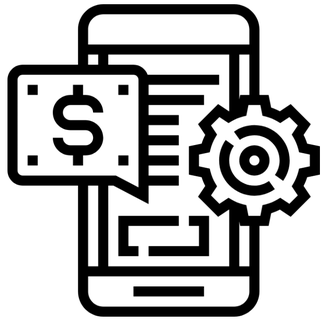
GDC

Free Up the Cognitive Load

UX in Animation Workflow

Irene Zhu
UX Designer, 343 Industries

Who am I?



343 INDUSTRIES™

Problem Statement

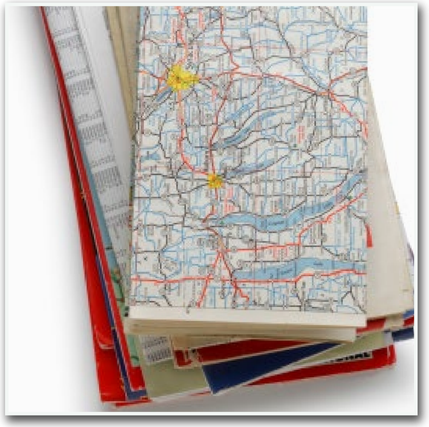
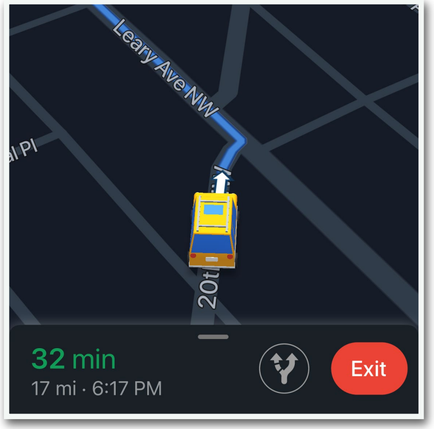
There was very little UX consideration in our tools.
And… you guessed the results.

"Go help animation workflow. It's terrible!"

Cognitive load refers to the **used** amount of **working memory resources**.

Processing Power

*Minimize cognitive load, Nielsen Norman Group

	Paper map	Turn-by-turn direction	Map app
		From Sea-Tac Airport and Northbound I-5 When leaving the airport, follow the signs onto Interstate 5 North. Follow I-5 North into the city and take the Seneca Street Exit. Follow Seneca down and take a right on 1st Avenue. Continue on 1st Avenue for 10 blocks and turn Left on Wall Street. Go down the hill to the Waterfront, cross over the railroad tracks and Alaskan Way and	
Cognitive Load			

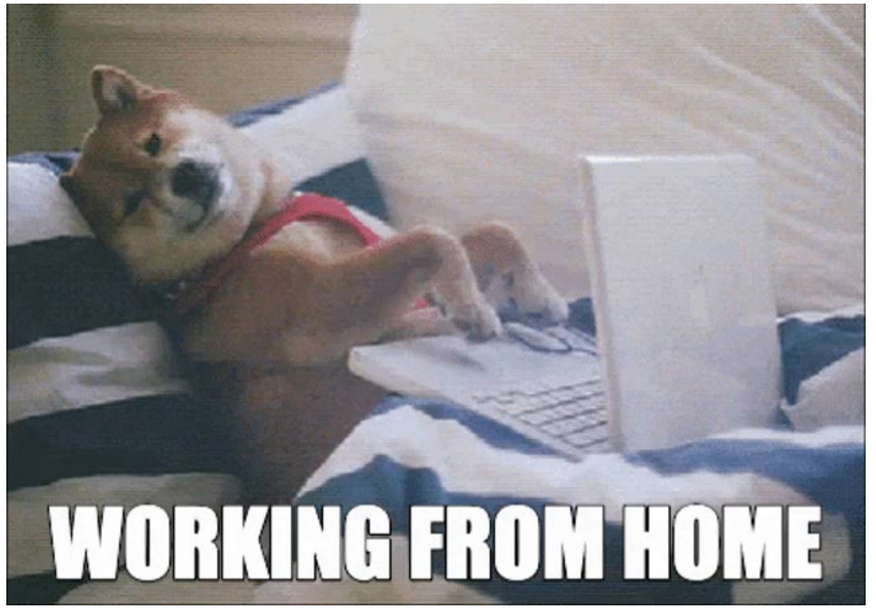
High Cognitive Load = **More** “figuring it out”; **More** working memory resources

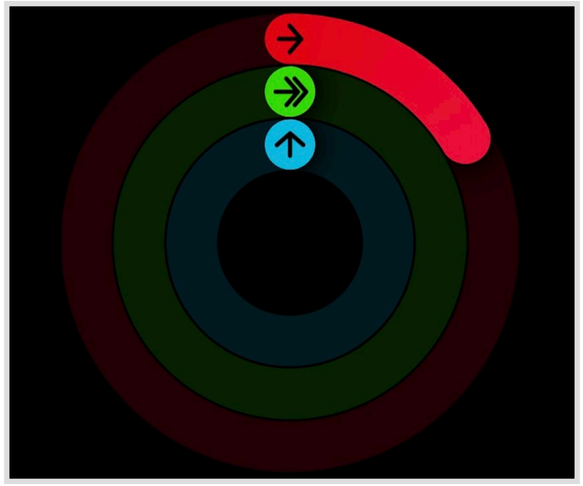
Low Cognitive Load = **Less** “figuring it out”; **Fewer** working memory resou

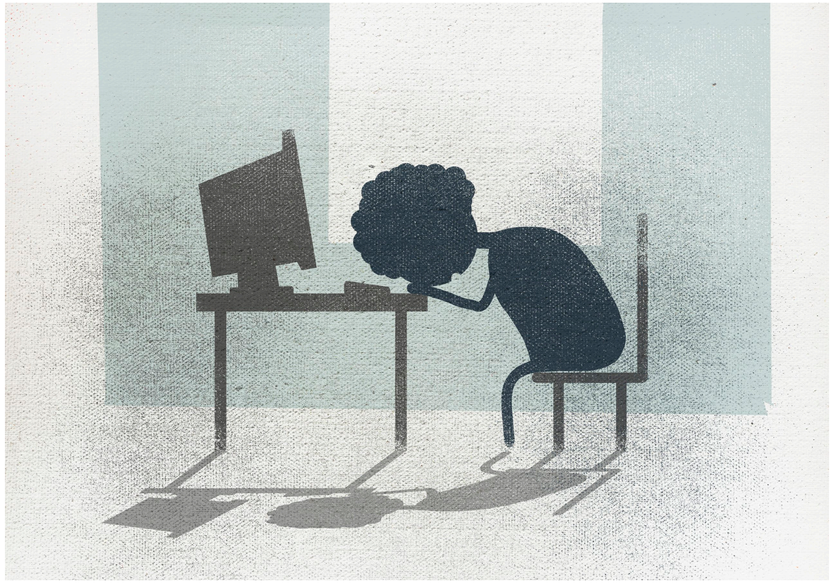
0 Cognitive Load?

Why

do I care?


