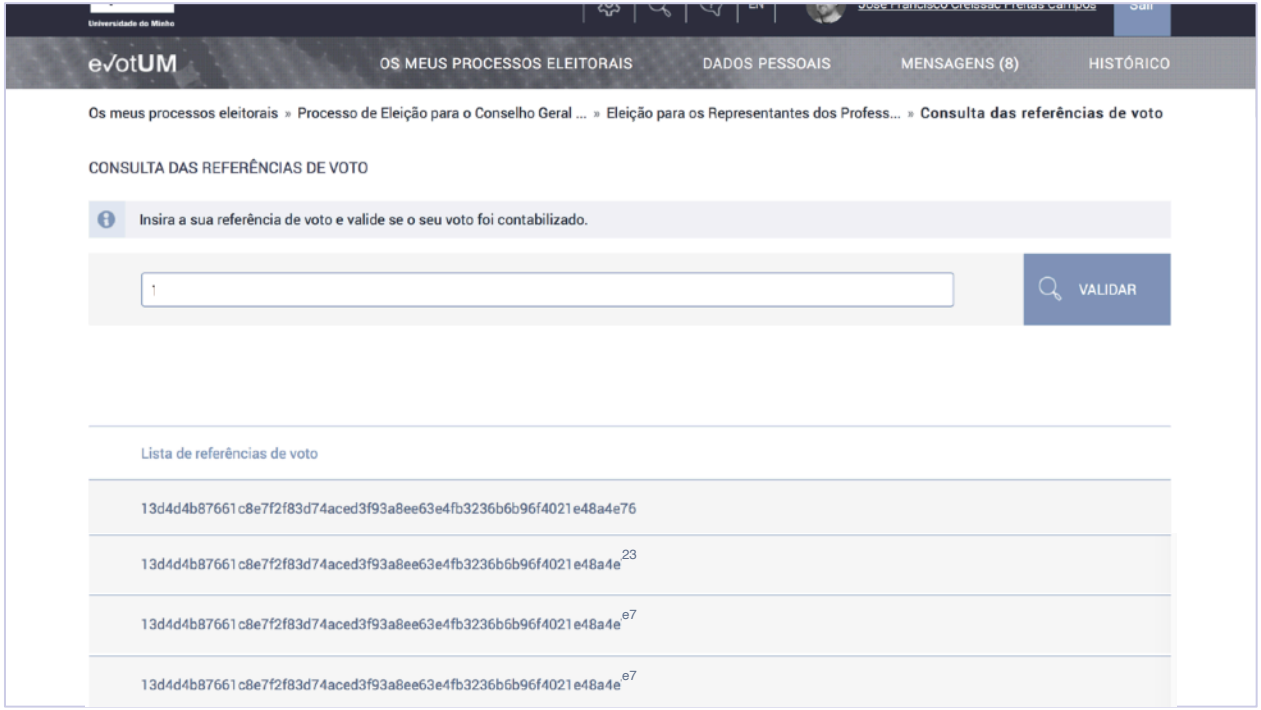
Módulo 7

DESENHAR PARA A USABILIDADE

Exemplo...


Universidade do Minho
José Francisco Oliveira Freitas Campos
Sair
eVotUM
OS MEUS PROCESSOS ELEITORAIS
DADOS PESSOAIS
MENSAGENS (8)
HISTÓRICO
Os meus processos eleitorais » Processo de Eleição para o Conselho Geral ... » Eleição para os Representantes dos Profess... » Consulta das referências de voto
CONSULTA DAS REFERÊNCIAS DE VOTO
Insira a sua referência de voto e valide se o seu voto foi contabilizado.
1
VALIDAR
Lista de referências de voto
13d4d4b87661c8e7f2f83d74aced3f93a8ee63e4fb3236b6b96f4021e48a4e76
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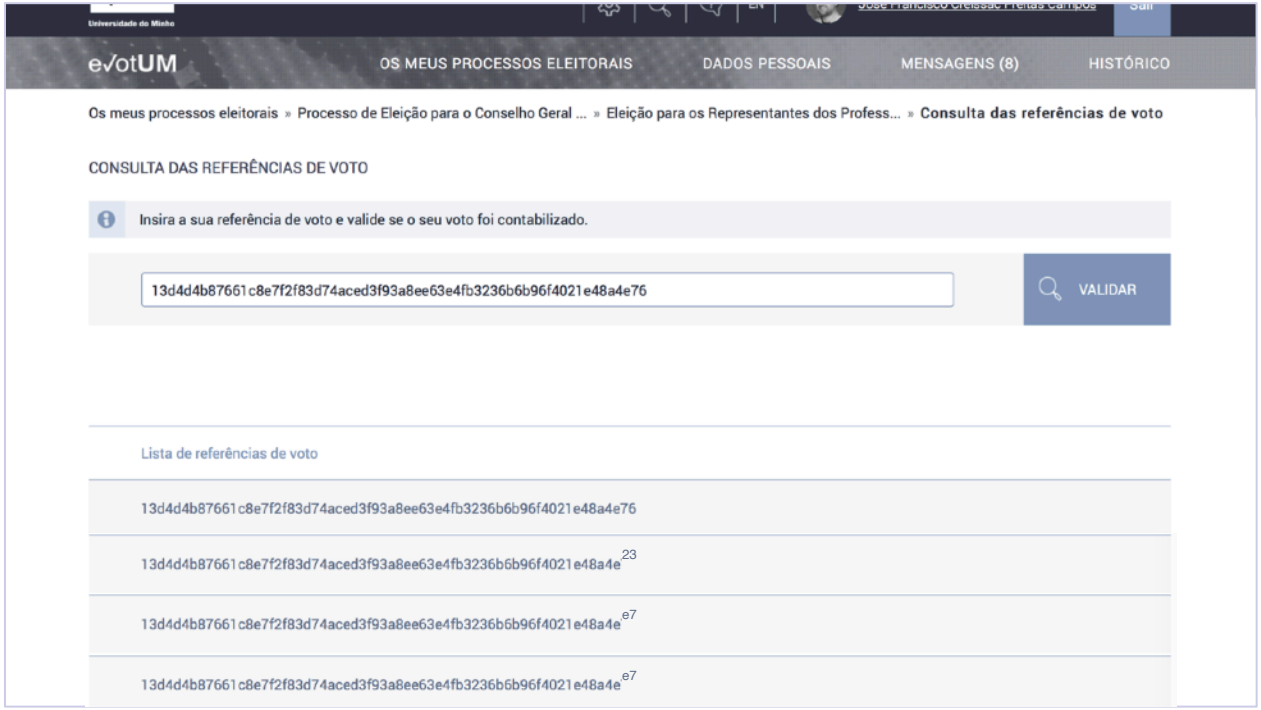
Exemplo...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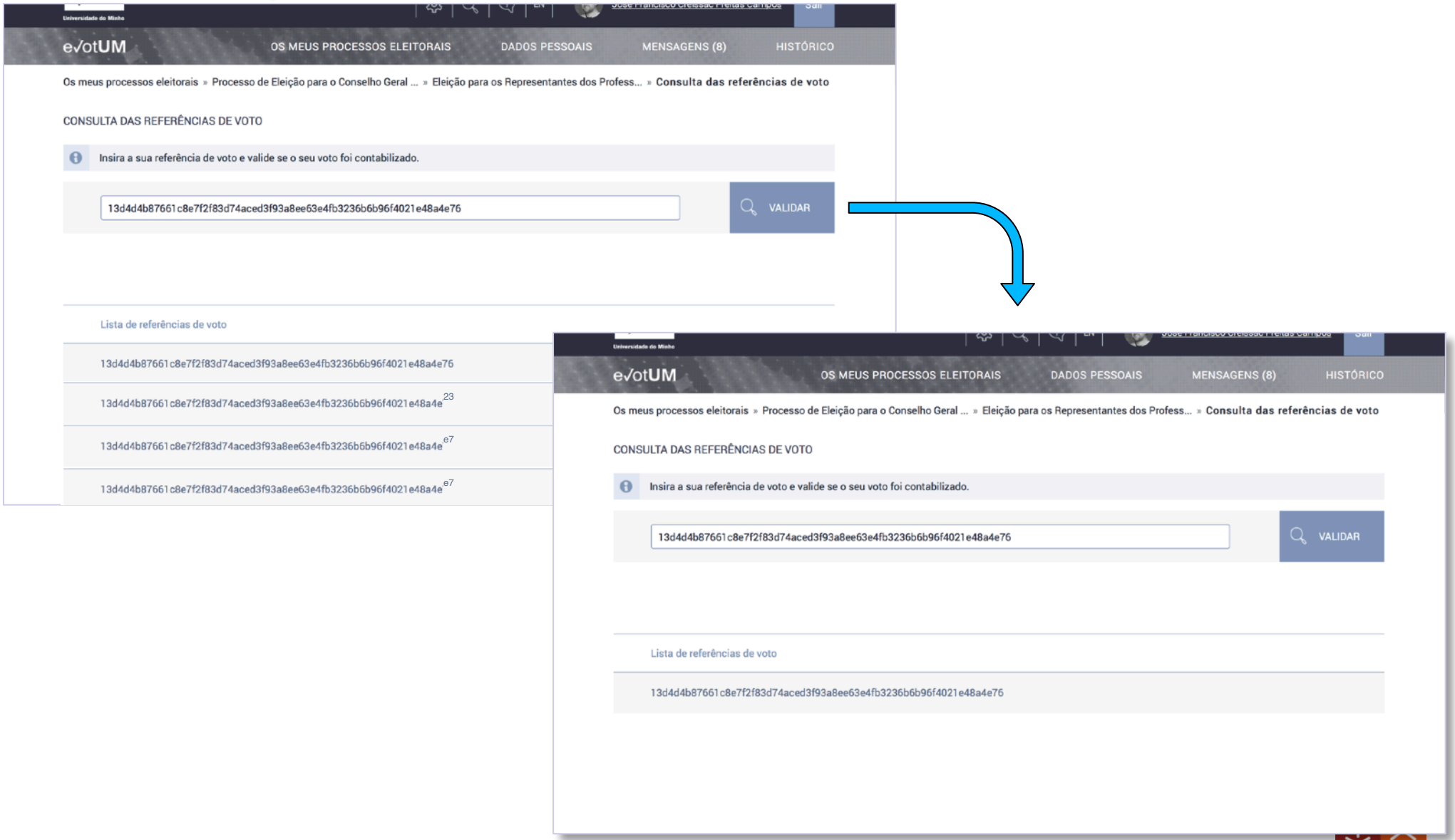
Exemplo...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13d4d4b87661c8e7f2f83d74aced3f93a8ee63e4fb3236b6b96f4021e48a4e76^e7
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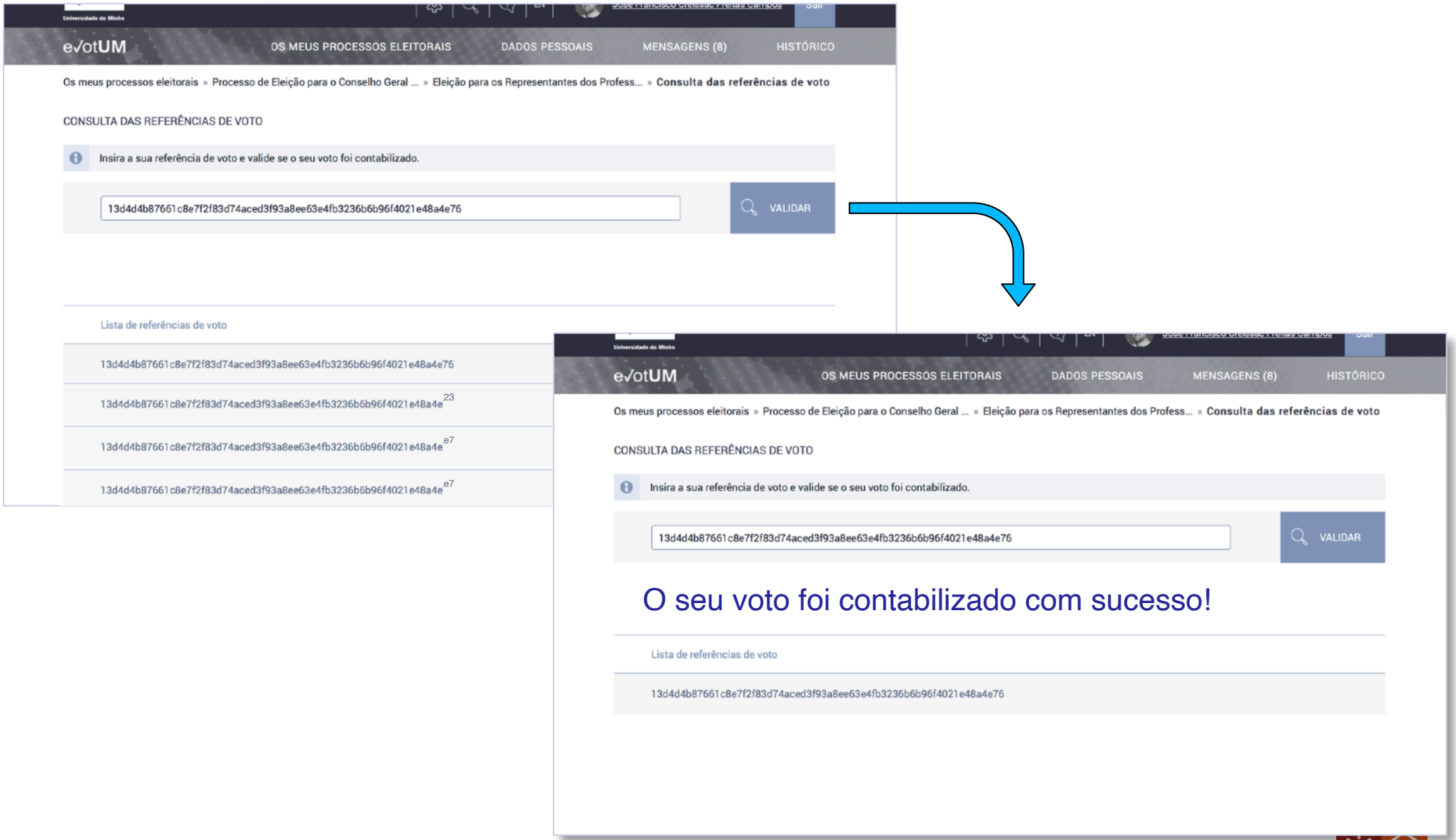
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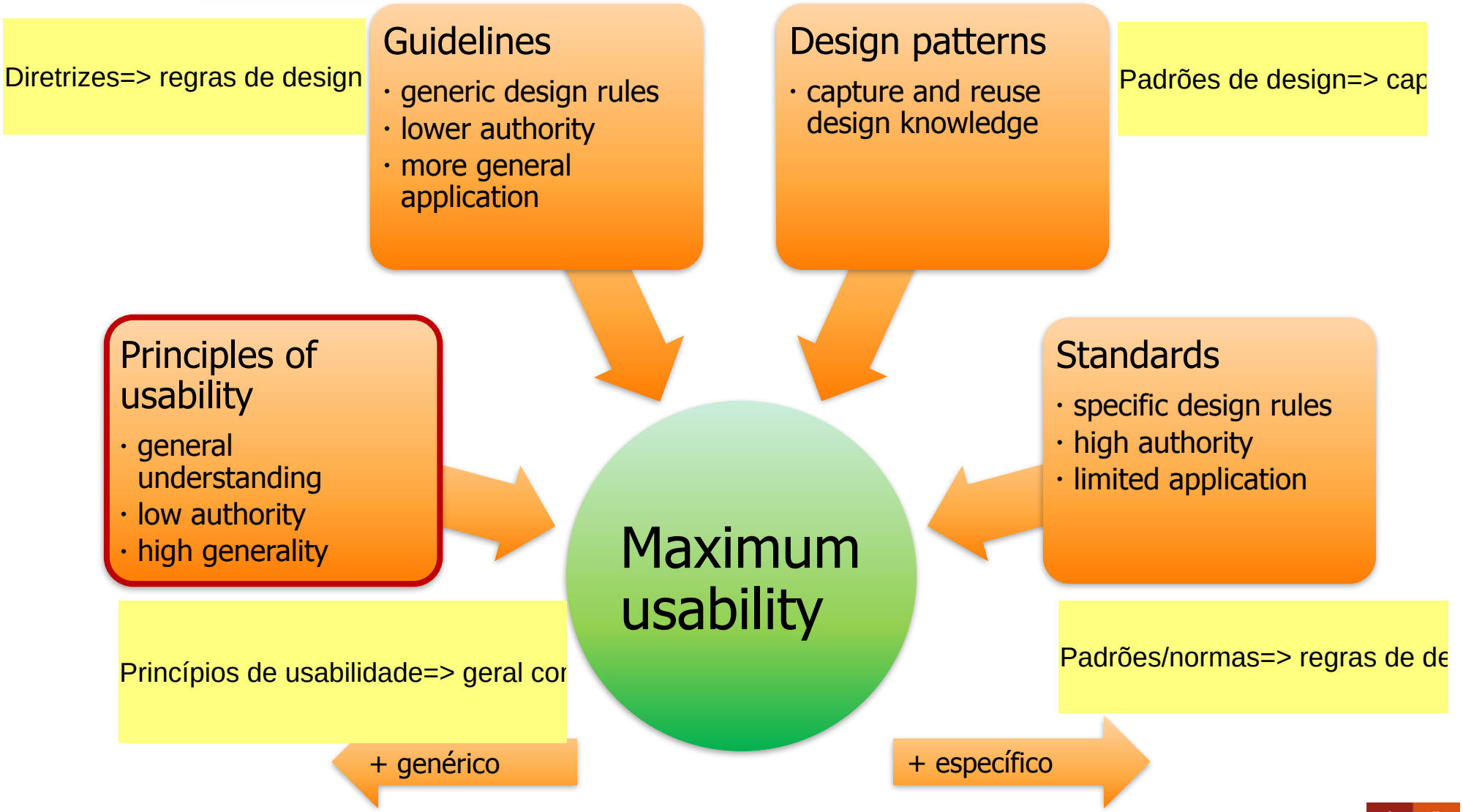
13d4d4b87661c8e7f2f83d74aced3f93a8ee63e4fb3236b6b96f4021e48a4e76
O seu voto foi contabilizado com sucesso!

