

Sure!!!



Passengers, please go to the boarding gate...

OK, Jo. When I return, we can talk about it. Look for Adicinéia, she'll explain markup languages to you.



At home... Jonas can't get to sleep.



In the morning, in the hallway of the Computer Science Department.

Wow, that's cool... Let me see if I can find anything about personality at the W3C.



I didn't find anything. That means we could try something new!



Professor... Could I talk to you for a moment?

Hi, Jonas. Yes, you can



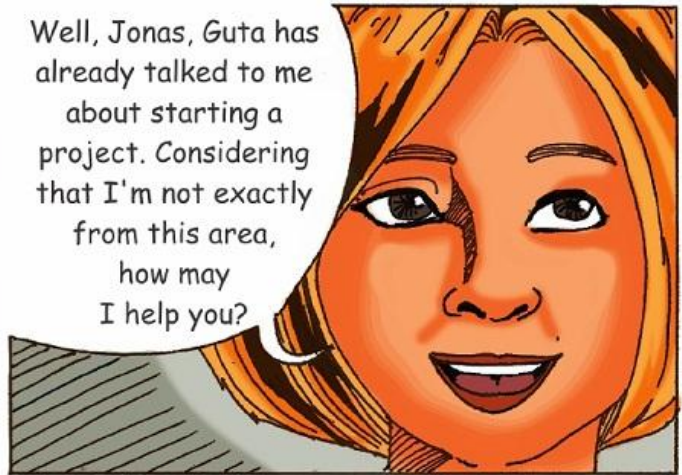
So Professor Adicinéia, I talked to Professor Guta at the airport the other day, and she told me about personality and emotions in computers, Affective Computing, personalization, recommendations and other things... so, I really got interested.



However, she was just leaving for a W3C conference, and she didn't have enough time to explain much to me. She told me to talk to you, and ask you about this subject...



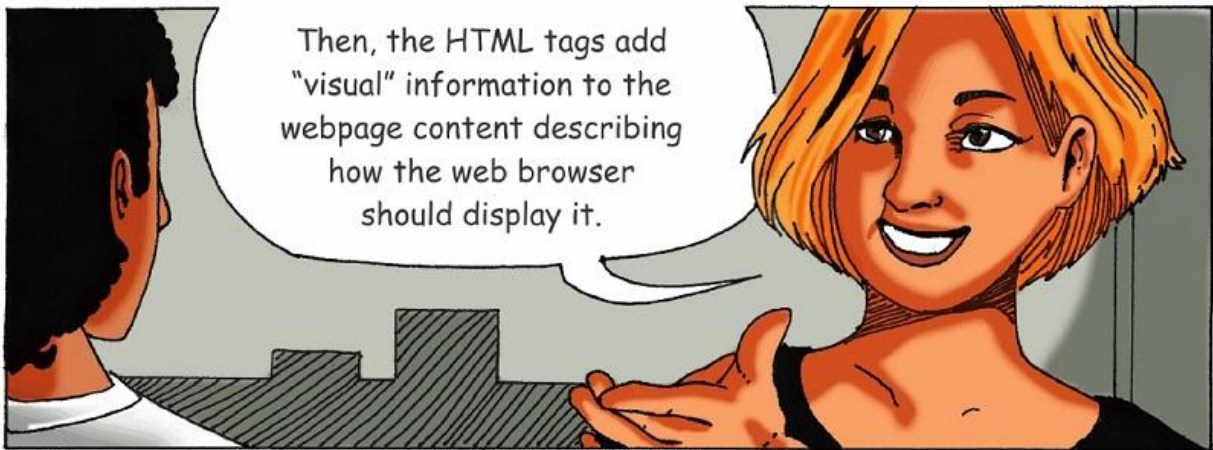
Well, Jonas, Guta has already talked to me about starting a project. Considering that I'm not exactly from this area, how may I help you?



She told me to talk to you about markup languages... and something about creating a PersonalityML.



Oh, sure. A markup language is a set of tags we apply in a text or data in order to add some information about it or in addition to it. Have you ever heard about HTML?