WORKING FROM HOME





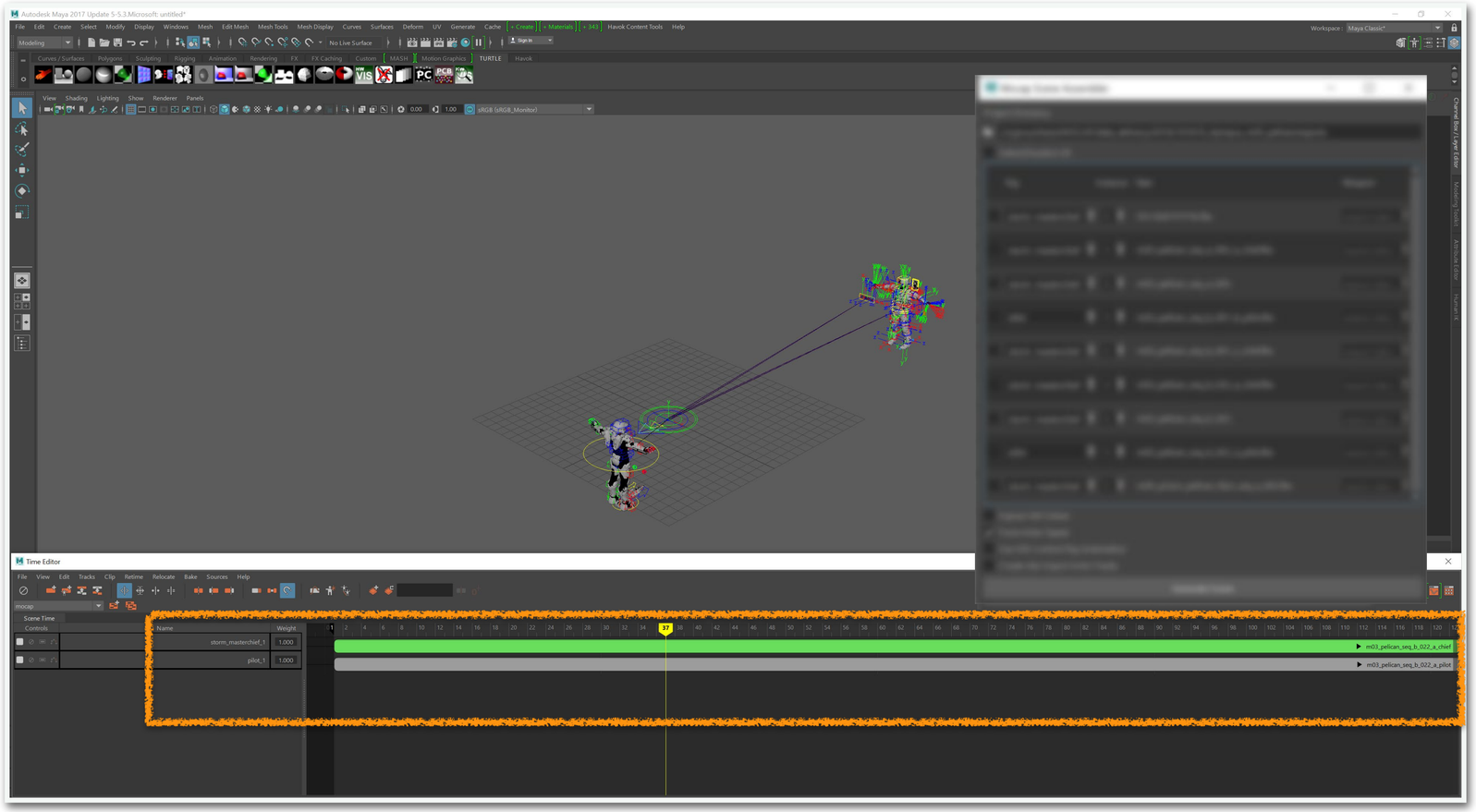
How

do we reduce the cognitive load?

#1 Make the most of familiarities

Link to the publication: https://link.springer.com/article/10.3758/s13423-015-0889-1

“It’s a device, Morty, that when you put it in your ear, you can enter people’s dreams, Morty. ***<u>It’s just like that movie that you keep crowing about.</u>”***