Designing for maximum usability



Principles for usability

Existem três grandes grupos de principios genericos que tem a ver com facilid

Learnability

- the ease with which new users can begin effective interaction and achieve maximal performance

Flexibilidade da interface, fazer coisas de multiplas formas é possivel ada

Flexibility

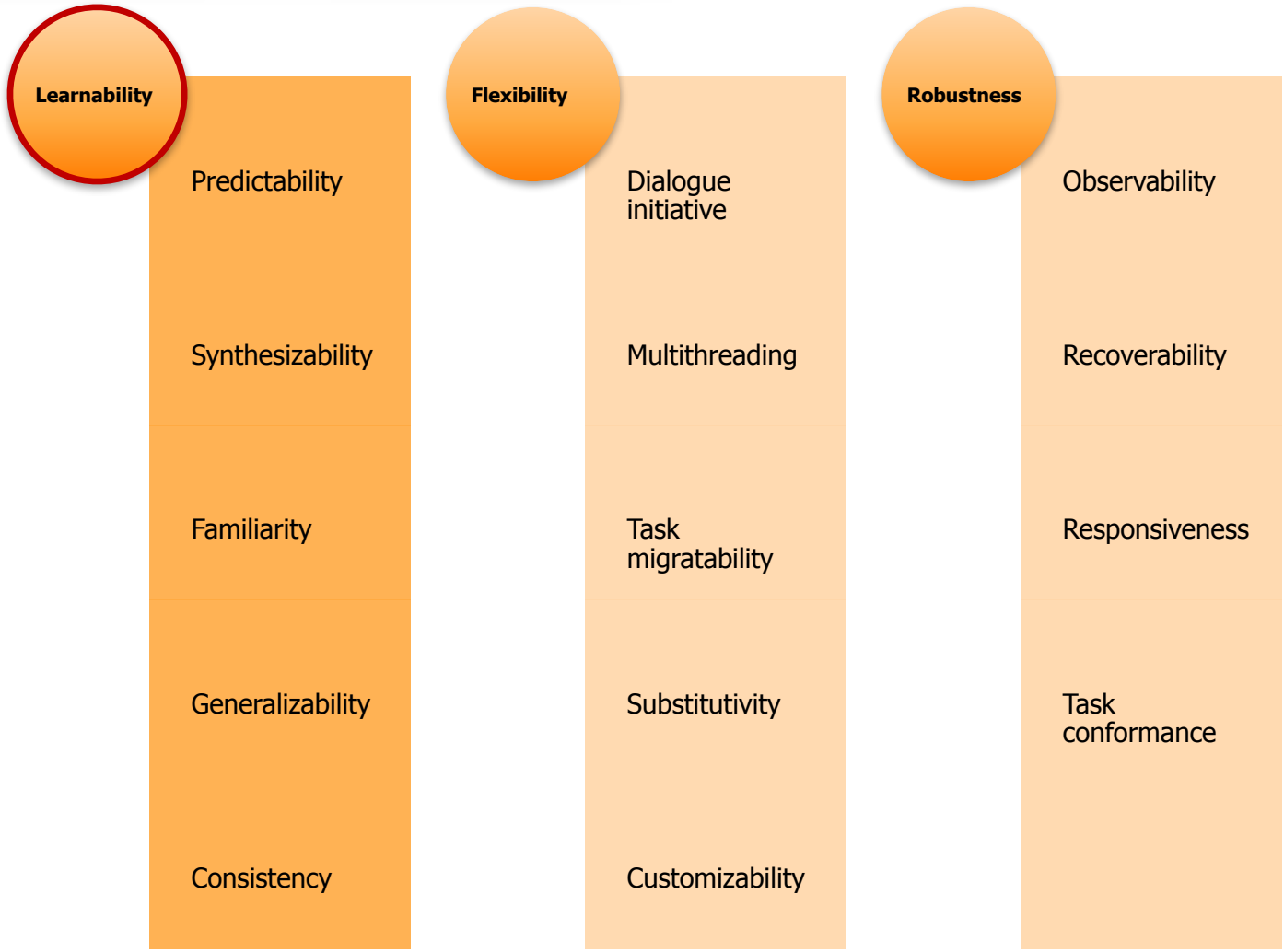
- the multiplicity of ways the user and system exchange information

Robustez significa que as pessoas conseguem fazer as coisas que pretende

Robustness

- the level of support provided to the user in determining successful achievement and assessment of goal-directed behaviour

Principles of usability



Principles of learnability 1/5

Predictability

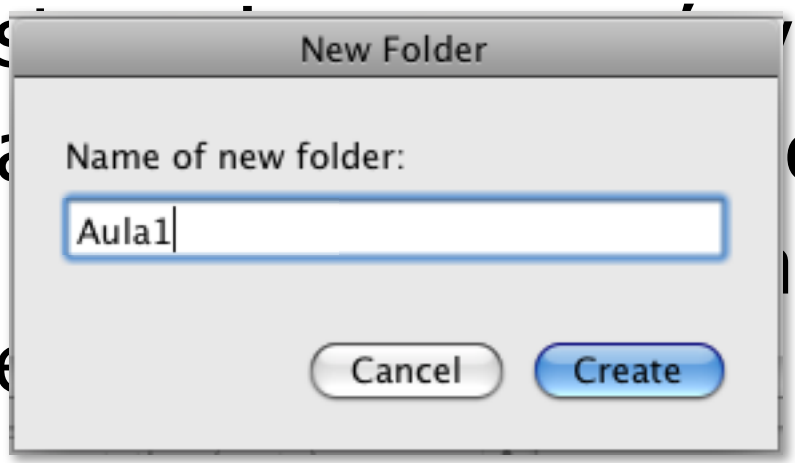
Ser previsível é mais fácil de apredender, é ser capaz de prever qual o

- Ability to determine the effect of actions on the system
- Non-determinism:
  - System view vs. user's view
  - Available information enough?
- Ex.: Criar uma nova pasta no diálogo 'Save As…' (Mac)

Principles of learnability 1/5

Predictability

- Ability to determine the effect of actions on the system
- Non-determinism:
  - Sys… …view
  - Ava… …ough?
- Ex.: … … no diálogo 'Save…



Principles of learnability 1/5

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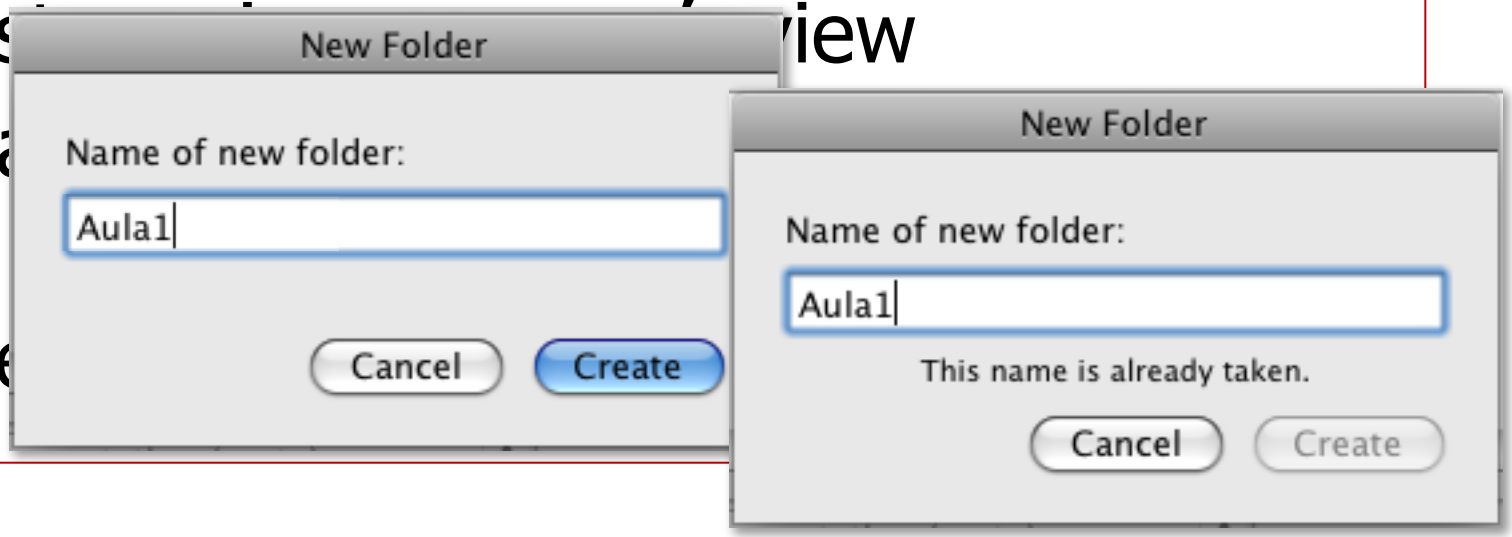

Principles of learnability 1/5

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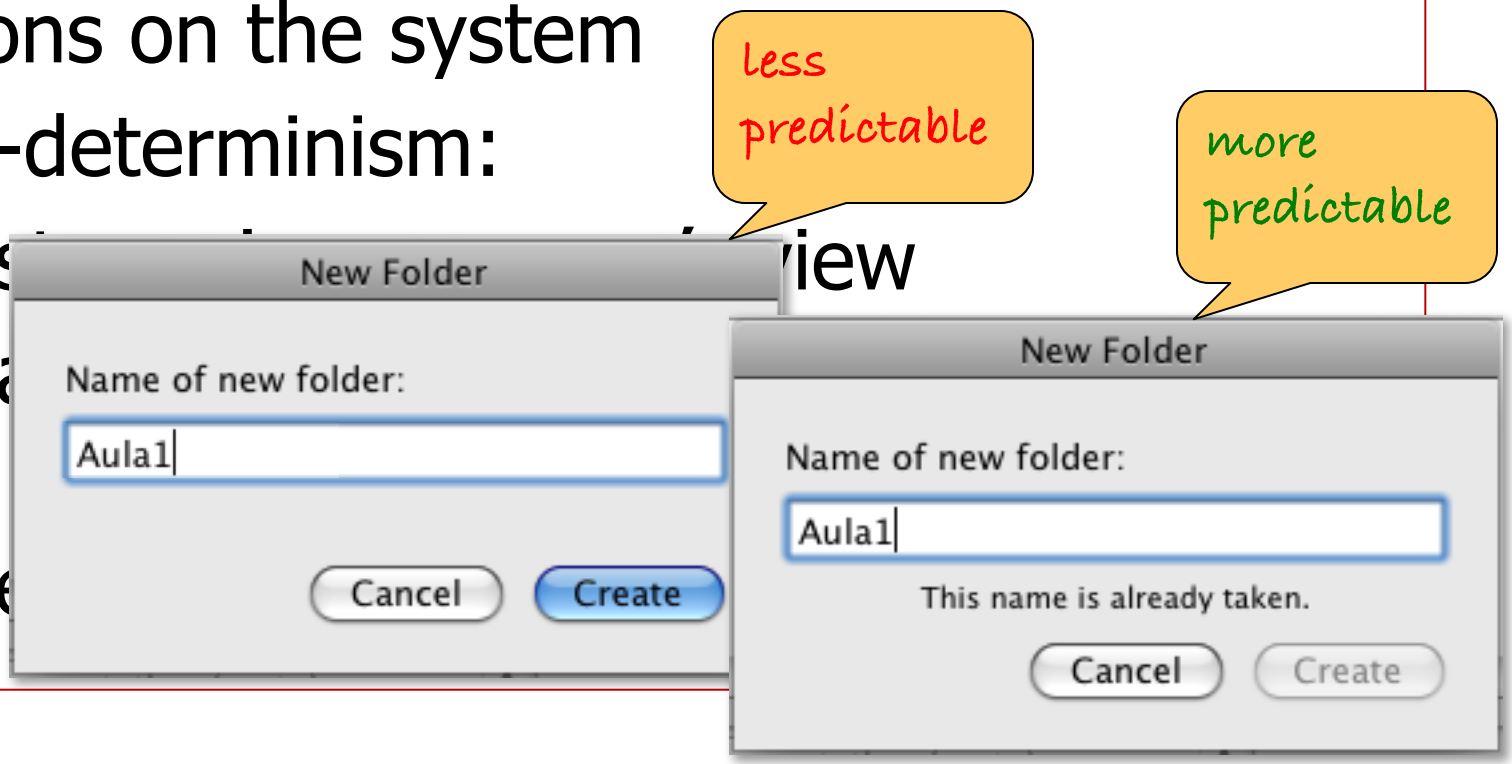


Principles of learnability 2/5

Synthesizability (of mental model)

- Assessing the effect of past actions on current state
- Honesty: ability of user interface to provide information about state changes
  - Immediate vs. Eventual honesty
- Ex.: Notificação de envio de SMS num telemóvel.