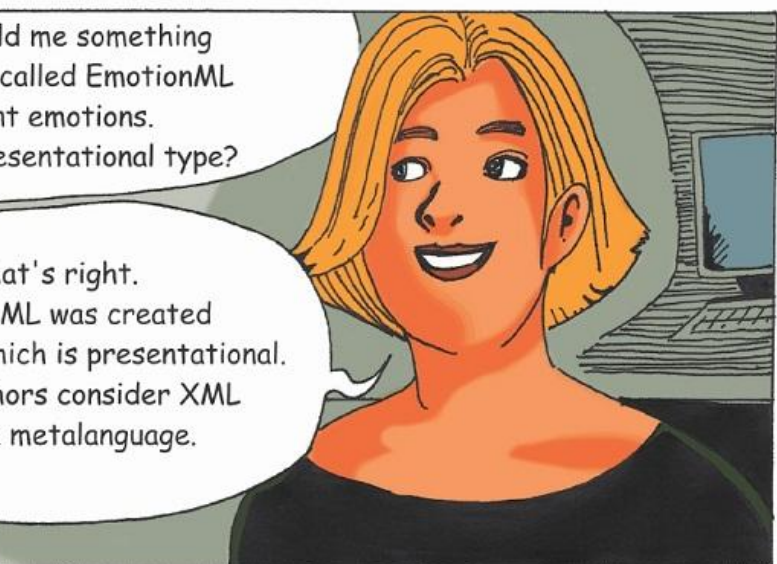
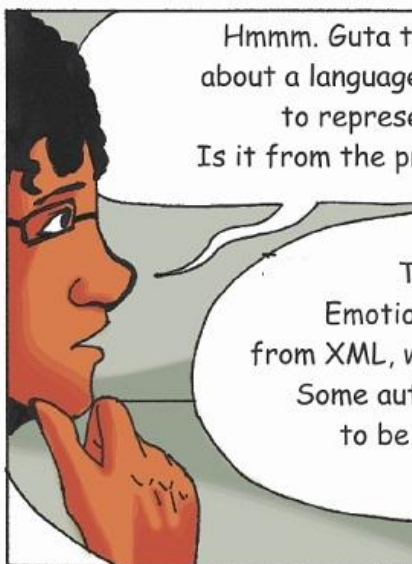
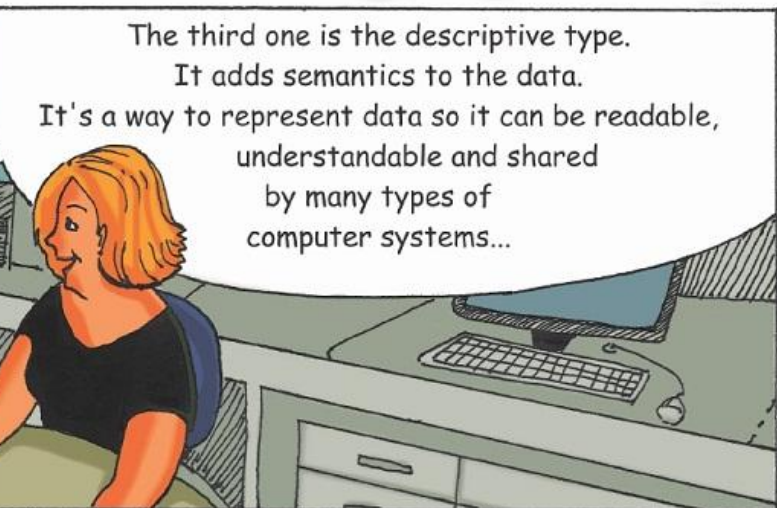
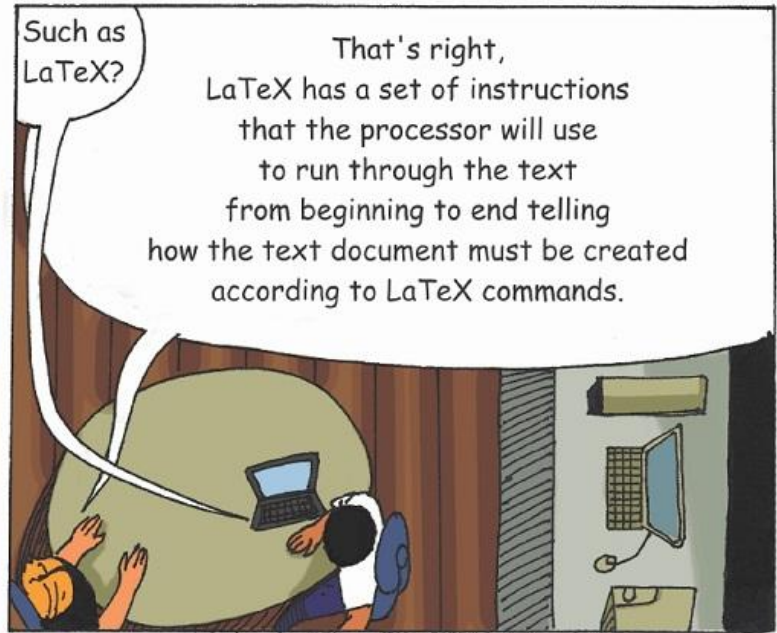
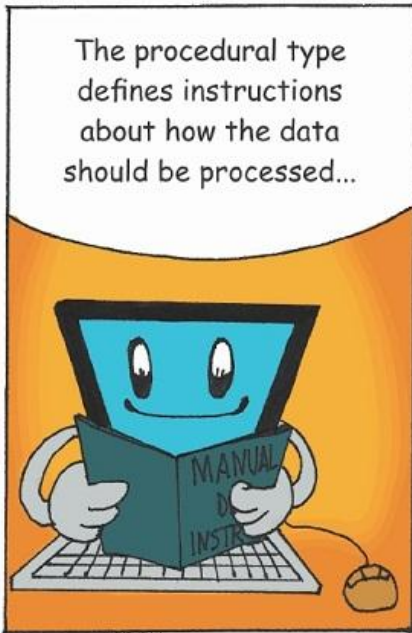


