

## 3D Video Games introduction

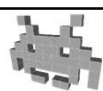


- Mini addendum

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**GENERAL TERMINOLOGY**

### A general concept we will be encountering it several times




ASSET - STORED	PROCEDURAL - GENERATED
<ul style="list-style-type: none"><li>● Build during the dev of a game<ul style="list-style-type: none"><li>● « it is designed »</li><li>● « it is hand-modelled »</li></ul></li></ul>	<ul style="list-style-type: none"><li>● Made during game execution on-demand<ul style="list-style-type: none"><li>● « it's a procedure »</li><li>● « it's dynamically computed »</li></ul></li></ul>
<ul style="list-style-type: none"><li>👍 quality (usually)<ul style="list-style-type: none"><li>● (if the artists are good)</li></ul></li><li>👍 artistic control<ul style="list-style-type: none"><li>● by the digital artist</li></ul></li><li>● costs space (RAM, DISK...)</li></ul>	<ul style="list-style-type: none"><li>👍 variations<ul style="list-style-type: none"><li>● which is tied to "replayability"</li></ul></li><li>👍 flexibility<ul style="list-style-type: none"><li>● (can adapt to the context)</li></ul></li><li>● costs computation time (CPU, GPU...)</li></ul>

VS

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## Procedural generation In games


- For example
- Procedural levels / missions
- Procedural Terrain
- Procedural AI
- Procedural «Bosses»
- Procedural Scenes
- Procedural Models
- Procedural Textures
- Procedural Animations (physics)
- Procedural Music ...




Rogue, Michael Toy et al, 1980




Procedural Forest in ICE




Un roguelike




Shadow Over Mordor, Monolith Prod., 2014



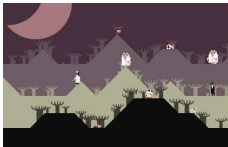
Minecraft, Mojang, 2009



Elite, Acornsoft, 1984



Left 4 dead, Valve, 2008




Rescue the beagles, 16x16, 2008

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GENERAL TERMINOLOGY

## «Baking», «Baked» / «Pre-baked»



it: "cuocere (al forno)"

once and for all, producing one **asset** (otherwise, it's **caching**)



baking

: Storing for good the result of a computation, for later use

often, (a refined versions of) the ones normally employed in **real time**

**We gain:**

- time (CPU / GPU workload)
- almost total independence from computation complexity !  
→ less compromises, more quality

**We pay with:**

- space (on disk , Ram , GPU RAM)
- loss of flexibility (all the parameters used by the computation are frozen)

e.g.: a "baked light-map", a "baked animation"...

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