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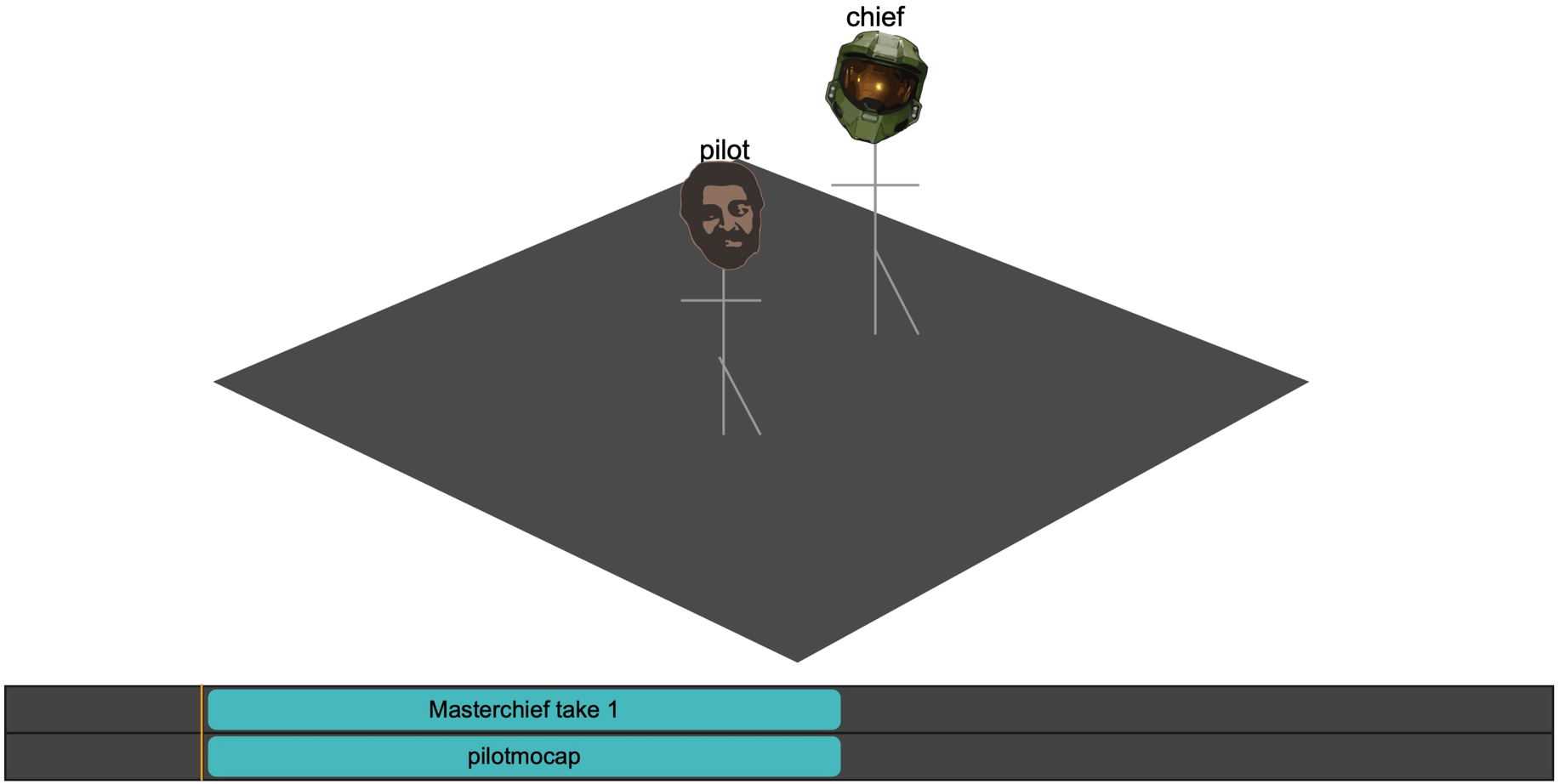
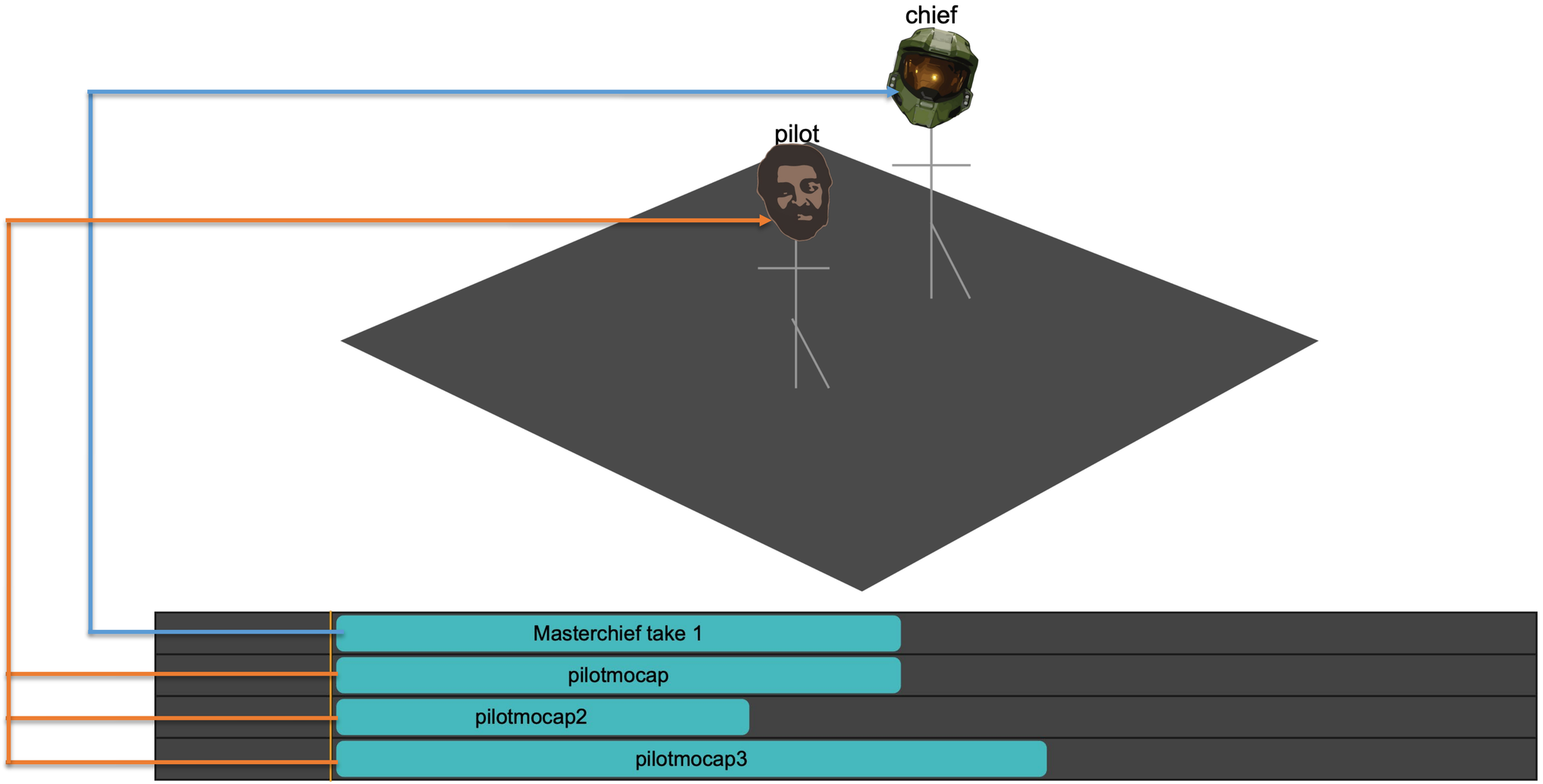
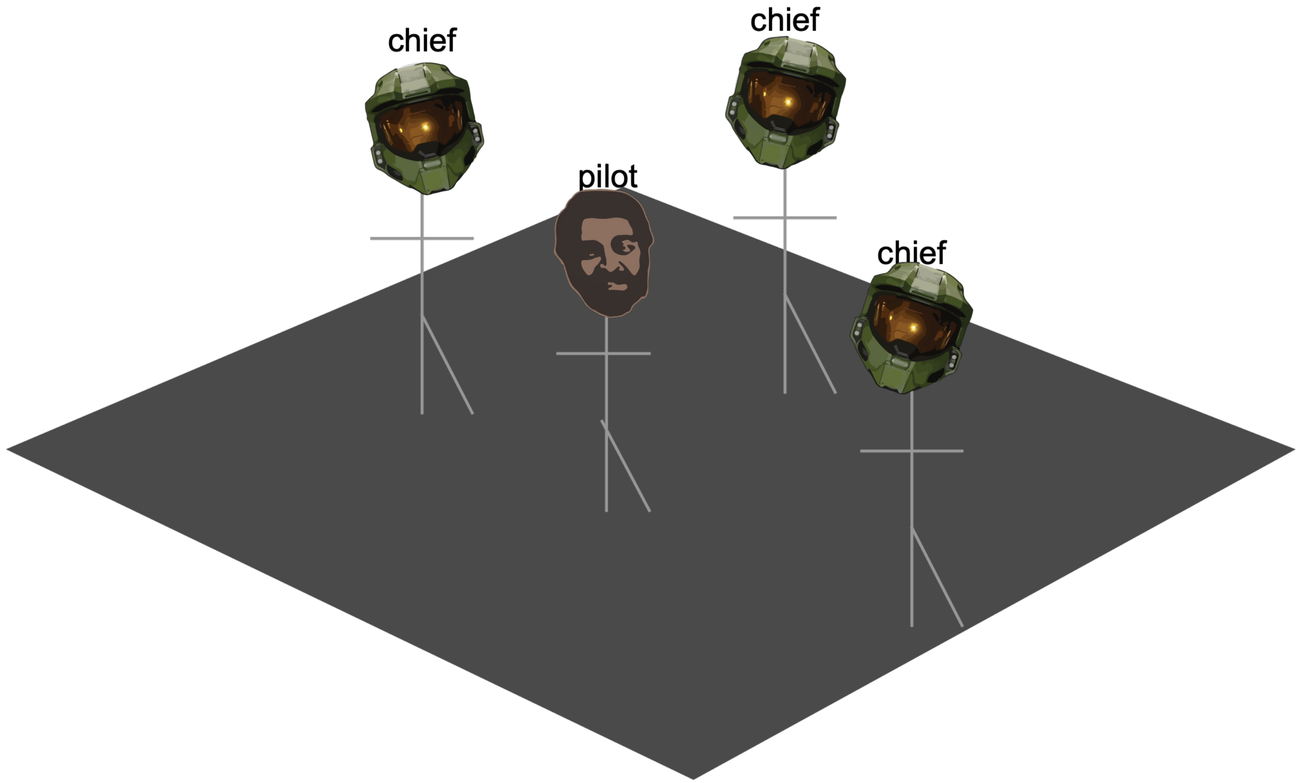
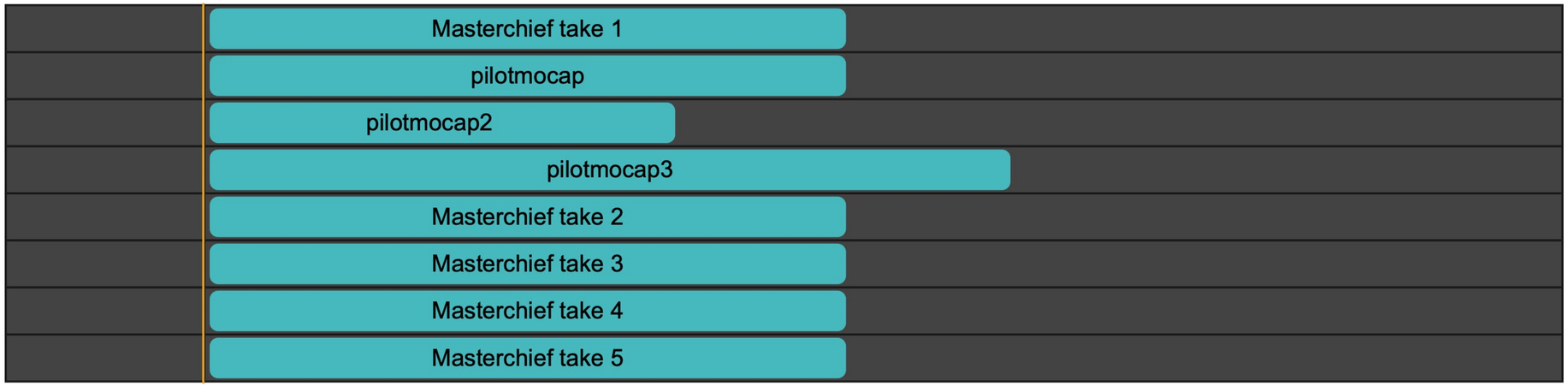
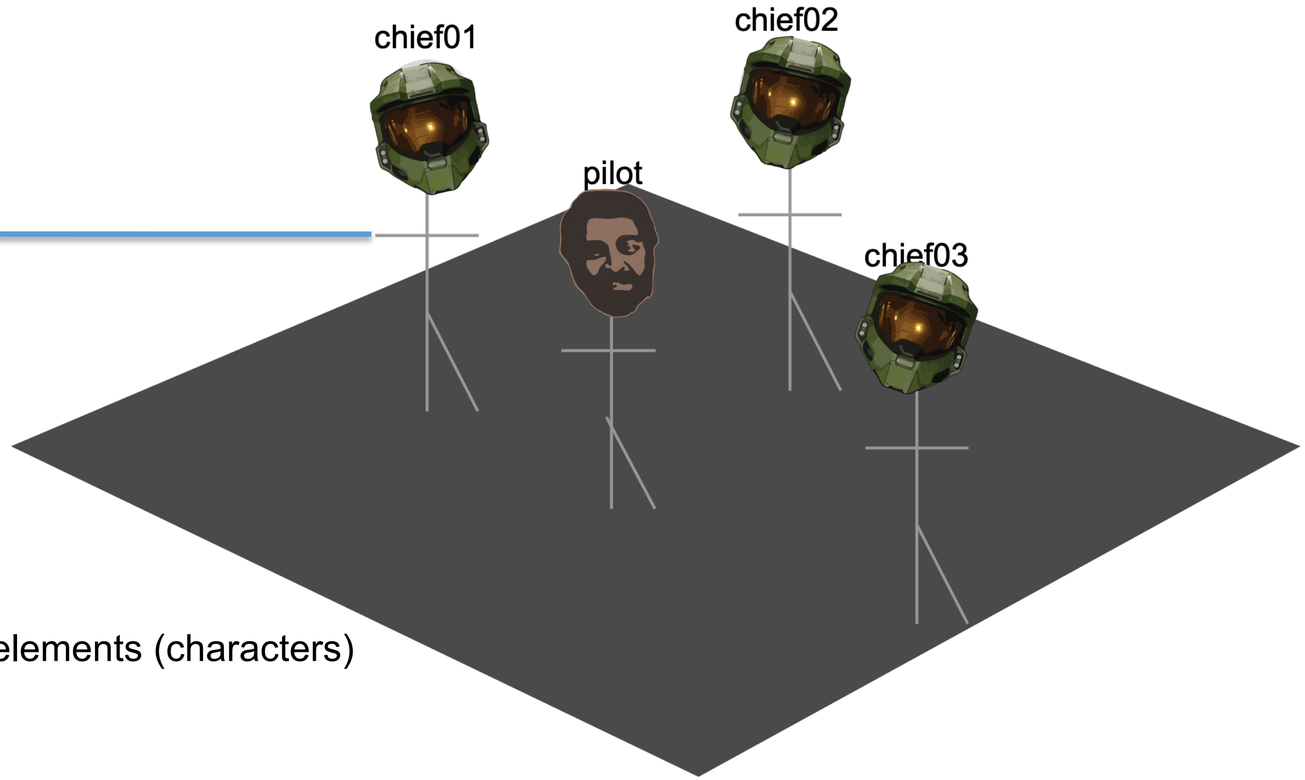