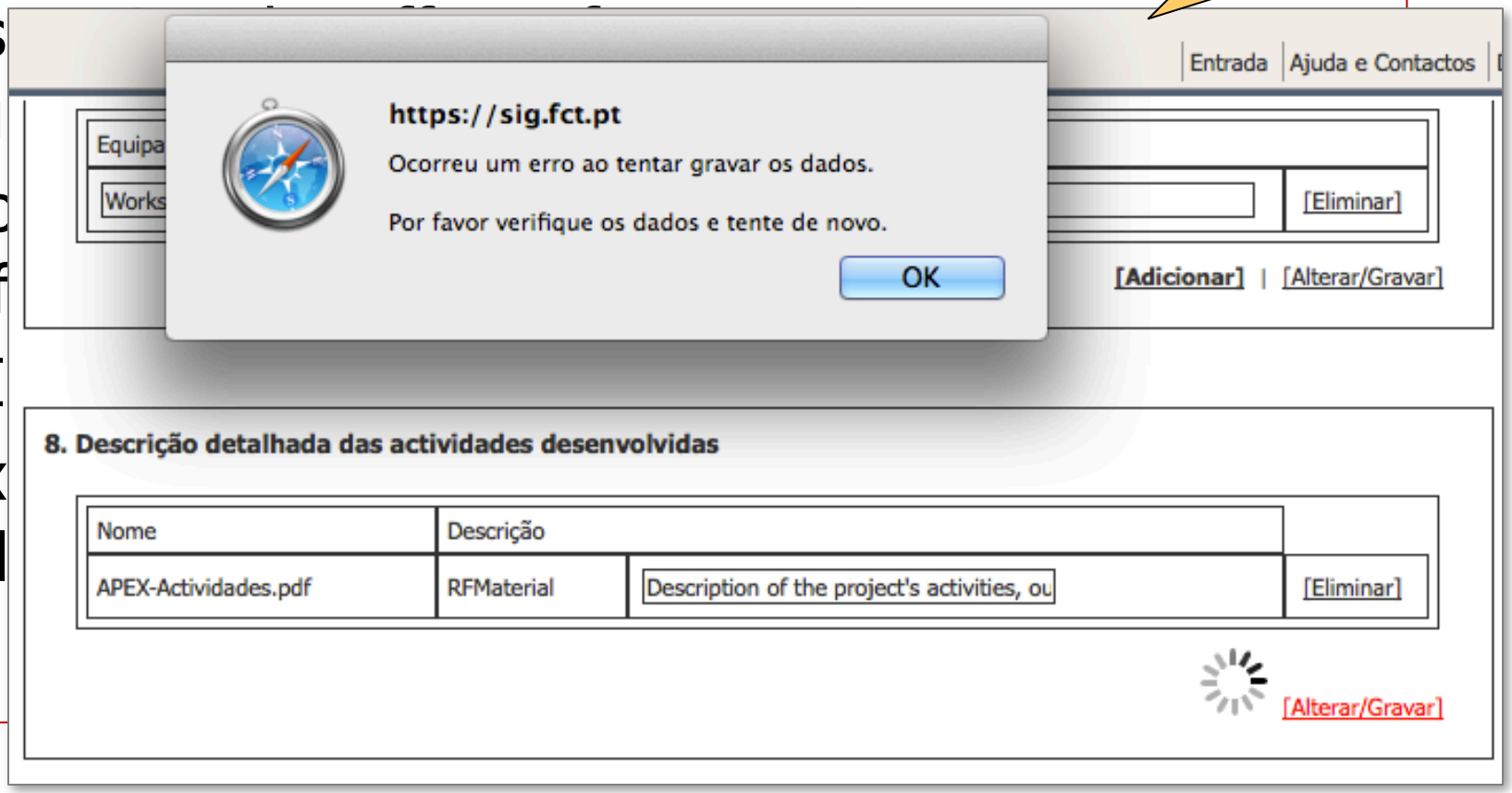
Ser possível sintetizar um modelo mental da interface, o que a aplicação faz;É p

Principles of learnability 2/5

Synthesizability (of mental mode

negative example!

- As
  cu
- Ho
  inf
  - I
- Ex
  tel



Principles of learnability 2/5

Synthesizability (of mental mode

negative example!

- As
  cu
- Ho
  inf
  - I
- Ex
  tel

Entrada | Ajuda e Contactos

Equipamento	Nº Recibo	Data	Observações	
Workstation Base Valor € 250.00 €	ID-005/2011	09-06-2011		[Eliminar]

[Adicionar] | [Alterar/Gravar]

8. Descrição detalhada das actividades desenvolvidas

Nome	Descrição		
APEX-Actividades.pdf	RFMaterial	Description of the activities, outputs and	[Eliminar]

Dados Gravados com sucesso! [Alterar/Gravar]

Principles of

Apresentar as coisas de uma maneira que as pessoas conheçam;Conseguir

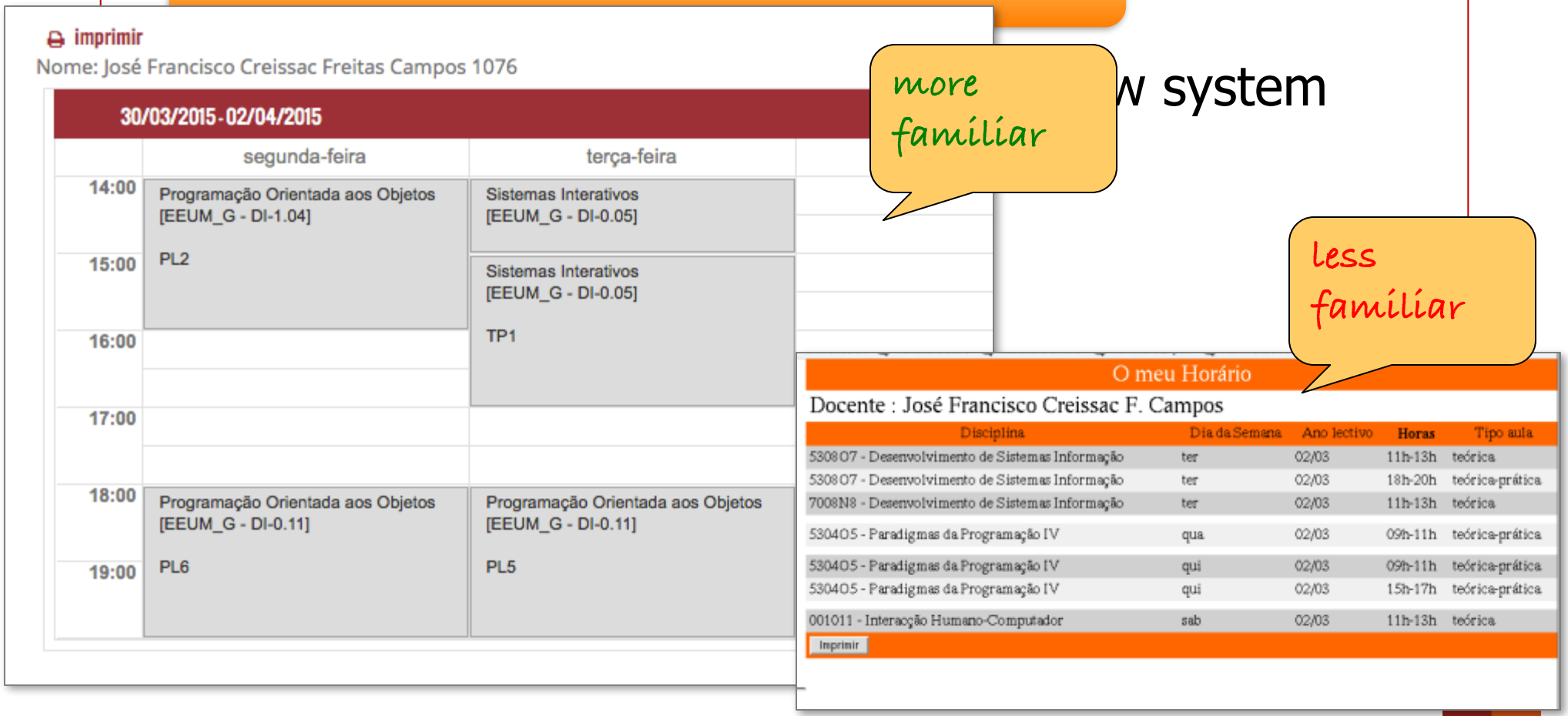
Familiarity

- How prior knowledge applies to a new system
  - about the world
  - about other systems
- Use of **metaphors** can help
- Examples:
  - Timetables
  - Lack of adoption of Open Source software?

Como o conhecimento prévio se apli

Principles of learnability 3/5

Familiarity



Principles of learnability 4/5

Generalizability

Uma coisa que se possa fazer num

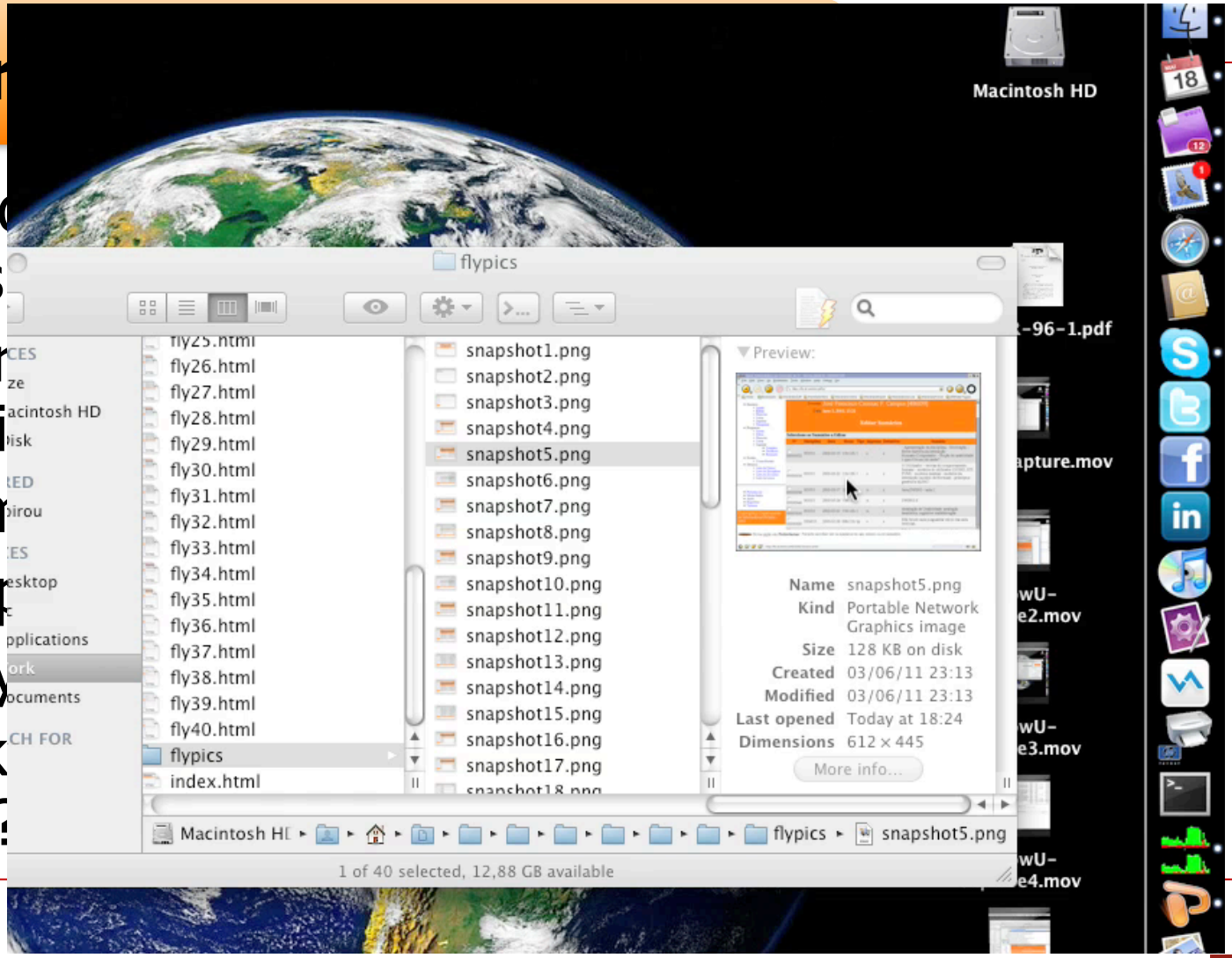
- Extending specific interaction knowledge to new situations
- Explores users' ability to compare similar situations
- A form of **consistency**
- Examples:
  - Copy&Paste services
  - Lack of Drag&Drop to Apps on some Mac OSs?

Estendendo conhecimento de interação específic

Principles of learnability 4/5

Gener

- Exten
  new s
- Explor
  situati
- A form
- Examp
  - Copy
  - Lack
    OSs?



Principles of learnability 5/5

Consistency

O principio mais importante e mencionada;O comportar

- Probably the **most mentioned principle**!
- Likeness in input/output behaviour in similar situations or task objectives
- Internal consistency
  - Inside the application
  - Example: Toyota AC
- External consistency
  - Between one application and the rest of the system
  - Example: Mac apps menu

Provavelmente o princípio mais mencionado!S

Principles of learnability 5/5

Consistency

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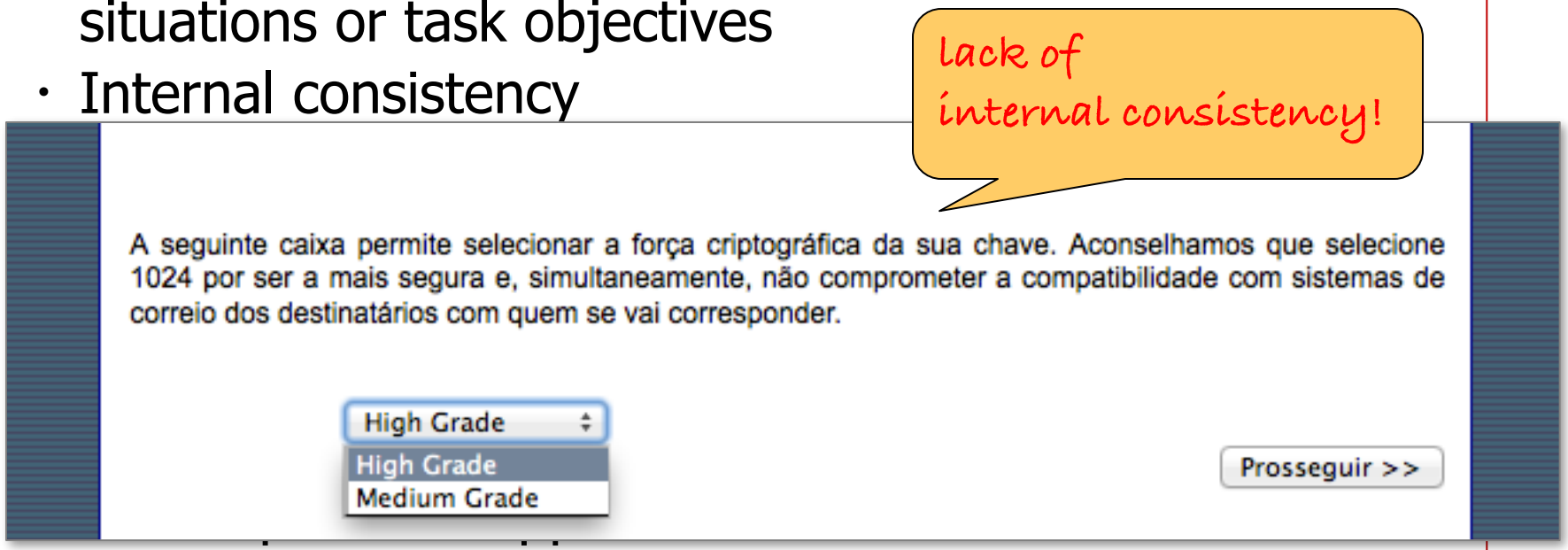
- Internal consistency