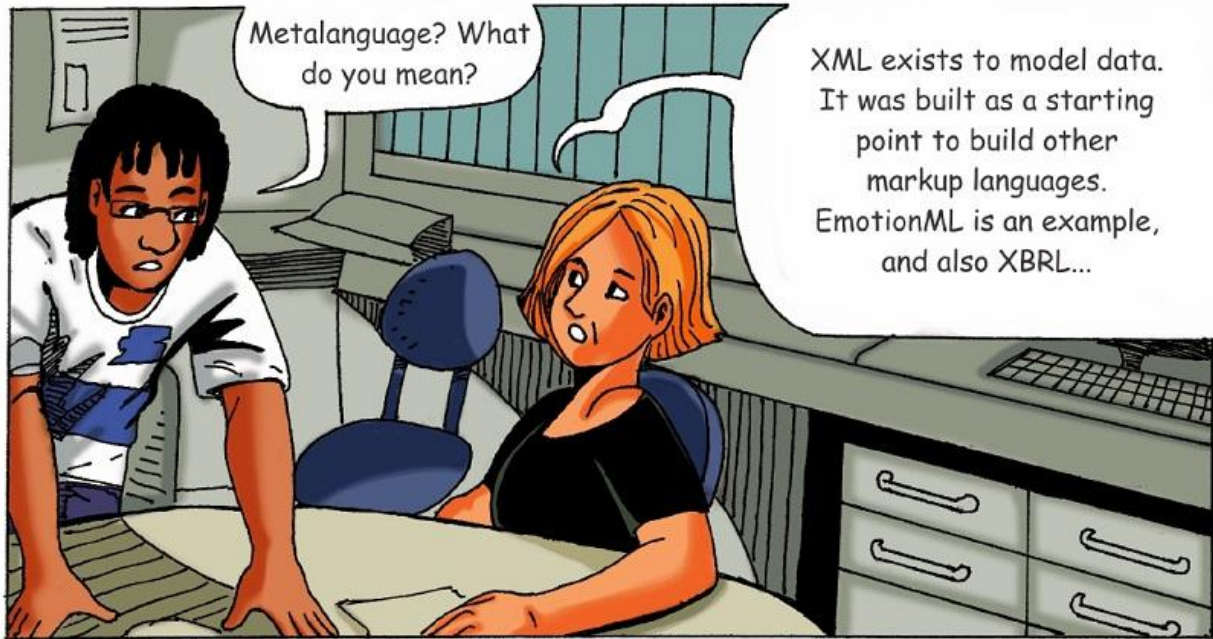
And are all the markup languages
just like that?

Hmmm, partially...
every markup language adds
some information to the data,
but this addition may have
different goals.

In general, a markup language
may be one of 3 types:
the presentational type
defines a format to display
the data, such as HTML...

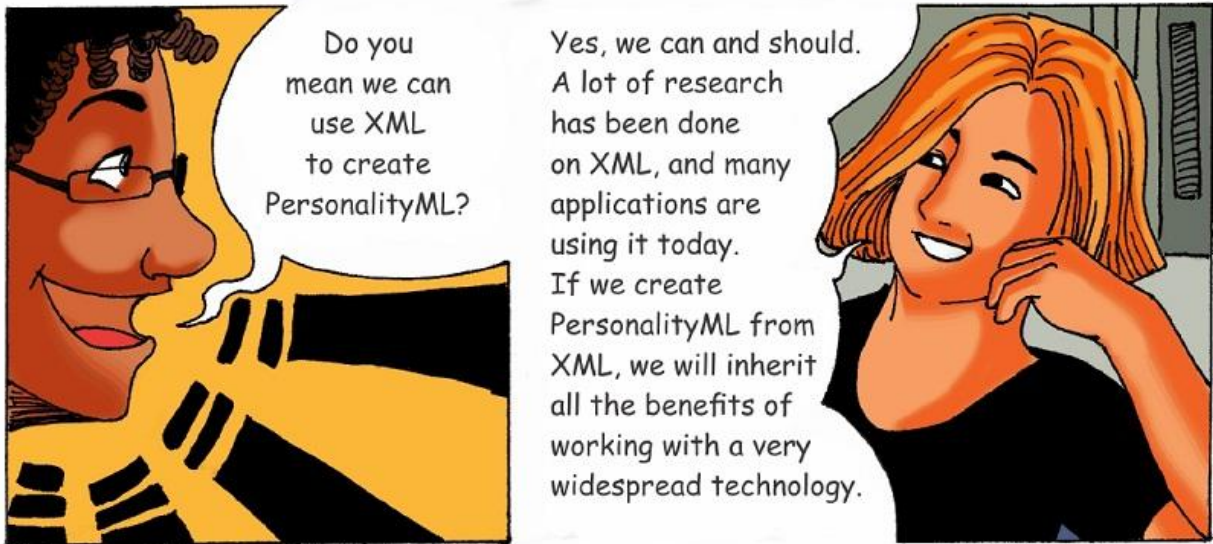






Metalanguage? What do you mean?

XML exists to model data. It was built as a starting point to build other markup languages. EmotionML is an example, and also XBRL...