chief
pilot
Masterchief take 1
pilotmocap


chief
pilot
Masterchief take 1
pilotmocap
pilotmocap2
pilotmocap3


chief
chief
pilot
chief


Masterchief take 1
pilotmocap
pilotmocap2
pilotmocap3
Masterchief take 2
Masterchief take 3
Masterchief take 4
Masterchief take 5

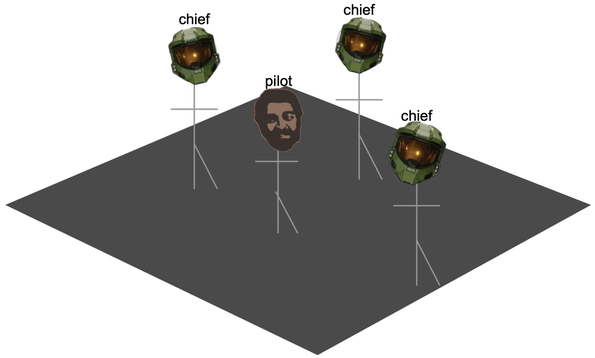


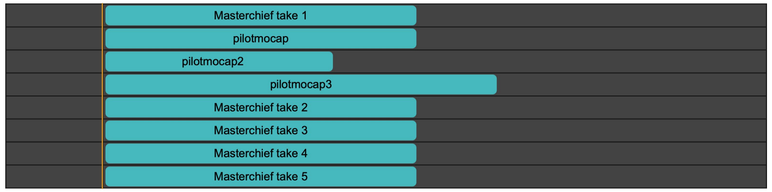
1. Associate animations to familiar elements (characters)

chief01	Masterchief take 1	Masterchief take 2	
chief02	Masterchief take 3	Masterchief take 5	
chief03	Masterchief take 4		
pilot	pilotmocap	pilotmocap2	p

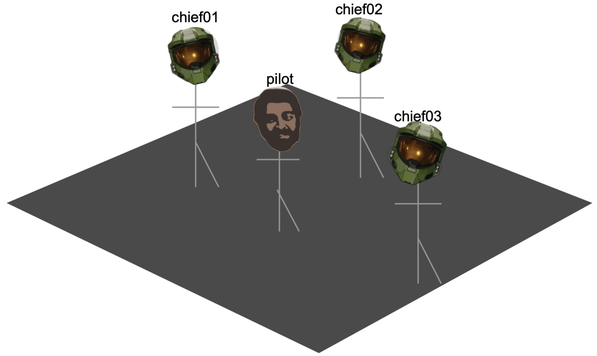
2. Present animations in a format users are already familiar with