Principles of learnability 5/5

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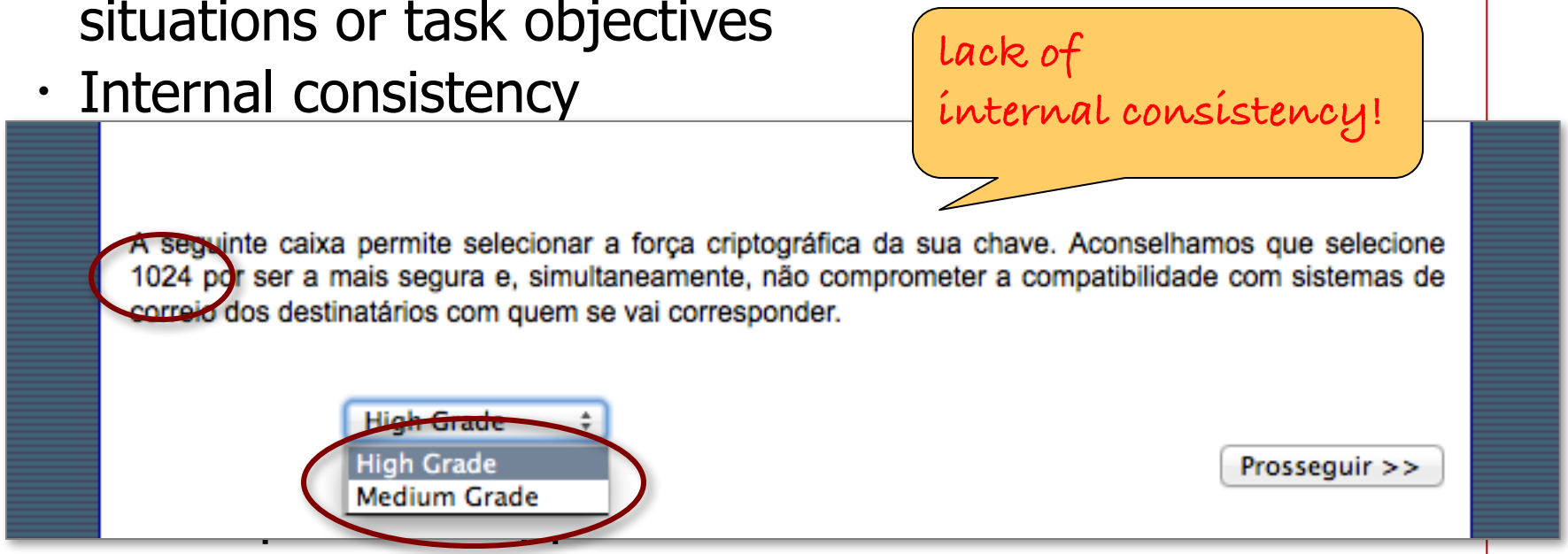

Principles of learnability 5/5

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lack of internal consistency! (five identical buttons, five different behaviours)

Principles of learnability 5/5

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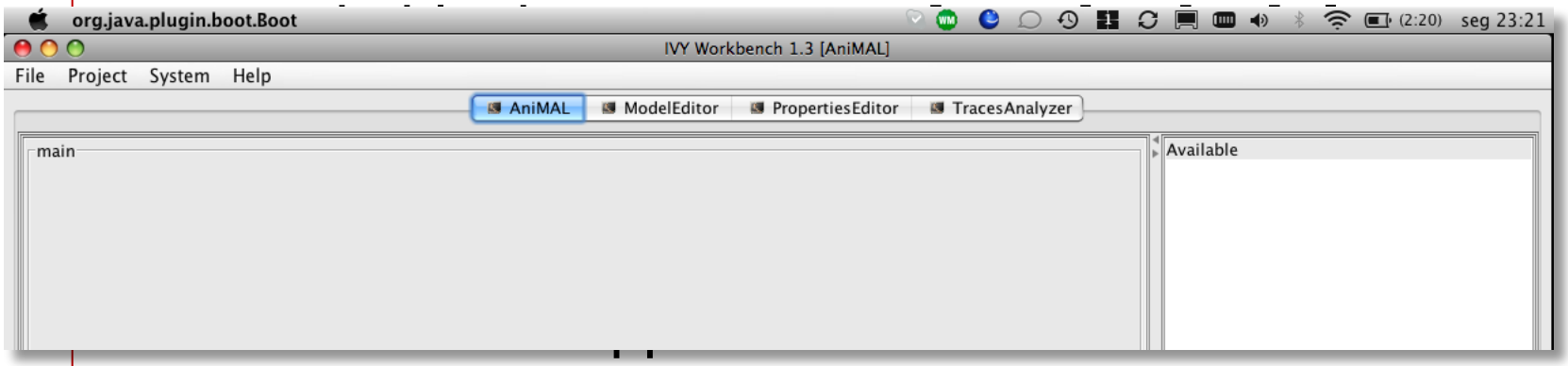
Principles of learnability 5/5

Consistency



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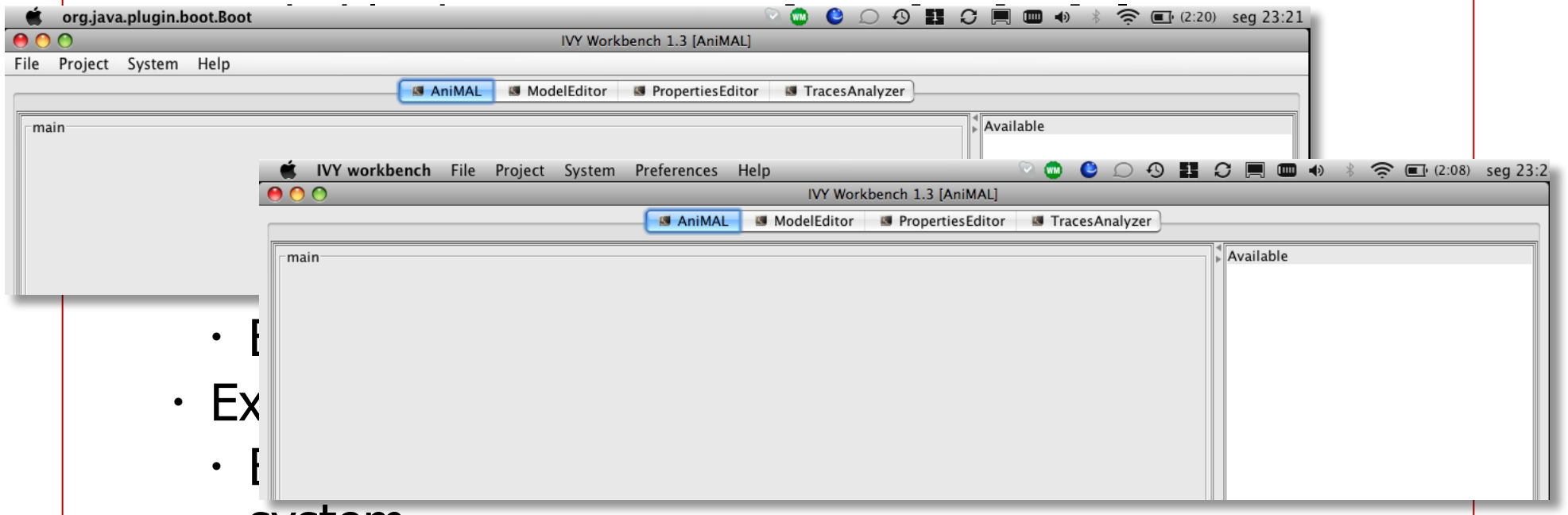
Principles of learnability 5/5

Consistency



- E
- Ex
  - E
    system
    - Example: Mac apps menu

Principles of learnability 5/5

Consistency

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- Ex
  - E
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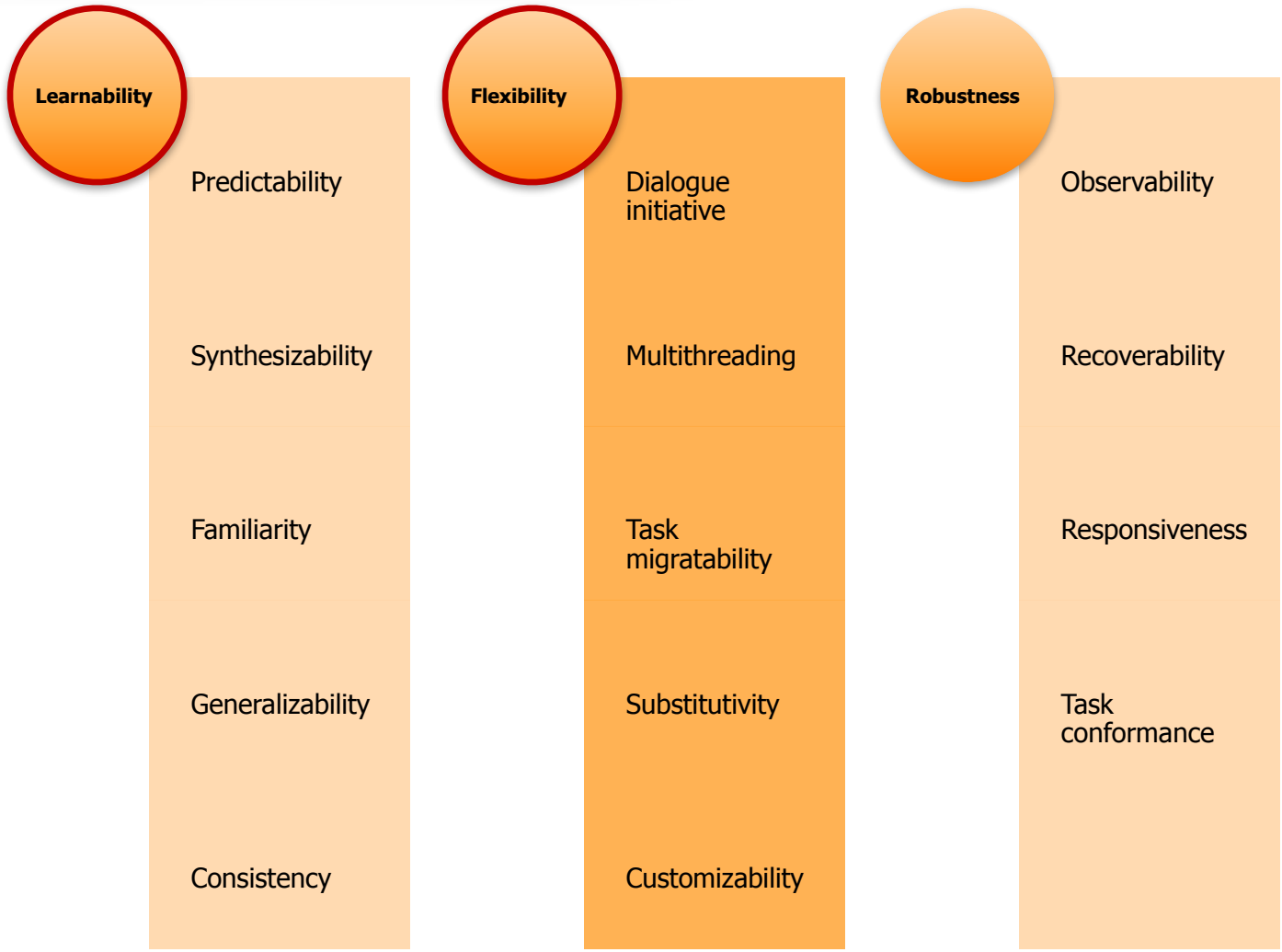
Principles of usability



Principles of flexibility 1/5

Dialogue initiative

Quem toma a iniciativa do dialogo, quer

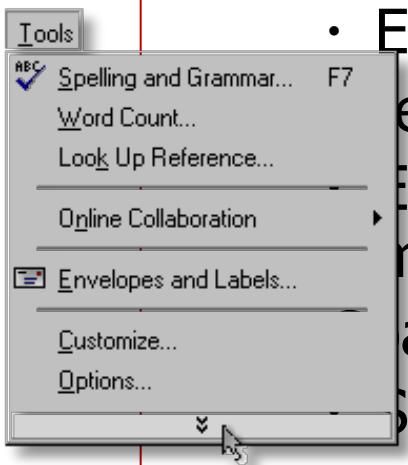
- System control (less flexibility)
  - Ex.: modal dialogue; wizard; deep menu structures
- User control (more flexibility)
  - Ex.: toolboxes; navigating the web; direct manipulation
- Goal is to maximize user control(?!)
  - Sometimes we want/need to guide users…
  - Good knowledge of tasks will help create feeling of user control
  - Ex. : making search available in input fields

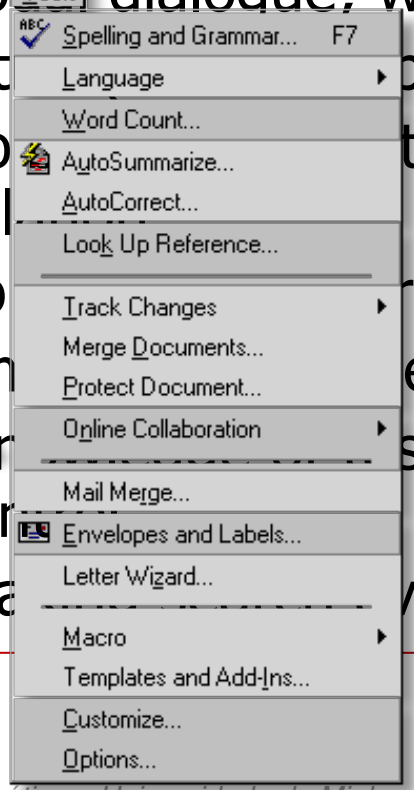
Principles of flexibility 1/5

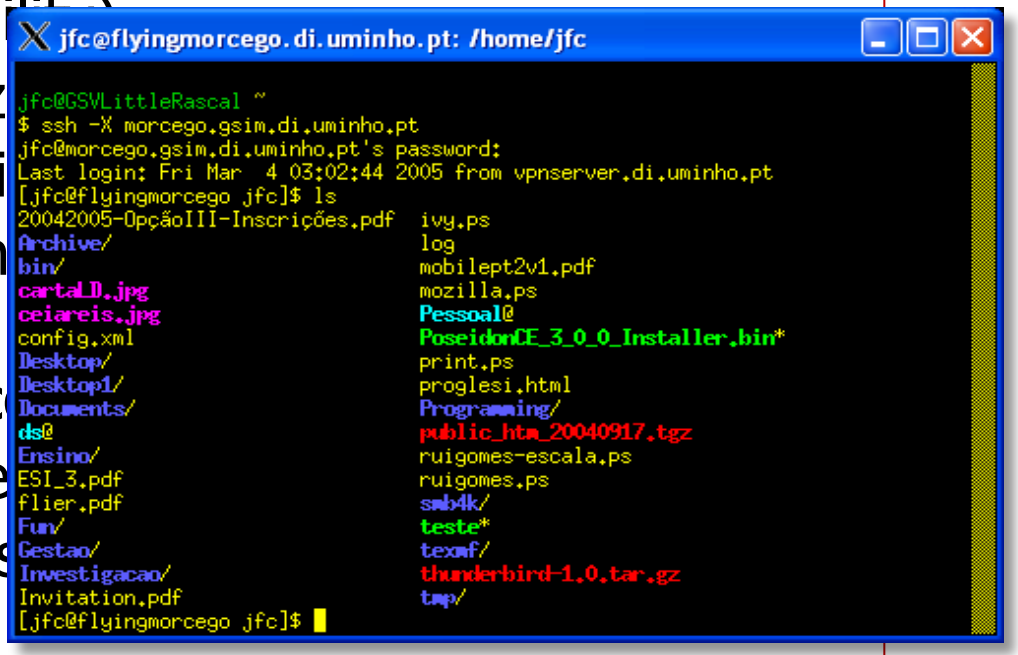
more system control
(too much for most people!)

more user control
(too much for some people?)