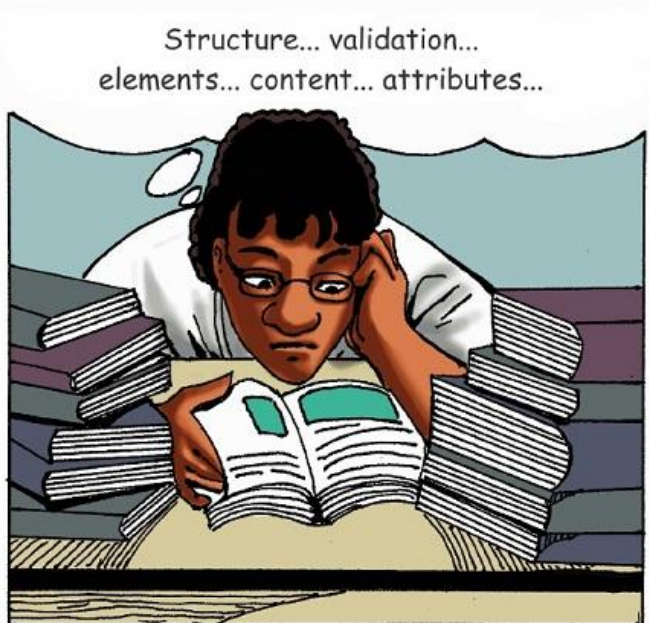
Do you mean we can use XML to create PersonalityML?

Yes, we can and should. A lot of research has been done on XML, and many applications are using it today. If we create PersonalityML from XML, we will inherit all the benefits of working with a very widespread technology.



So, how can I learn more about XML?!?

I think I can lend you some books about this subject. Let me see...





A few days later, Guta returns from her trip.



So, Jojo. Have you talked to Adicinéia?

Yes, I have. I was in her office, and we talked a lot about markup languages. She lent me a ton of cool books.

Cool, then I think we can already start to create the PersonalityML... It will be a great contribution to e-commerce and human-computer interaction. With PersonalityML, we can leave clues about our personality to be used by websites to recommend products, as we discussed earlier.



Yes. Now, I just need a book explaining what personality actually is so...

Why are you laughing?

Just one book? Hahahaha

Do you think one book will be enough to provide you with all you need??



Why not? After we find somebody's definition of personality, we'll be able to model it in a markup language... won't we?

You got the key point and didn't even realize it...





Me?
What do
you
mean?

Can you define
personality?!



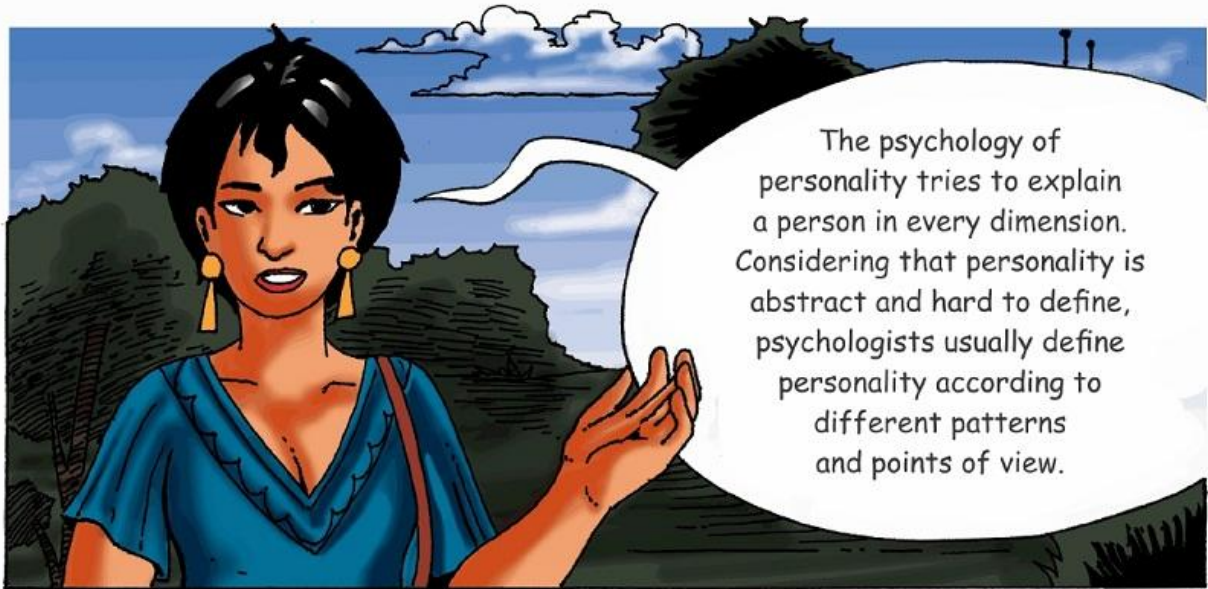
Easy!!! Personality
is... well, it's like...
actually... No,
I guess it's...



Aaaaah!!! I'm confused!
I can't do it... How can I
represent something
when I don't even
know what it is?



Hahahaha. Take it easy, Jojo!
Actually, not even psychologists
have only one definition of what
personality is... We know it's
related to the thought patterns,
emotions and behavior of a person...



The psychology of personality tries to explain a person in every dimension. Considering that personality is abstract and hard to define, psychologists usually define personality according to different patterns and points of view.