BEFORE

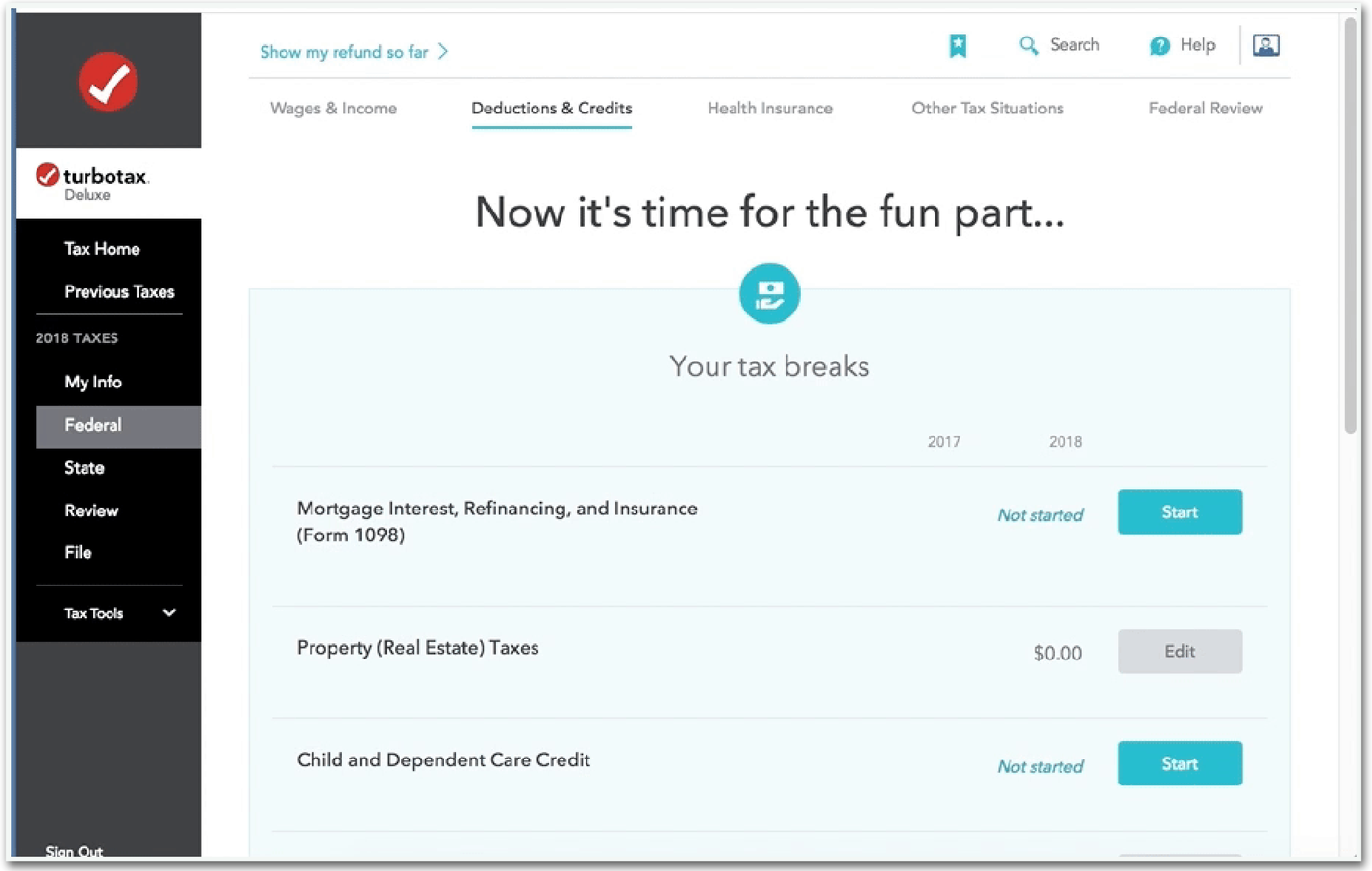




AFTER



#2 Standardize



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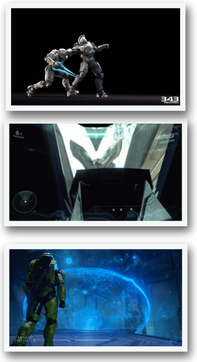
Gameplay

Vignette

Cinematics

What was it like to “export an animation”?



	Step 1	Step 2
Gameplay	Animation Settings Editor	
Vignette	Animation Settings Editor	Composition Exporter
Cinematics	Shot Assignment Tool	Composition Exporter

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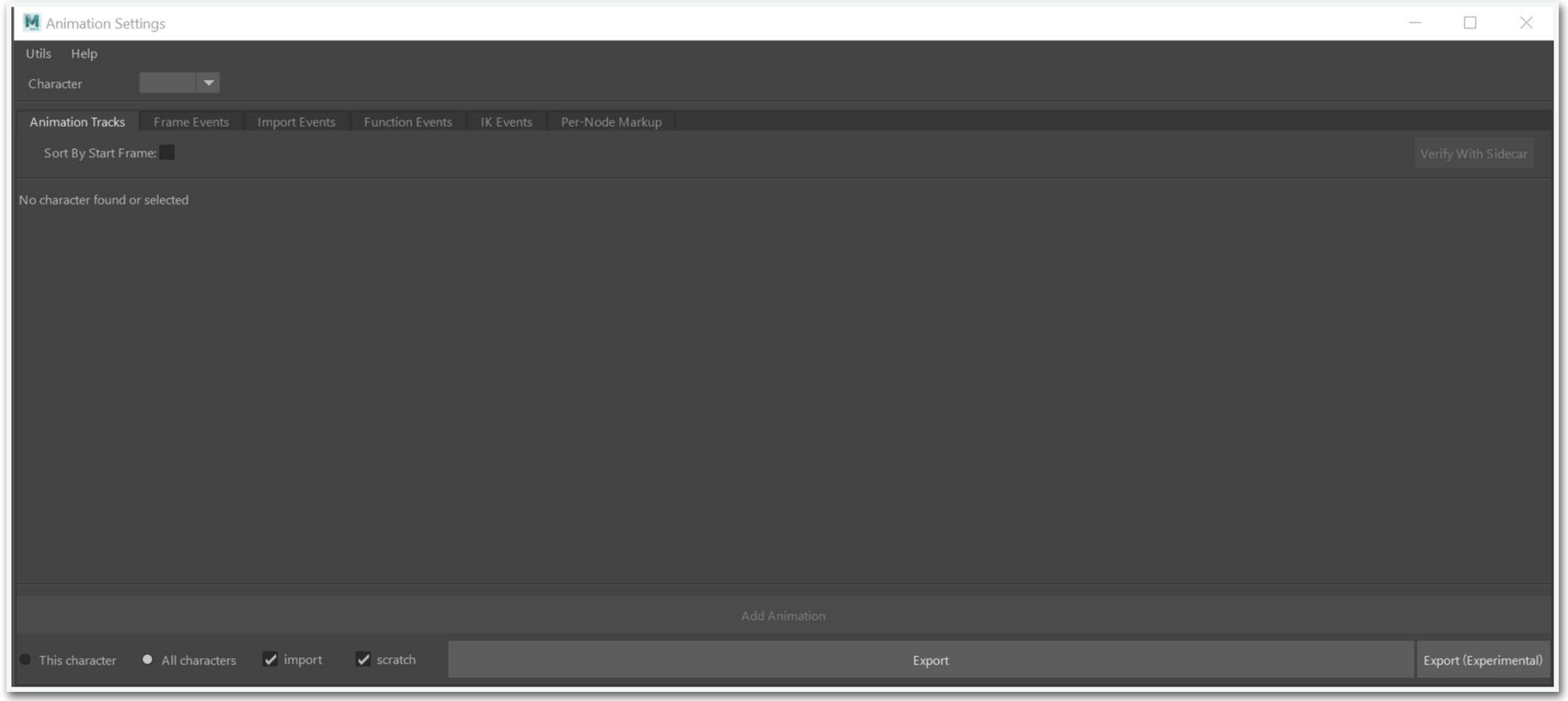

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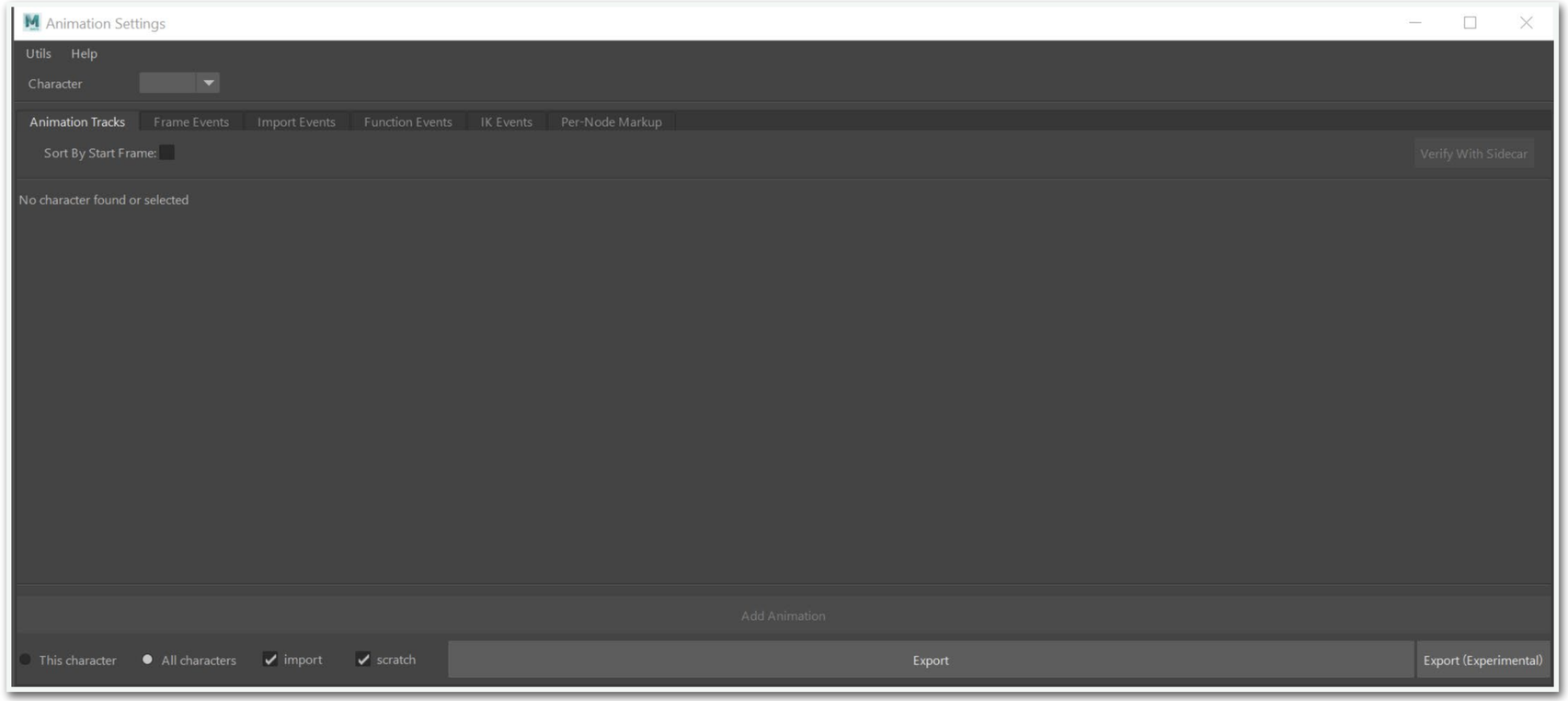