- Ex.: mo dialogue; wiz
  - er cont bili
  - Ex.: too tin
  - manipul
  - al is to c
  - Sometin ee
- Good kr sks
  user cor
- Ex. : ma vailable in input fields





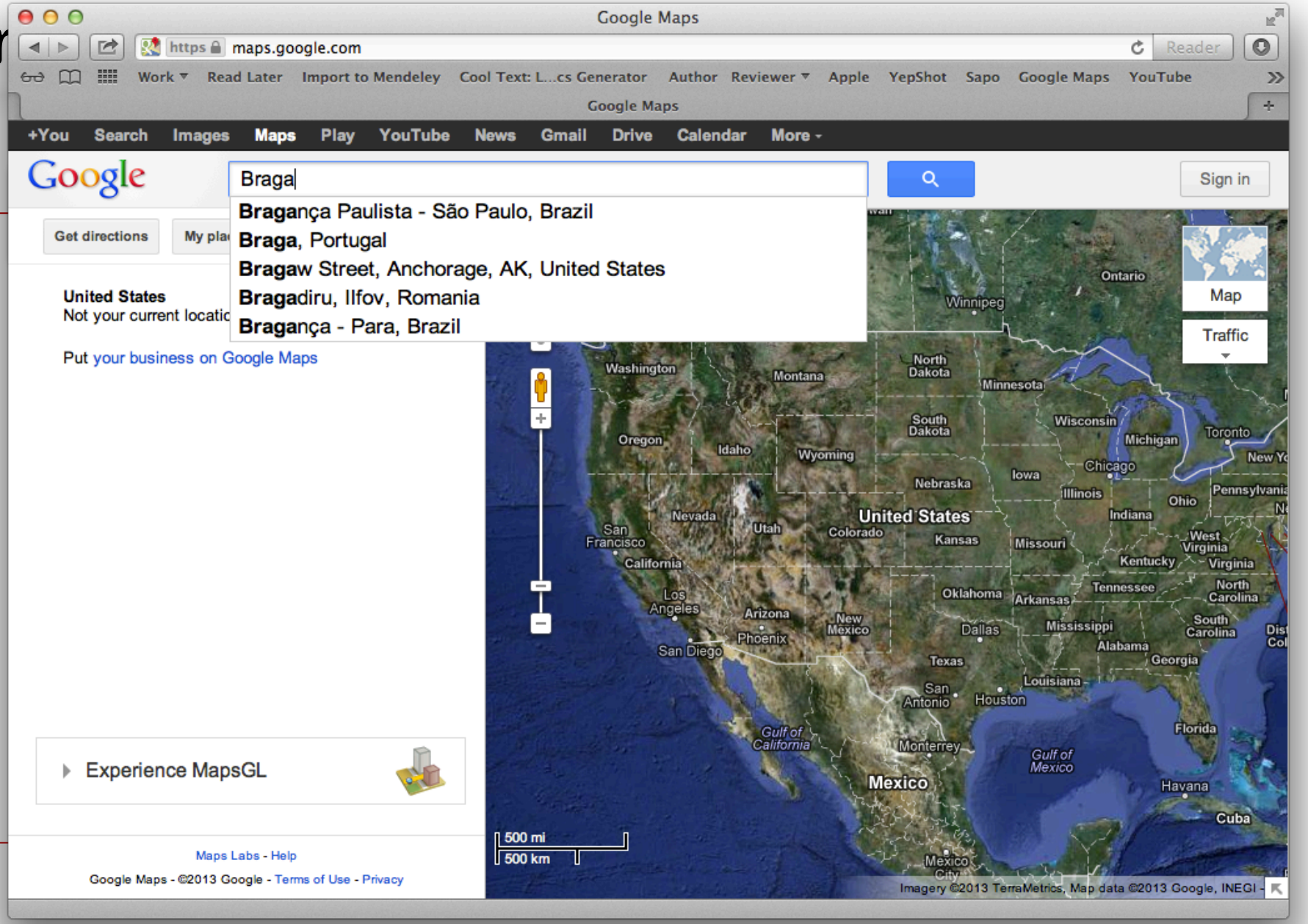


Principles of flexibility 2/5

Multithreading

- The ability of system to support user interaction for more than one task at a time
- Interleaved multithreading
  - Ex.: windowing system (input)
- Concurrent multithreading
  - Ex. 1: multimodality with fusion ("copy that to there")
  - Ex. 2: windowing system (output)

Pr


Google Maps
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Reader
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YouTube
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+You
Search
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Maps
Play
YouTube
News
Gmail
Drive
Calendar
More
Google
Braga
Sign in
Bragança Paulista - São Paulo, Brazil
Braga, Portugal
Bragaw Street, Anchorage, AK, United States
Bragadiru, Ilfov, Romania
Bragança - Para, Brazil
Get directions
United States
Put your business on Google Maps
Experience MapsGL
Maps Labs - Help
Google Maps - ©2013 Google - Terms of Use - Privacy
Map
Traffic
Ontario
Winnipeg
Washington
Montana
North Dakota
Minnesota
Oregon
Idaho
Wyoming
South Dakota
Wisconsin
Michigan
Toronto
Chicago
Nebraska
Iowa
Illinois
Ohio
Pennsylvania
Nevada
Utah
Colorado
United States
Indiana
San Francisco
California
Kansas
Missouri
West Virginia
Kentucky
Virginia
Los Angeles
Arizona
New Mexico
Oklahoma
Arkansas
Tennessee
North Carolina
Phoenix
San Diego
Dallas
Mississippi
South Carolina
Alabama
Georgia
Texas
Louisiana
San Antonio
Houston
Gulf of California
Monterrey
Gulf of Mexico
Florida
Mexico
Havana
Cuba
500 mi
500 km
Mexico City
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Principles of flexibility 3/5

Task migratability

- Passing responsibility for task control between user and system
- A task can be internal to user, internal to system, or shared
- Ex. 1: Spell checking of a text document
- Ex. 2: Cruise control
- Mudança de "modo" cria complicações

Principles of flexibility 4/5

Substitutivity

- Allowing equivalent values to be substituted for each other (typically input)
  - Good alternative to error messages
  - Can minimize user errors and cognitive effort
- Representation multiplicity
  - Substitutivity also at the output
  - Ex.: Different views in a word processor
- Equal opportunity
  - Eliminating distinction between input and output
  - Ex.: input de datas; conversões

Principles of flexibility 4/5

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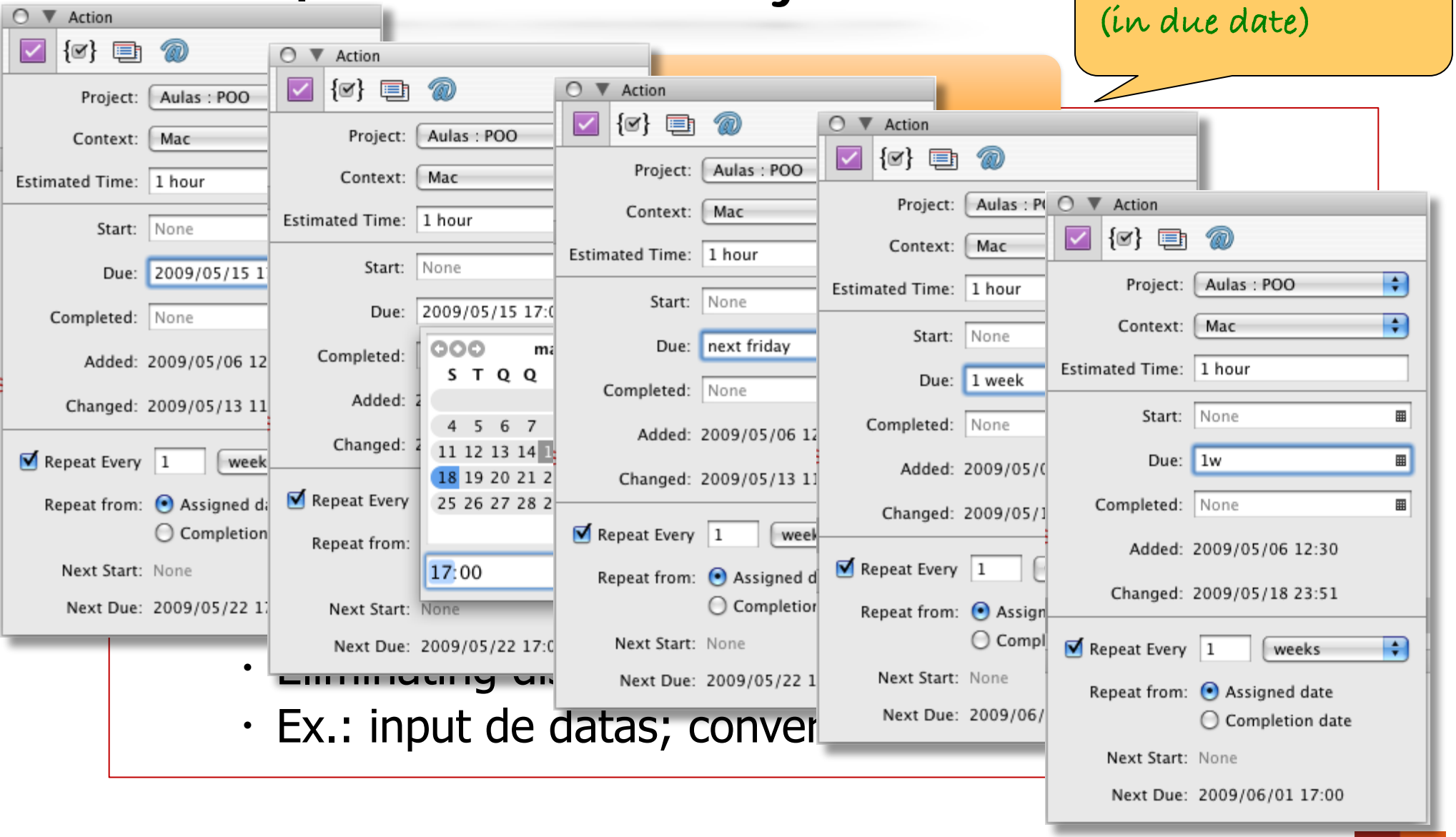
Principles of flexibility 4/5

high substitutivity (in due date)



- Ex.: input de datas; conver

Principles of flexibility 4/5

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Principles of flexibility 4/5

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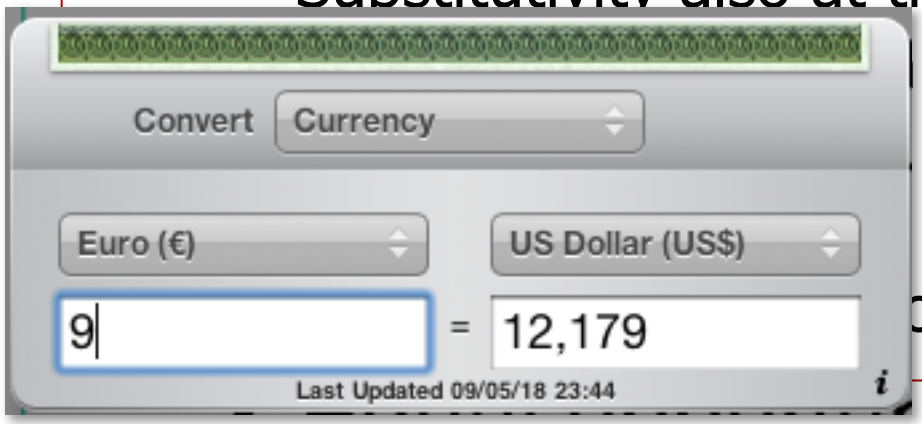


a word processor

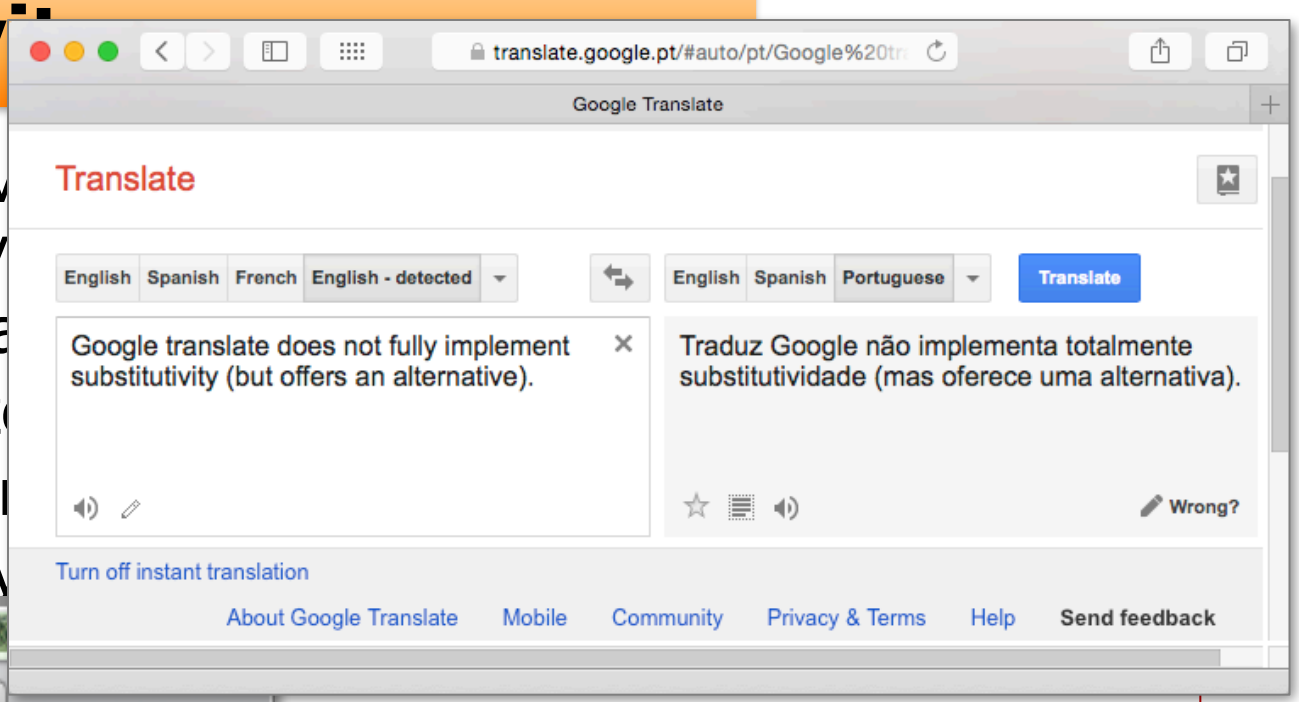
between input and output

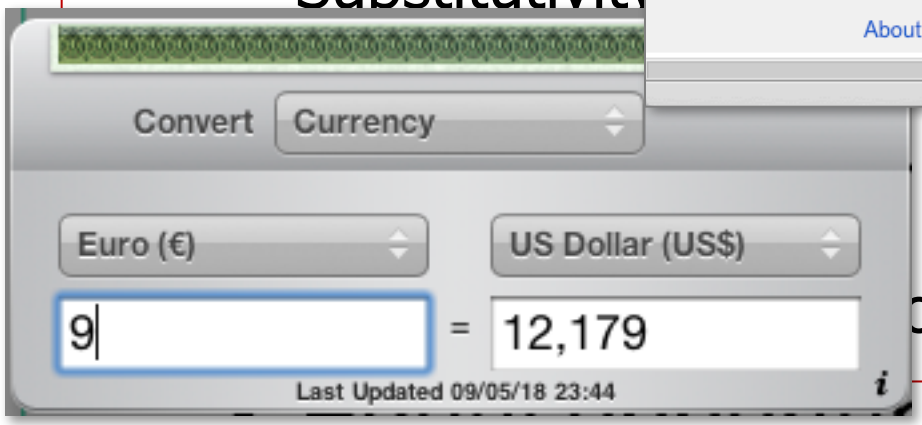
onversões

Principles of flexibility 4/5

Substitutivi

- Allowing equiv
  each other (ty
  - Good alterna
  - Can minimiz
- Representatio
  - Substitutivity