I don't understand... What do you mean by "trying to explain a person by using different patterns"? Patterns analysis... Studying XML was more entertaining...

Hey, Jojo, what a joker... I mean that there is no unique way to explain and represent personality... there are many theories and approaches to it.



Hmmm, I guess I got it...

Each personality theory or approach has its own properties. These properties may be useful in some specific applications and useless in others. Some theories disagree and even ignore some concepts from others.



However, each one can be seen as part of the puzzle.



Interesting... There isn't a unique definition of personality and it's of no use to work with everything at once... but... if I...



What are you thinking, Jojo?

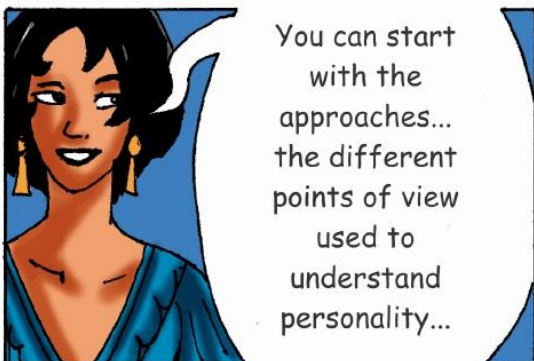
Divide and conquer!!! We could follow the bottom-up approach, starting from the smaller pieces. It's easier to get the work done... I mean, to build a complete, high-level representation of human personality.



That's it. That's the way!



Now... where do I begin to study?



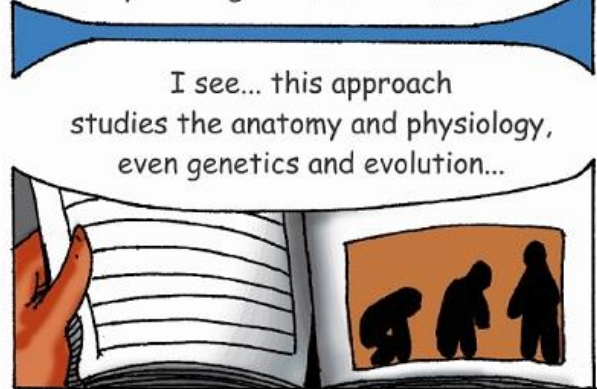
You can start with the approaches... the different points of view used to understand personality...



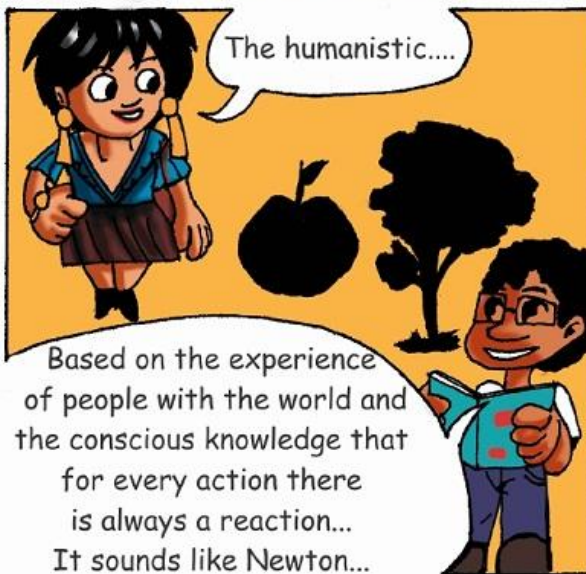
Take this Funder's book for awhile...



So, there are many approaches...
The biological tries to explain personality through the human body's biological mechanisms.



I see... this approach studies the anatomy and physiology, even genetics and evolution...



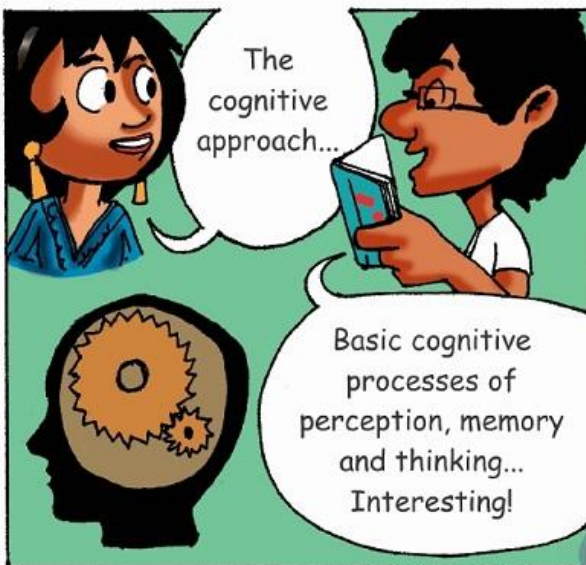
The humanistic....

Based on the experience of people with the world and the conscious knowledge that for every action there is always a reaction... It sounds like Newton...



There is also the behavioral...

Reward and punishment... it makes sense...