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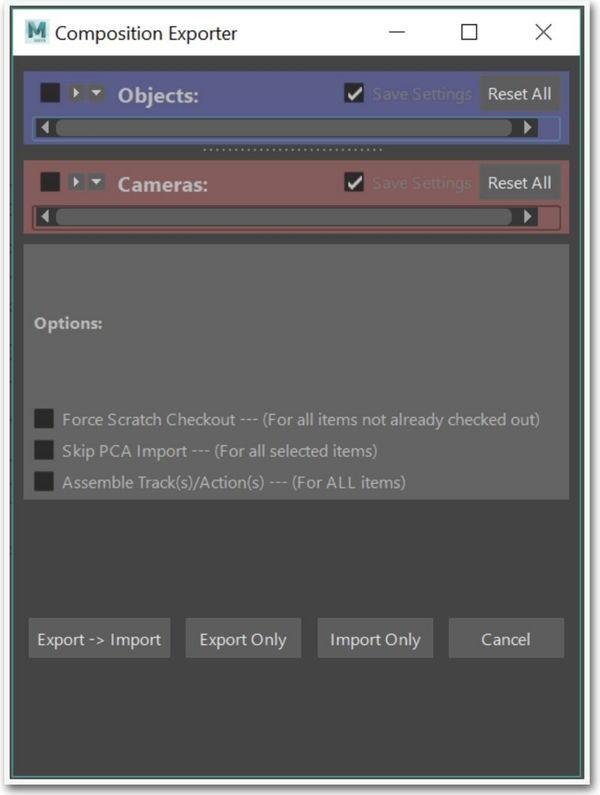

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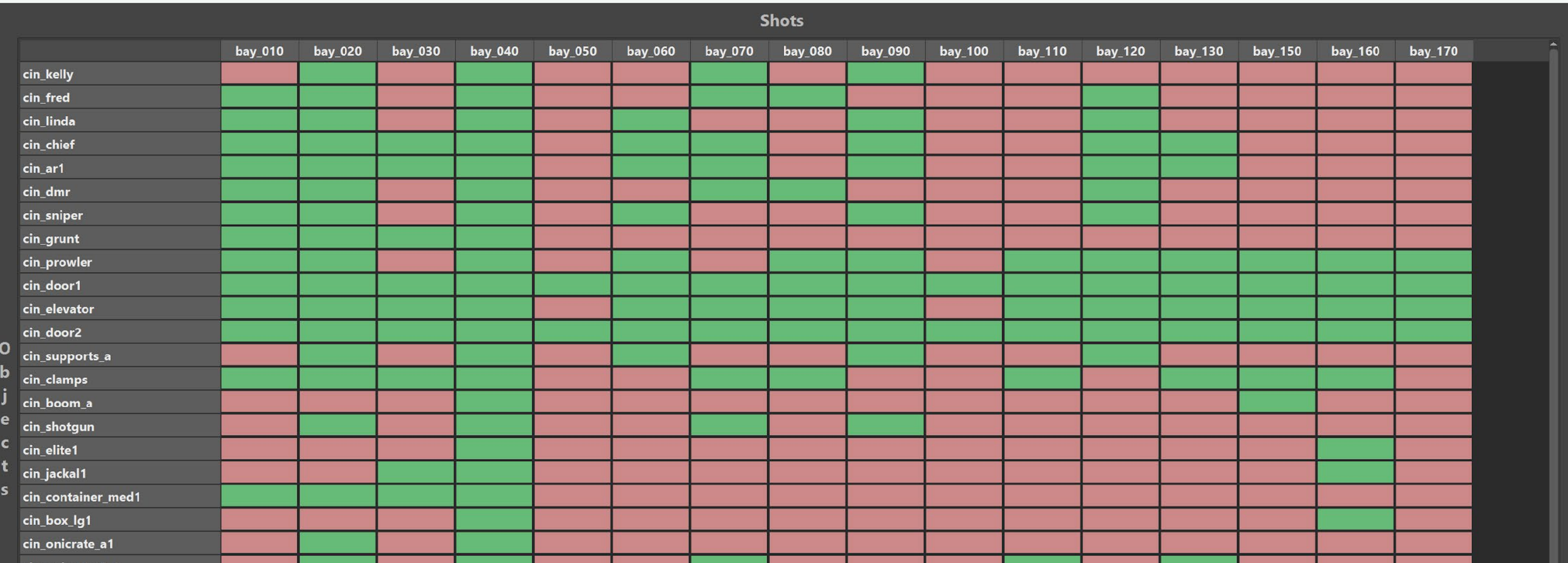

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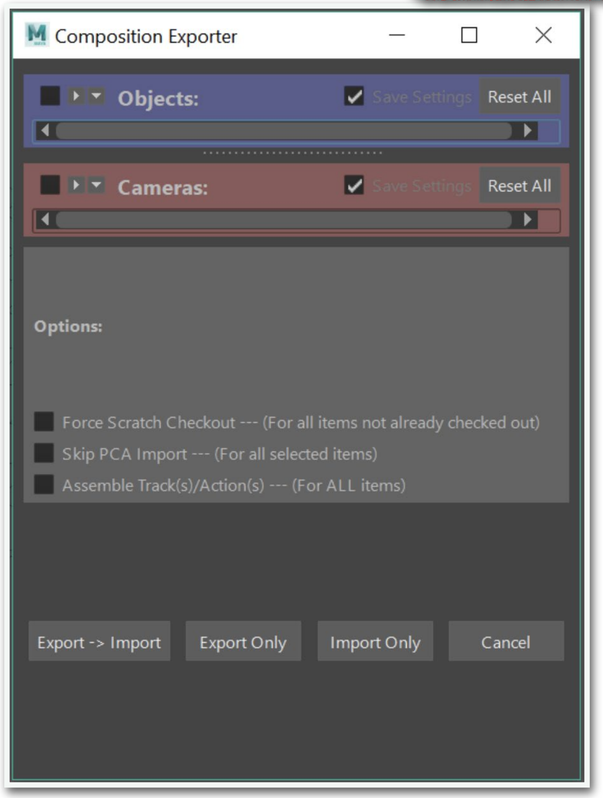