between input and output

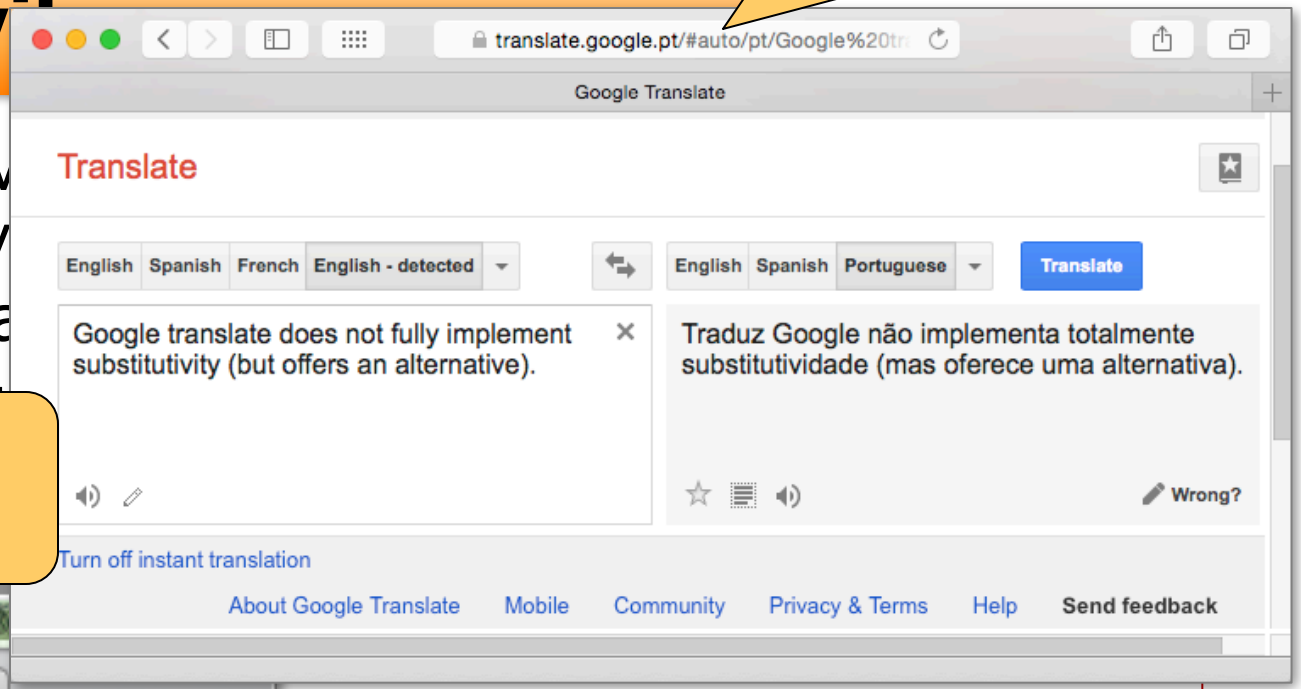
onversões

Principles of flexibility 4/5

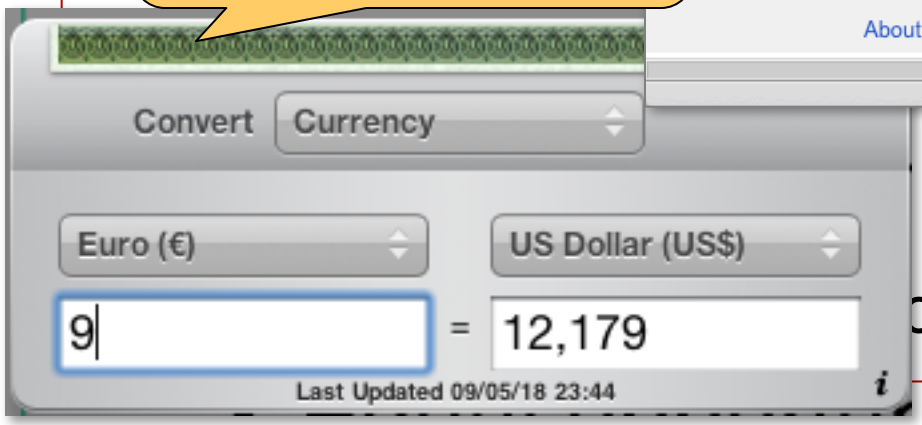
less substitutivity
(no equal opportunity;
alternative implemented)

Substitutivi

- Allowing equiv
each other (ty
  - Good alterna



more substitutivity
(equal opportunity)



between input and output
onversões

Principles of flexibility 5/5

Customizability

- Modifiability of the user interface
- Adaptability (Adaptabilidade)
  - Modified by the user
  - Ex.: toolbars; user interface scripting
- Adaptivity (Adaptação)
  - Automatically modified by the system
  - Based on knowledge about the user – tricky!
    - Ex.: MS Windows™ adaptive menus
  - Based on knowledge about the device
    - Ex.: Responsive Web Design

Principles of flexibility 5/5

Adaptability (user changes the system)

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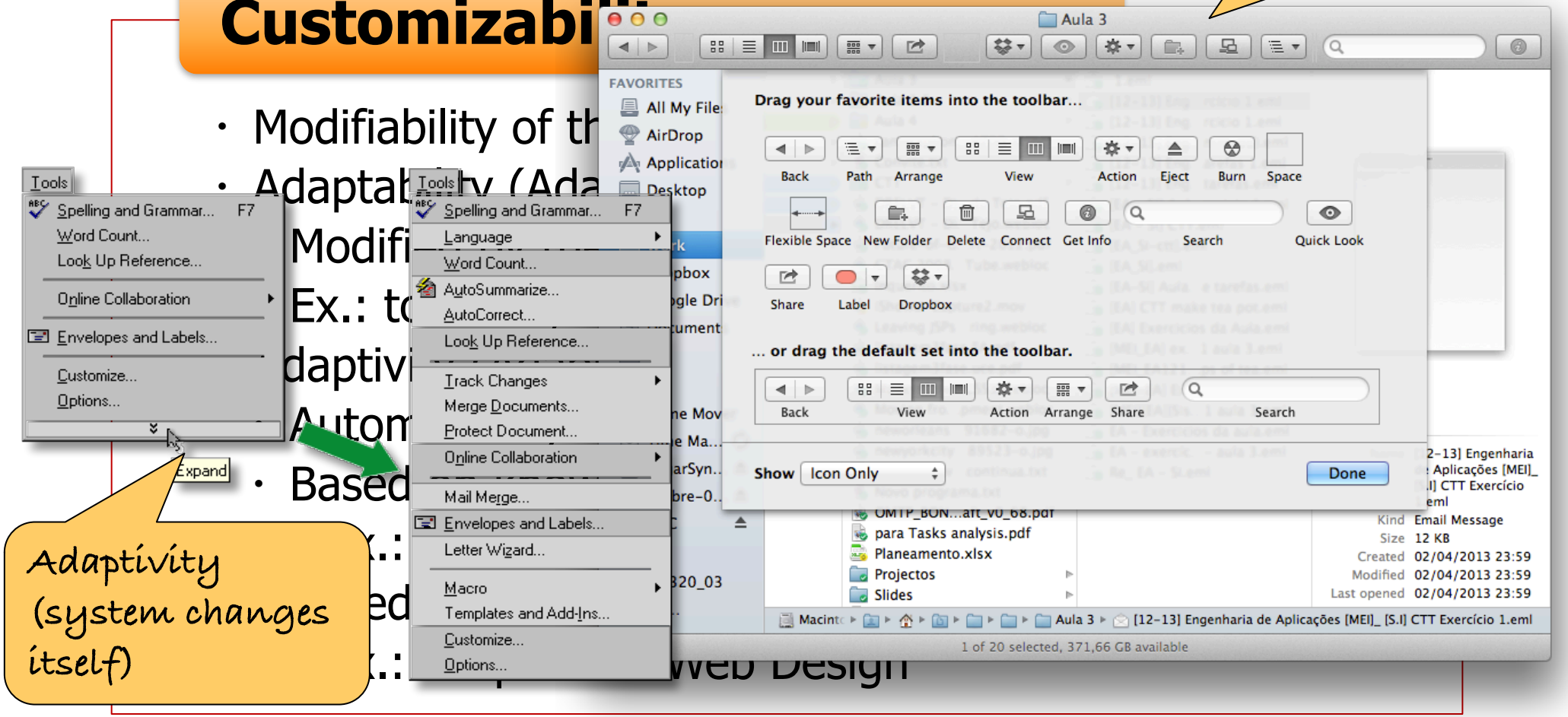

Adaptivity (system changes itself)

adaptivity
(to the device)

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Modified by the user

- Ex.: toolbars; user interface scripting

- Adaptivity (Adaptação)
  - Automatically modified by the system
  - Based on knowledge about the user – tricky!
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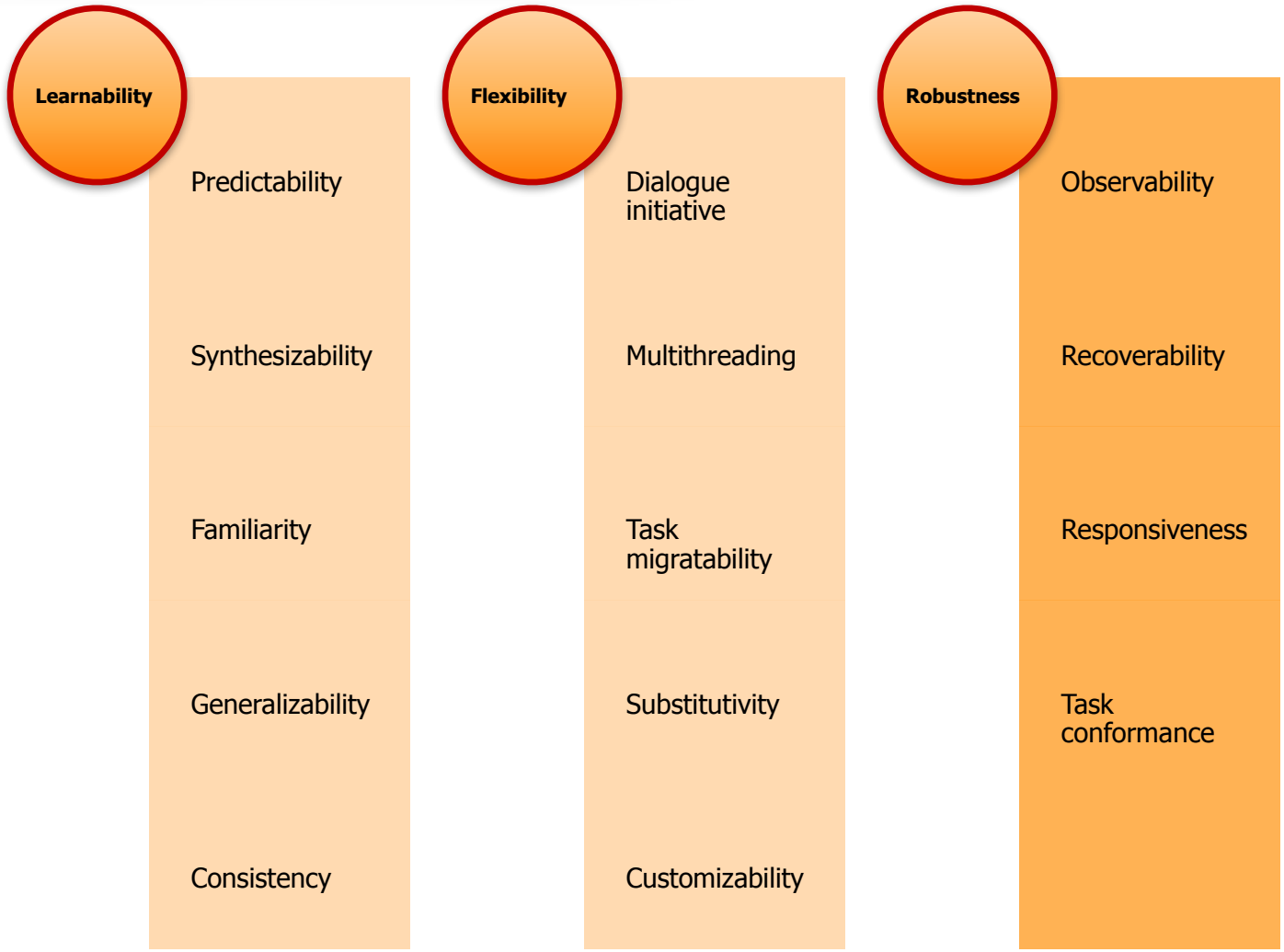
  - Ex.: Responsive Web

Principles of usability



Principles of robustness 1/4

Observability

- Ability of user to evaluate the internal state of the system from its perceivable representation – c.f. Predictability
- Five aspects
  - browsability – possibility of user to explore current state (limited screen real-estate)
  - defaults – static vs. dynamic; passive recall
  - reachability – possibility of user to navigate observable states
  - persistence – sound vs. icon for notifications
  - operation visibility – what can be done is clear
- Ex.: Showing available slots on a Timetabling system

Principles of robustness 1/4

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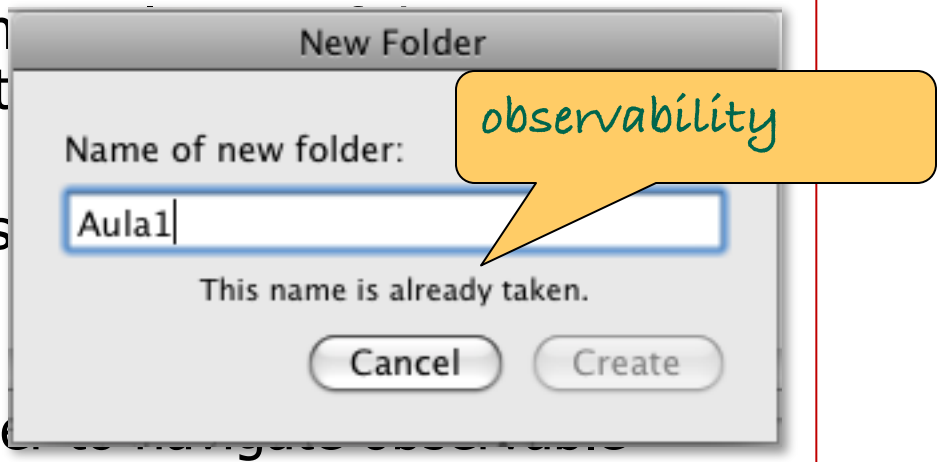