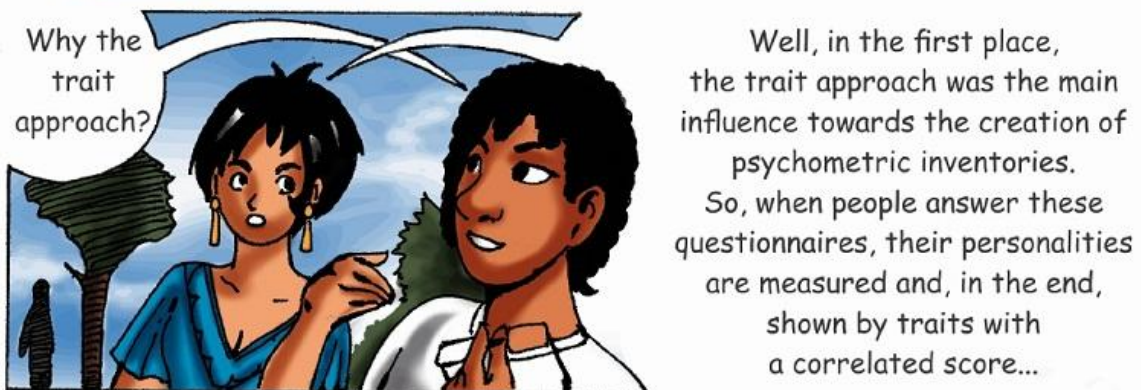
The cognitive approach...

Basic cognitive processes of perception, memory and thinking... Interesting!



The psychoanalytic...

Only Freud explains...



At home...

"In their everyday life, human beings use a wide range of words to describe the personality traits of other people. The trait approach tries to 'translate' this common language about traits into formal psychological theories so the traits can be measured and used to explain and predict human behavior."

"Generally, the trait approach uses specific dimensions created by psychologists to describe the psychological differences between people, providing a base, both theoretical and empirical, to measure how people differ considering aspects like neuroticism, agreeableness, concentration, etc."



"Psychologists who follow such an approach are judicious in the development of methods - most of them in the personality questionnaire format - to precisely measure the differences between people."

The next day...

Look, I've never thought that there was that much to know about personality... and I'm just starting on the trait approach...

Now, try to imagine people starting to work with personality, building commercial systems and websites using this technology... each doing it in their own way, with no standardization.

It would be chaos. The problems with the interoperability between systems... No system would be able to share the user personality data with another...

That's why standardization is so important. Did you read about Allport's research?

Yes. He was the first to study personality traits... He categorized almost 18,000 traits... it's too much, it could be confusing...

Later on, other researchers realized that some of these data could be replicated in many other experiments. Then, from that, other models have been created and used until today.



I've read about some of them:
The Big Five Model, the Five
Factor Model (FFM), the
Sixteen Factors (SF), the
Egogram...

And still, there are so many others.

Yes, but...



But?



In a certain way, they're
all similar. Look, all of them
have a finite set of personality
factors or characteristics,
and these factors receive
a score on a scale...

I read somewhere that
the only difference between
the Big-Five and Five Factor
Models is the "origin" of
each one. Aside from
this, they're
practically identical...

That's right, but also
remember that the factors
are not always enough to
express the complex human
personality. Imagine, only 5
factors from the Big-Five
or 16 from the Sixteen
Factors try to represent
all of Allport's traits...
That's why some
psychologists also
include facets.

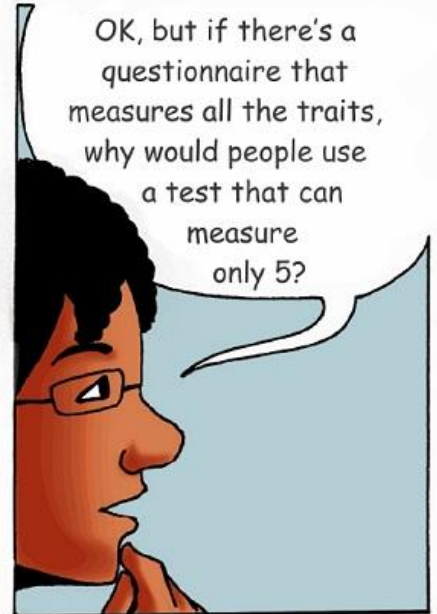
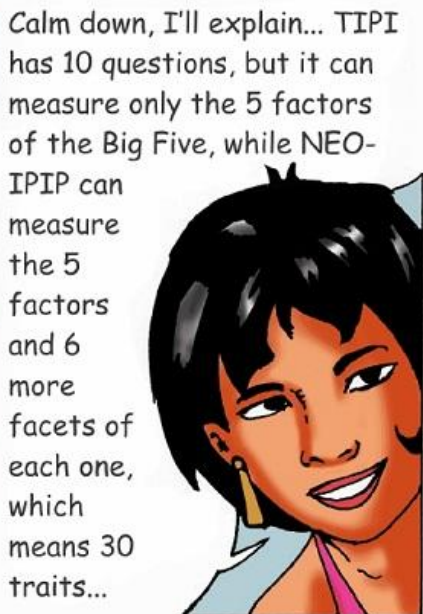
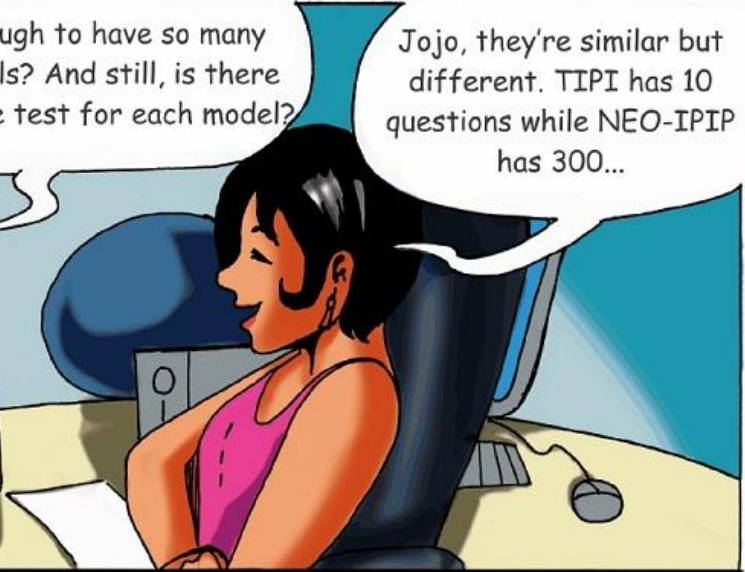