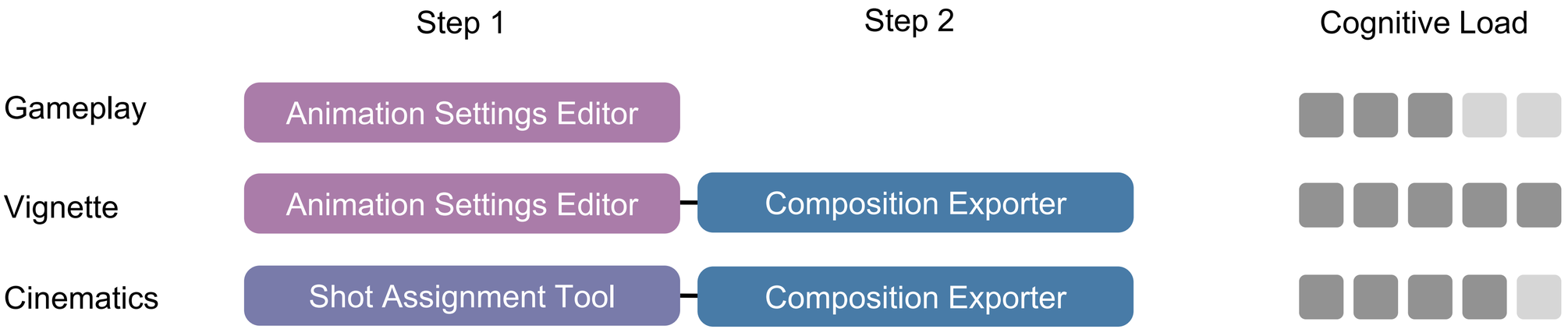
Step 1
Step 2
Cognitive Load
Gameplay
Animation Settings Editor
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Animation Settings Editor
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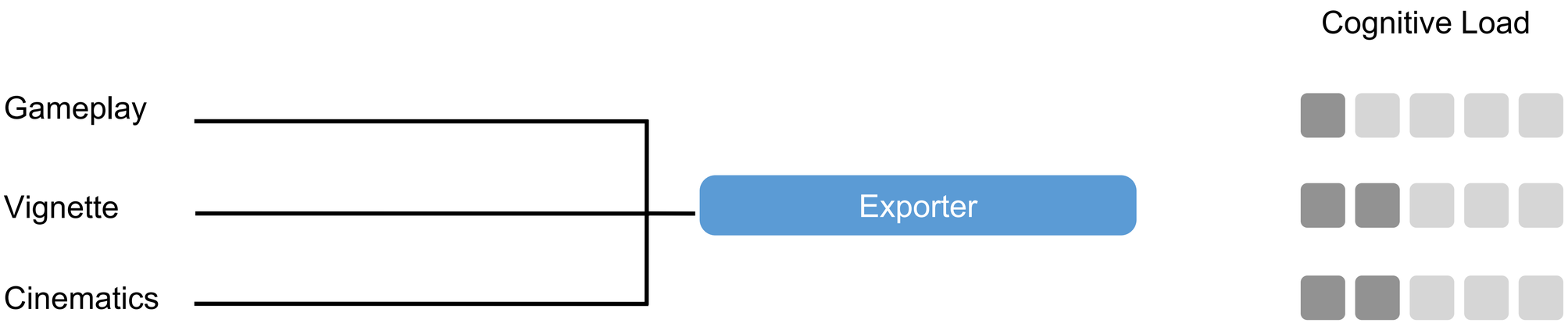
Shot Assignment Tool
Composition Exporter

What if…?



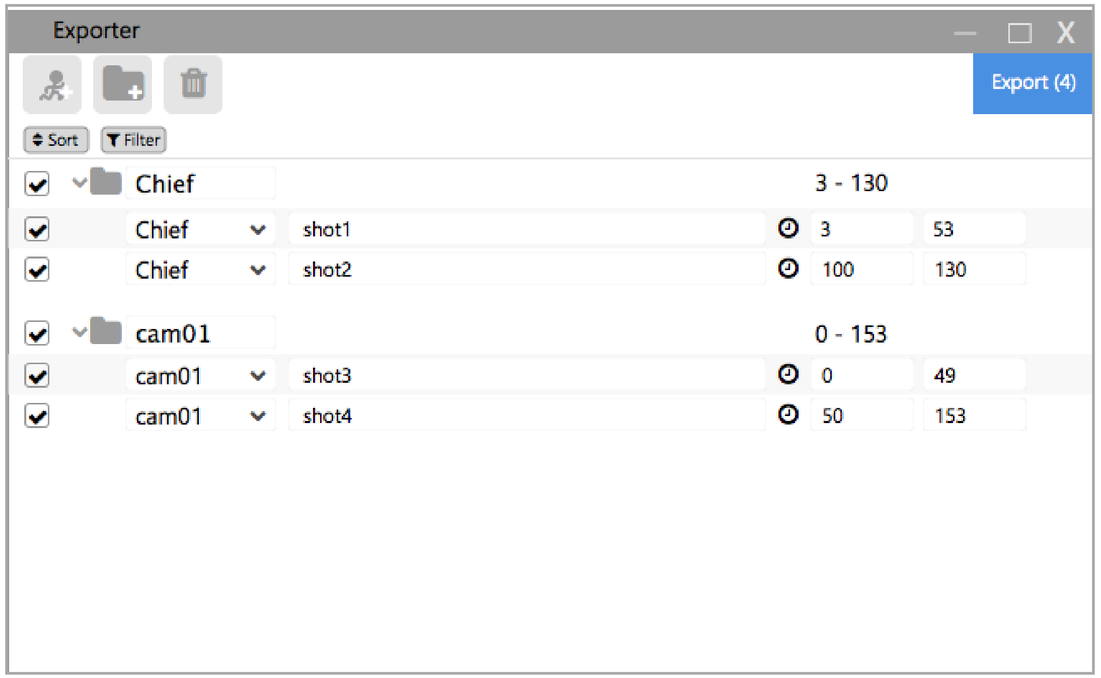
What if…?

Gameplay

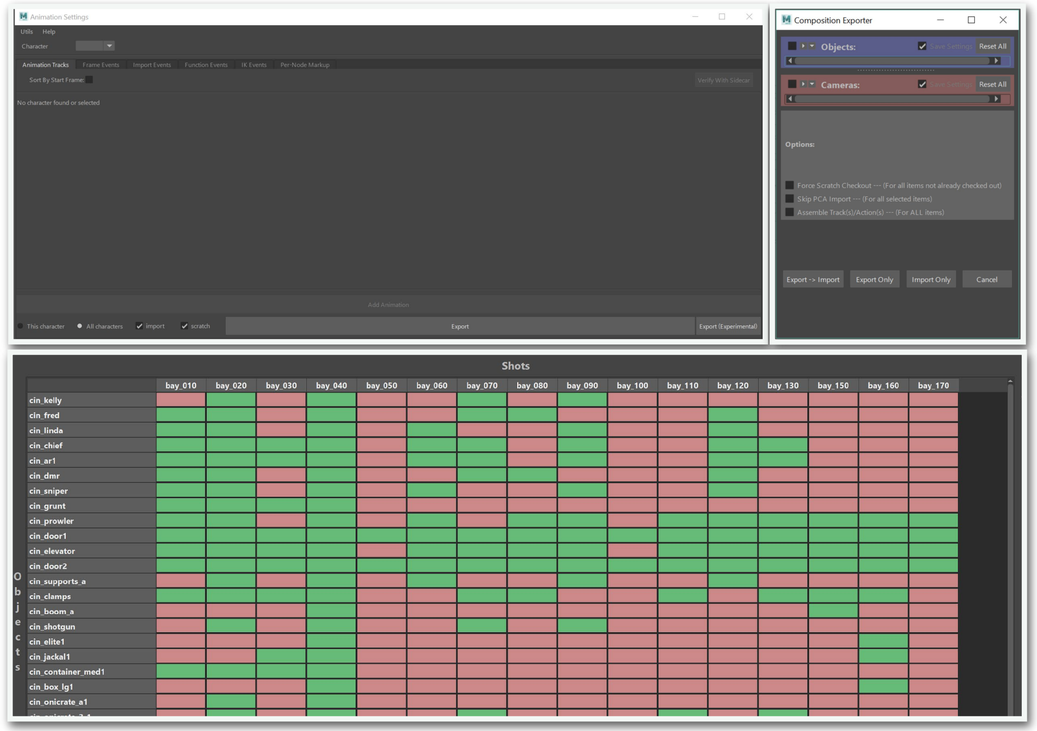
Narrative

Cognitive Load

The Solution



BEFORE



AFTER

#3 Do the math for users

Condition: After idling for 5 minutes...
Action: Play below animations based on its weight

ANIMATION	WEIGHT
Sing	0.2
Yawn	0.3
Juggle	0.5

Iteration 1

! Users would like the system to split the remaining weight value !

Condition: After idling for 5 minutes...

Action: Play below animations based on its weight

ANIMATION	WEIGHT
Sing	0.2
Yawn	1 *0.4*
Juggle	1 *0.4*

Iteration 2

Condition: After idling for 5 minutes...