Principles of robustness 1/4

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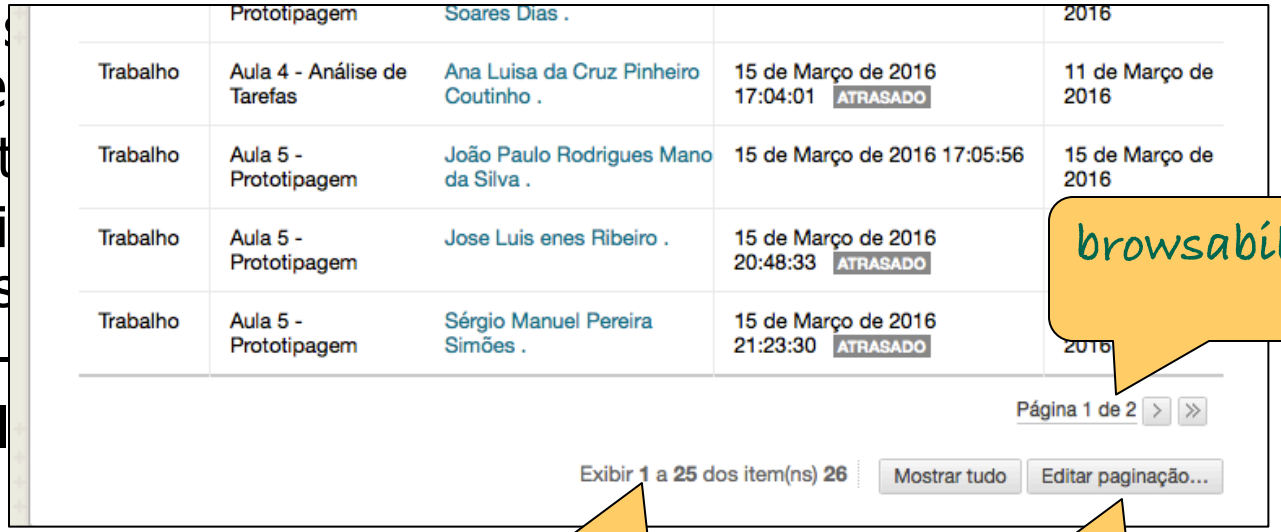

Principles of robustness 1/4

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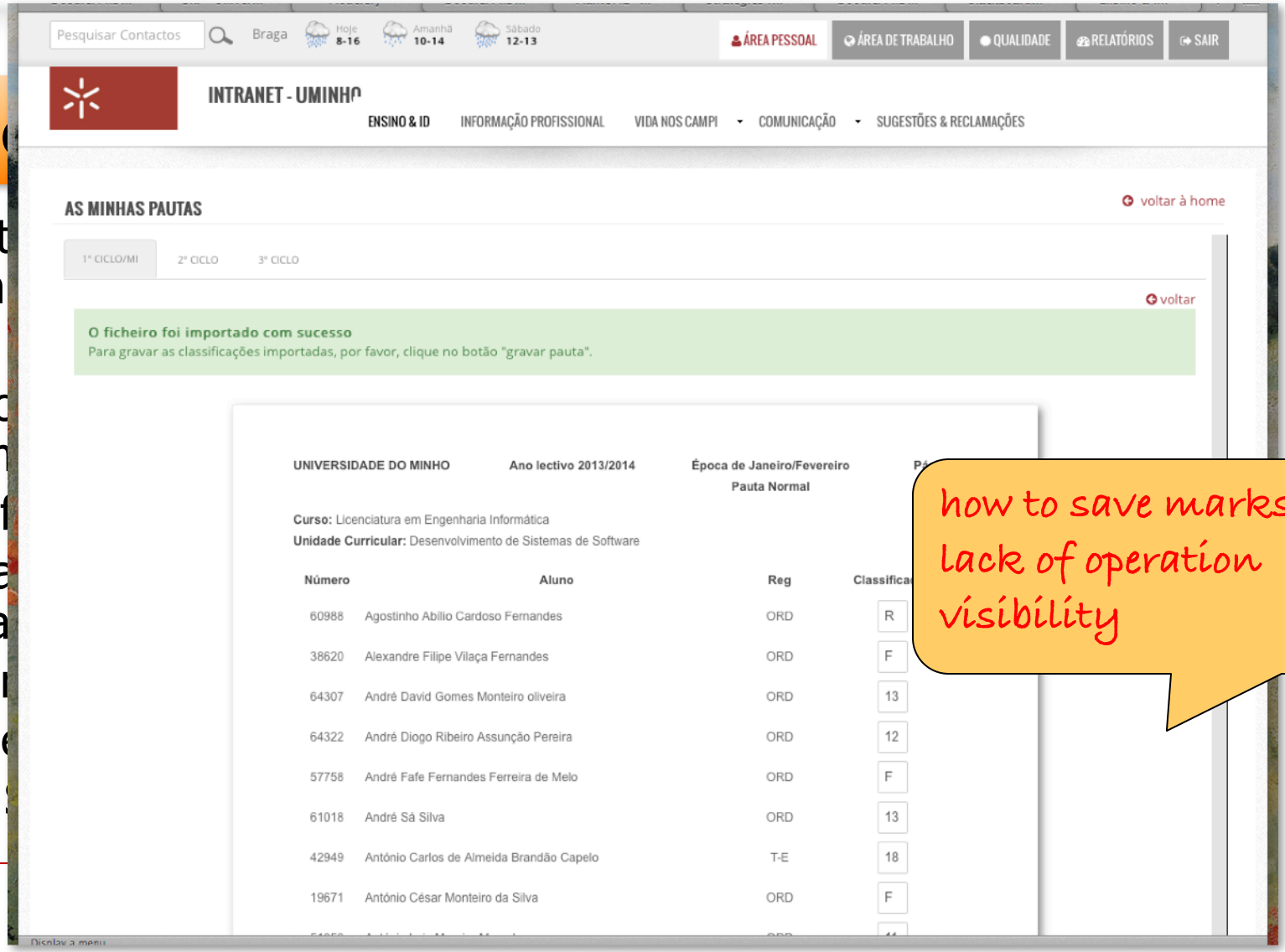

Principles of robustness 1/4

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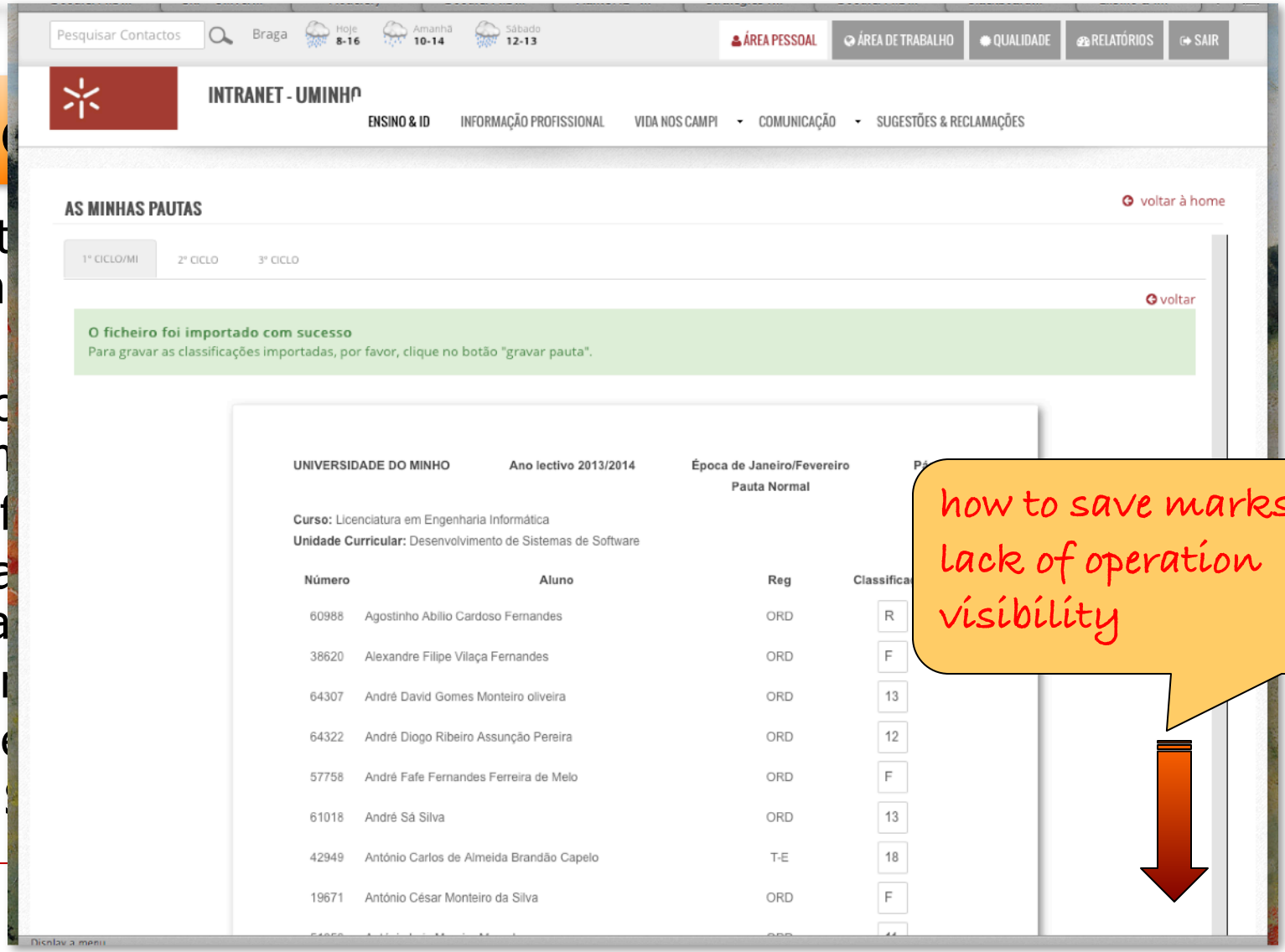

Principles of robustness 1/4

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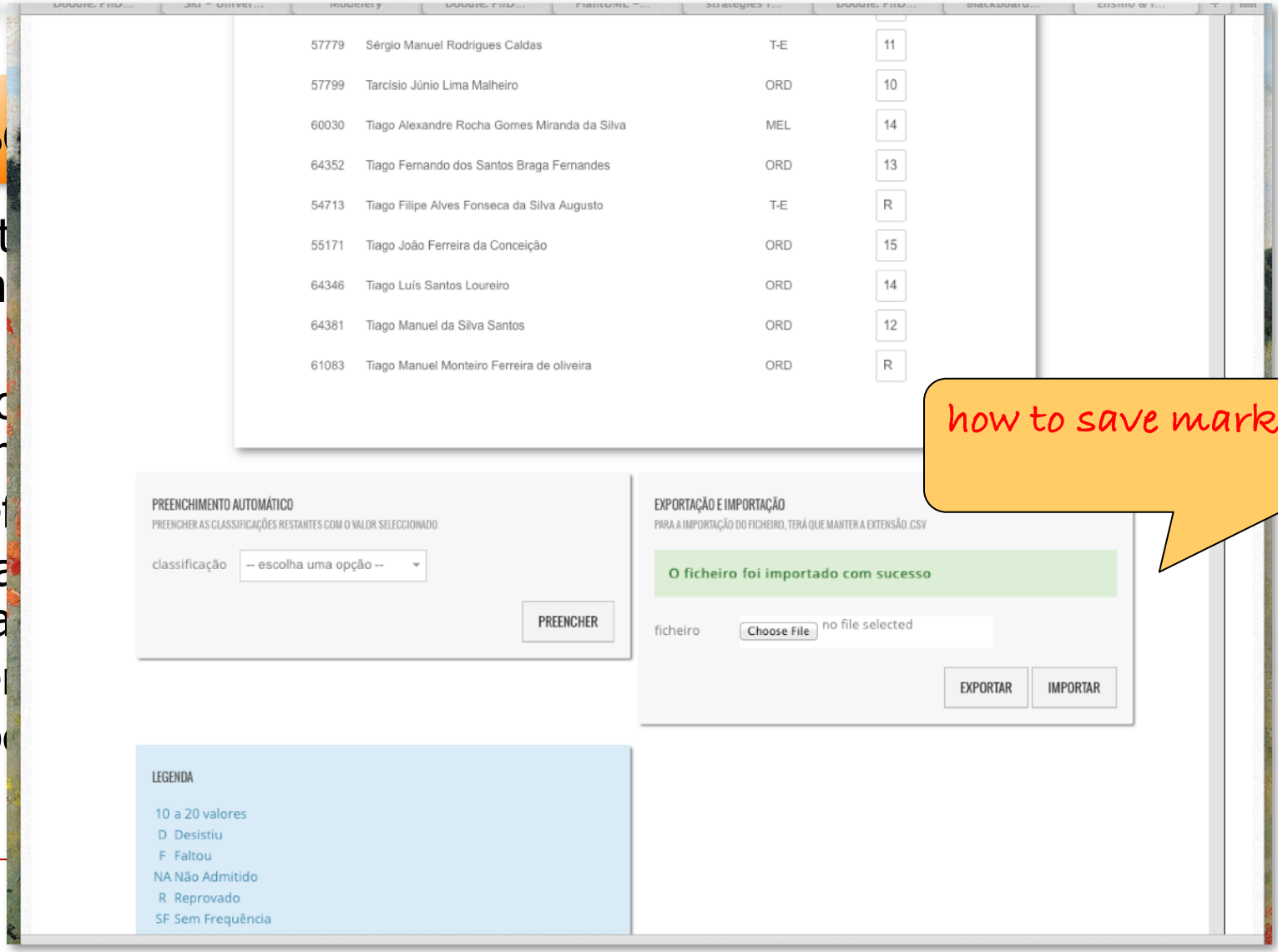

Principles of robustness 1/4

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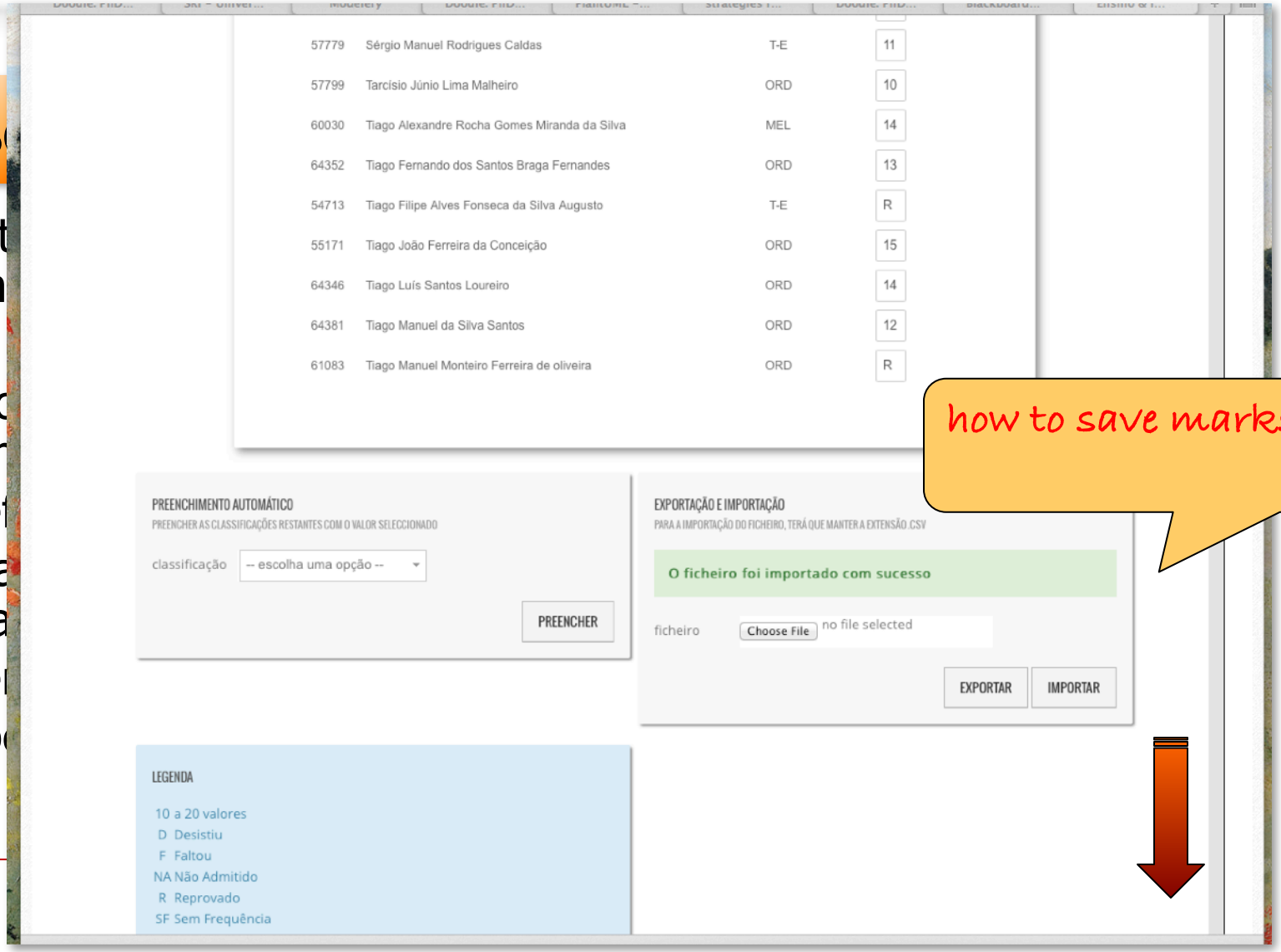