I read about them,
too. They are
subdivisions of the
factors, aren't they?



Yes, they are.
They allow
psychologists
to represent
personality more
completely. Have you
ever seen any
personality
questionnaires?

personality
questionnaires?





You have just shown one of the reasons why. Imagine you ask somebody to answer all those questions: it's scary and time consuming, isn't it?



300 questions... I get tired just by thinking about it.

For some kinds of applications, the information extracted by TIPI is all we need; however, if we need a more complete, precise personality, the NEO-IPIP would be better...



Are there other ways to extract personality traits instead of using questionnaires?



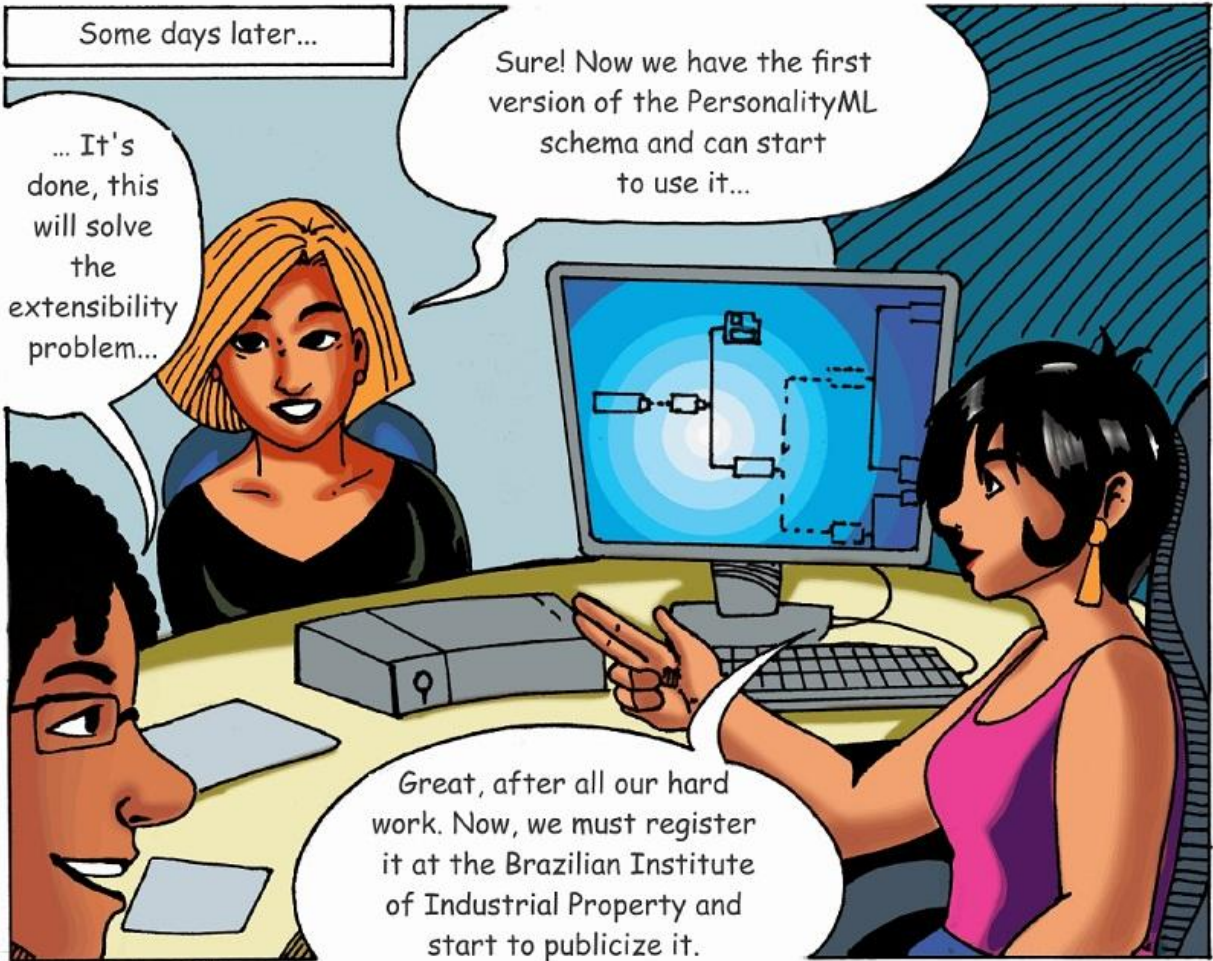
Actually, there are... but we'll talk about that another day. For now, we have to focus on PersonalityML.