Action: Play below animations based on its weight

ANIMATION	WEIGHT
Sing	0.2
Yawn	*Auto (0.4)*
Juggle	*Auto (0.4)*

Iteration 3

*Patented by Microsoft

BEFORE

ANIMATION	WEIGHT
Sing	0.2
Yawn	0.3
Juggle	0.5

AFTER

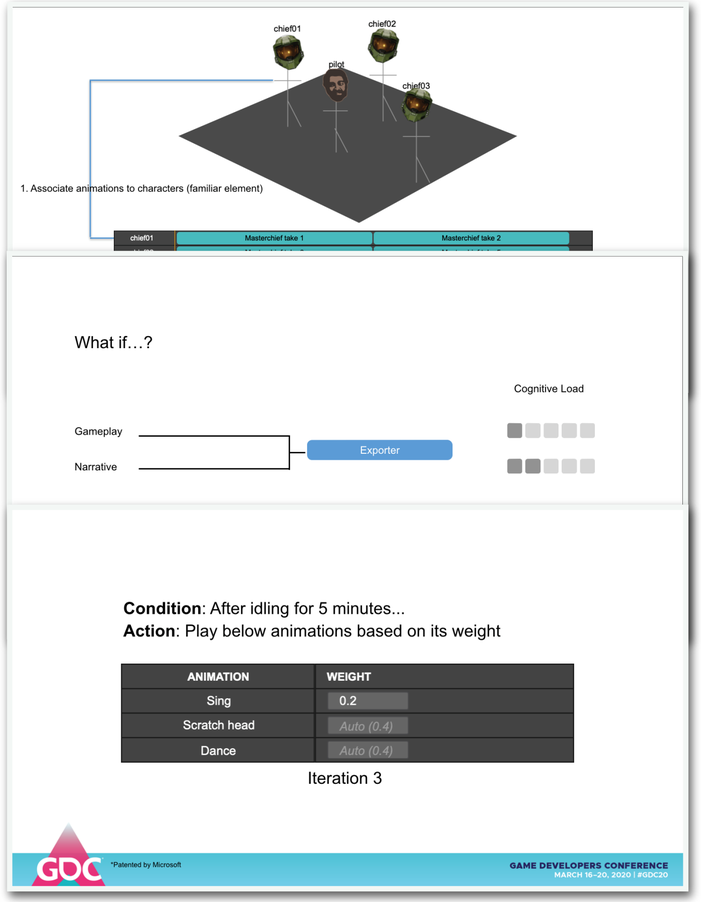
ANIMATION	WEIGHT
Sing	0.2
Yawn	*Auto (0.4)*
Juggle	*Auto (0.4)*

How do we reduce the cognitive load?

1. Make the most of familiarities

2. Standardize

3. Do the math for users



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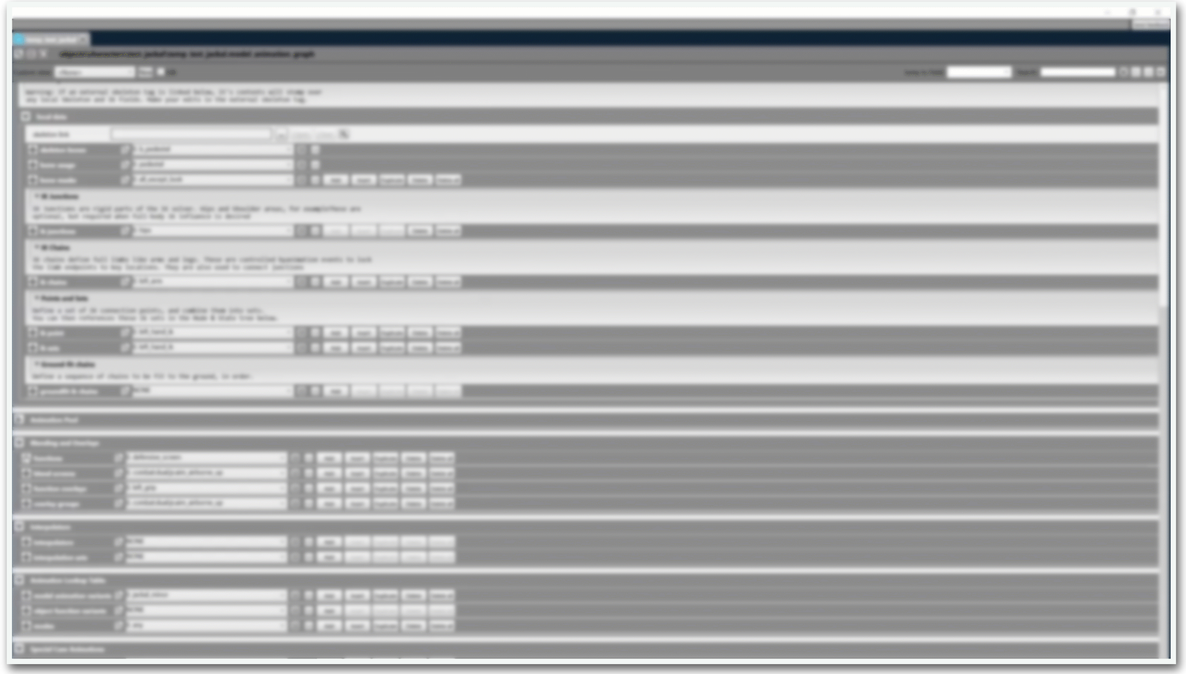

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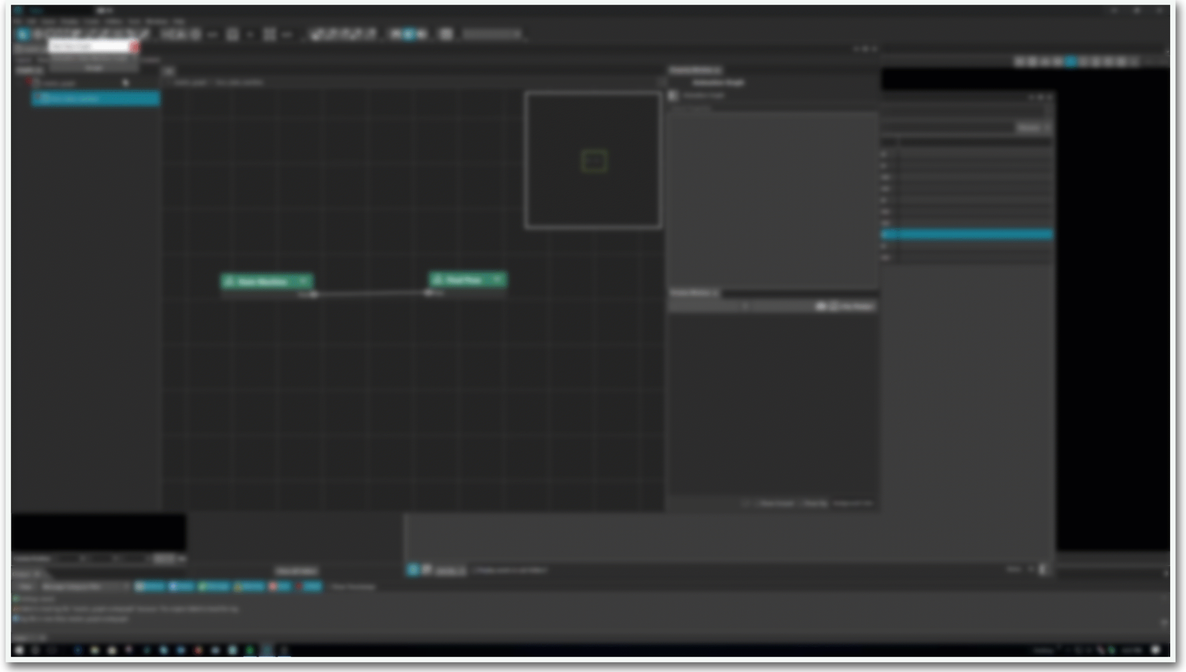

to these wonderful people

Adam Bryant
Andy Kang
Angel Wylie
Carina Kom
Chase Thomson
Chris Howard
Daniel Potter
Dan Tafaro
Forest Baker
Henri Tan
Ian Jones
Joe Winter
Josh Marvel
JuanCarlos Larrea
Jun Fu
Kenny Magnusson
Marcellis Wentz
Nathan Kellams
Nicholas LaCroix
Nick Avallone
Parker Won
Patrick Gillette
Patrick Bryan
Paul Dystra
Paul Dykstra
Pete Quickert
Rob Miller
Robbie Elias
Sarah O’Leary
Scott Andrews
Sean Nolan
Stephane LeBrun
Thanh Giang
Will Christiansen

Thanks！

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References

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- Minimize Cognitive Load to Maximize Usability, Nielsen Norman Group
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- Building knowledge requires bricks, not sand: The critical role of familiar constituents in learning, Lynne M. Reder, Xiaonan L. Liu, Alexander Keinath & Vencislav Poppv