Principles of robustness 1/4

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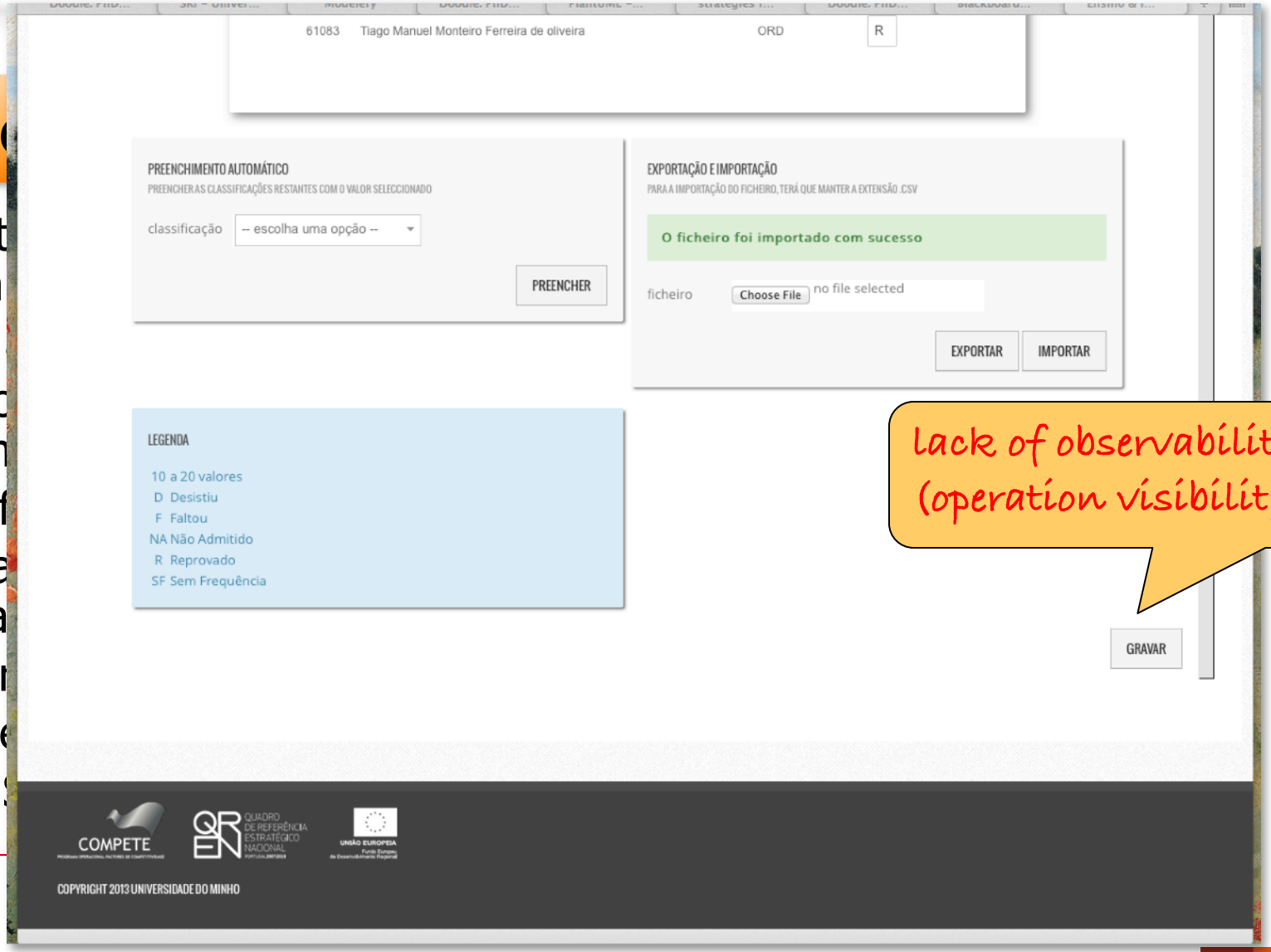

Principles of robustness 2/4

Recoverability

- The ability of users to take corrective action
- Forward recovery (e.g. when error cannot be undone)
  - accepting error state and working from there
  - Ex.: input validation
- Backward recovery
  - **undo** to return to previous state
- Commensurate effort
  - Hard to undo effects should be hard to do
  - Easy to undo effect should be easy to do
  - Ex.: Trash can
    - easier to undo delete means no delete confirmation needed
    - emptying the trash can cannot be undone so confirmation should be requested

Principles of robustness 2/4

Recoverability

- The ability of users to take corrective action
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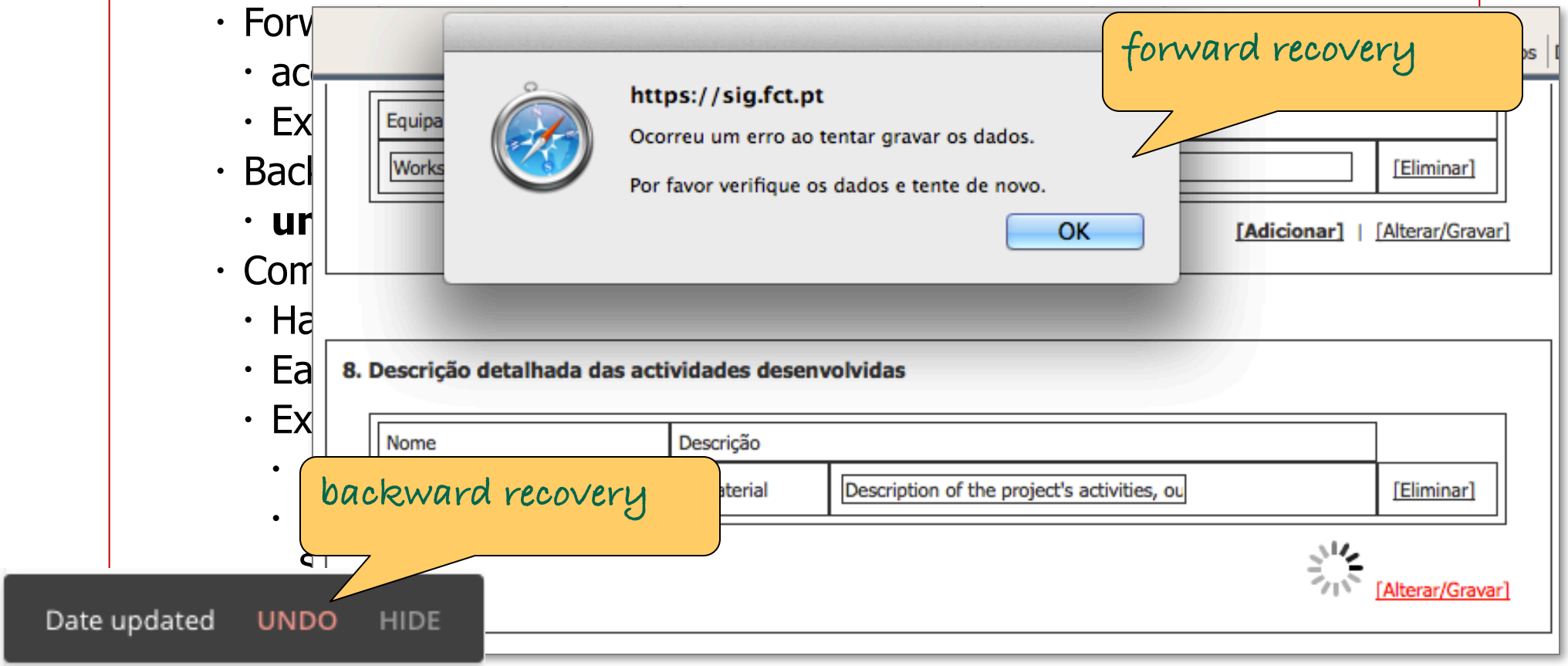

Principles of robustness 3/4

Responsiveness

- How users perceive rate of communication with the system
- Short or instantaneous response times
  - From the user perspective
  - When not possible, provide indication of activity
- Stability of response times also relevant
  - Ex. Menus response times vs motor skills

Principles of robustness 3/4

Responsiveness

- How users perceive rate of communicati
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- Short or instantaneous response times
  - From the user perspective
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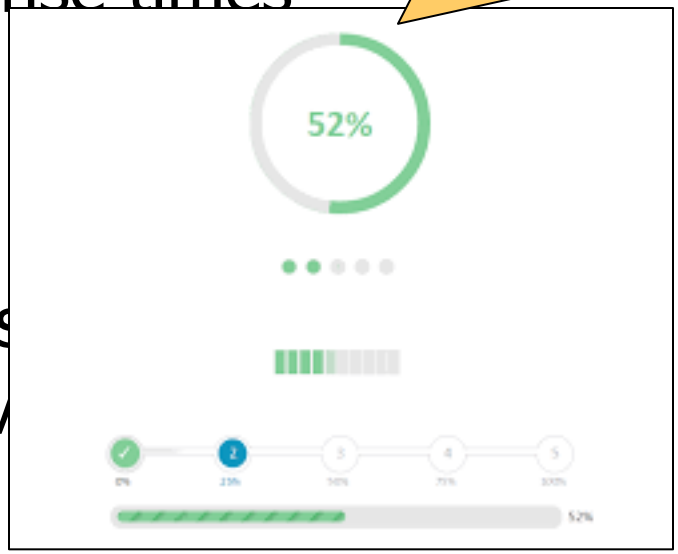
    activity
- Stability of response times als
  - Ex. Menus response times v

compensating for poor responsiveness



Principles of robustness 4/4

Task conformance

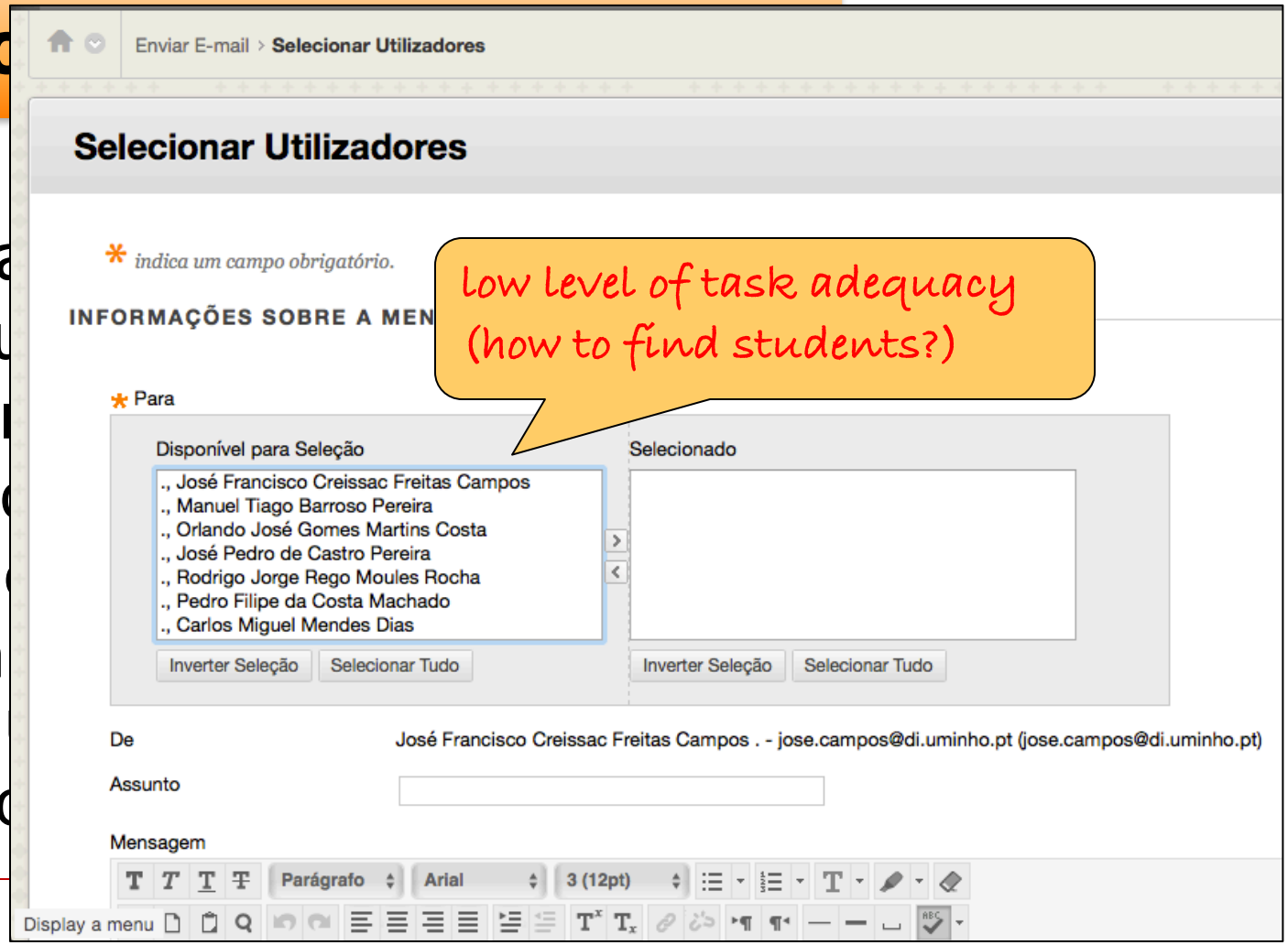
- Degree to which system services support the users' tasks
  - C.f. Gulf of Execution
- Task completeness
  - Level of support for users tasks
- Task adequacy
  - Match between system support for task and users understanding of task
- Exemplo: Adicionar autores a uma publicação?

Principles of robustness 4/4

Also, lackin in flexibility/ costumizability (sort order?)

Task co

- Degree
  users' ta
  - C.f. Gu
- Task co
  - Level
- Task ad
  - Match
    users
- Exemplo



Principles of usability