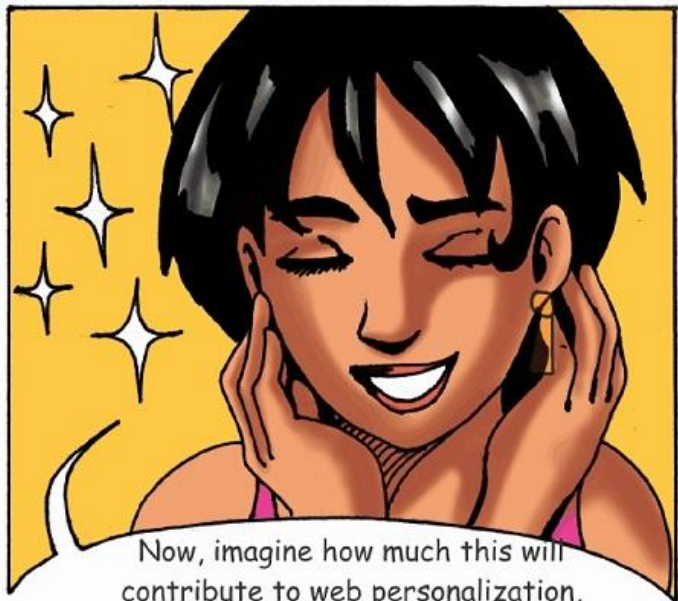
Hmmm, that's OK... I think with all this we can build the first version of PersonalityML... PML... but where can we begin to use it?

Right here, in the Personality-Inventory. It's already able to extract personality traits by using TIPI and NEO-IPIP tests. Then, we can make this information available by exporting it under the PersonalityML format.

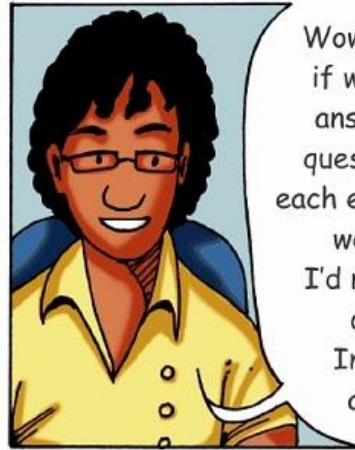




We got it!!! We can start to implement a new version of Personality-Inventory for mobile exporting the personality data, according to the PML format.



In addition, PersonalityML will enable computers to exchange personality data; the personality extracted by one tool can be used by a diversity of applications.



Wow, imagine if we had to answer 300 questions for each e-commerce website? I'd never buy on the Internet again...



Hey, Jo, do you remember I told you that there are other ways to extract personality other than through questionnaires?



It's true, I almost forgot!!!
When do we start...?



Take it easy, one step at a time. First, we're going to apply PersonalityML in our ongoing projects; after that, we can begin to research about implicit personality extraction...



We're also going to use PML in Personal_Movie, our testbed mobile Recommender System software to be used at the Brazilian Mega Events in 2014 and 2016. Can you imagine?





OK, and I'm going to prepare the documentation to publish online when the PersonalityML software registration is done.



Great, all this work was worthwhile. Jo, later we'll talk about other forms of personality extraction and how to use our technology at the Brazilian Mega Events.





To be
continued...

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She was born in 1974. Since finishing her undergraduate studies, in 1996 at Universidade de Passo Fundo-RS, her chosen research area have been Artificial Intelligence. In her Master degree (1998 at Universidade Federal do Rio Grande do Sul RS), her research was focused on Cognitive Agents in order to improve the motivation and interactions between humans and computers. From her PhD (2008 at Université Montpellier II LIRMM-France), she began to work with Affective Computing and how to model and represent the Human Psychological aspects in computers aiming improve the personalization and satisfaction/motivation of humans during their interacting with computers. Nowadays she is an associate professor and researcher at DCOMP/UFS. Her more recent projects include how to extract human Personality in order to motivate and personalize the services in Recommender System considering mainly the user Psychological aspects. In the last years she has been writing many books, books chapters and papers about the use of Affective Computing in order to motivate and personalize information for people. In 2011 we receive 3 awards in projects which considering aspects such as accessibility, Recommendation and Personality Traits. She won a fellowship from CNPq.

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He was born in 1992. From 2009, he started his undergraduate course in Computer Science at Universidade Federal de Sergipe (UFS). He had a CNPq sponsorship. His research is about Affective Computing and User Model. He is the director of Calicomp/UFS and the representant of other students on the Computer Science department (DCOMP/UFS). He is also a Trainee on web development at INFOX - Tecnologia da Informação Ltda.

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