PowerShell Basics
A Practical Explanation

Objects, Properties, Methods

Pipelines: ByValue vs ByPropertyName

Golden Commands (These you should commit to memory)
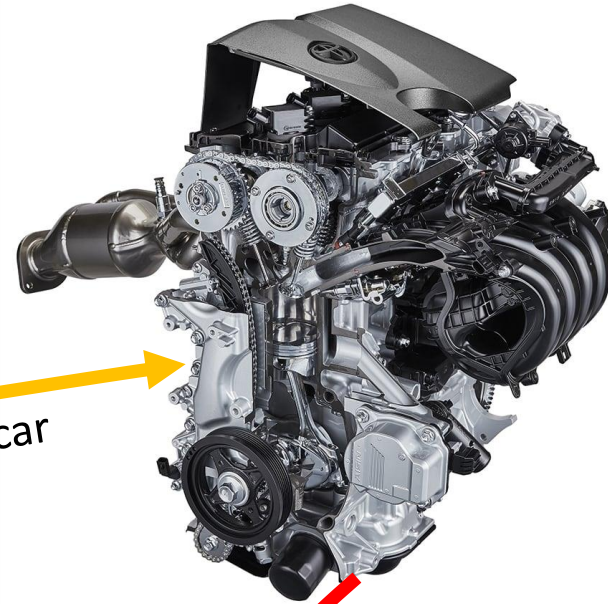
Object Properties – A practical example

Car is the object

But the Engine is also an object
It has the following properties:
- Pistons
- Cam shaft
- Crank shaft
- Con Rods
- Valves

The engine is a property of the car

The piston is a property of the engine

An object has **properties** that are immediately apparent
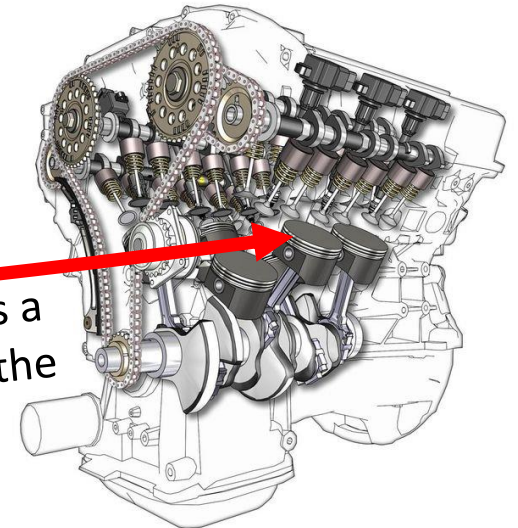For example, a car has the following:
- Engine
- Seats
- Doors
- Wheels

Object Methods – A practical example

Methods are actions that can be performed on the object

Car is an object

Methods (actions) relate to the object that they are a part of

Car Methods
StartEngine()
StopEngine()
OpenDoor()
CloseDoor()
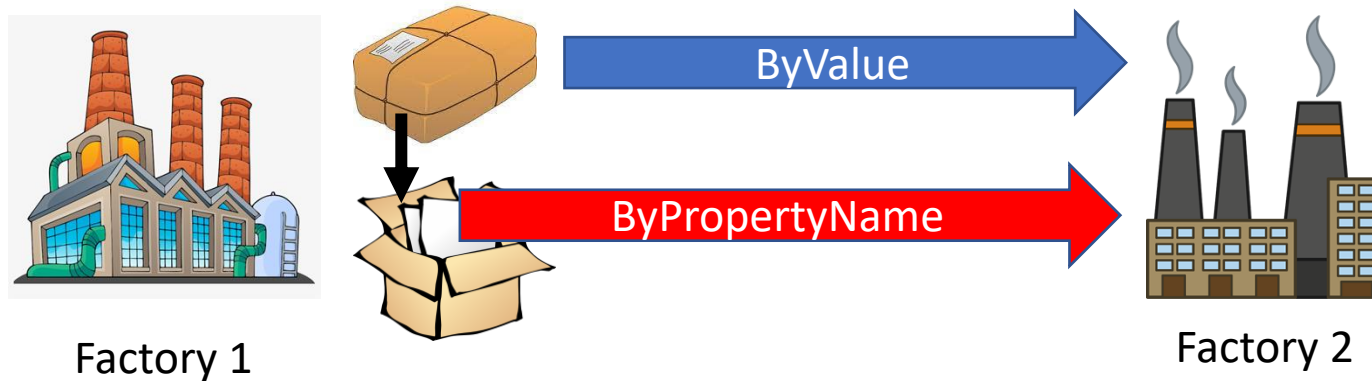ChangeGears()
Accelerate()
Brake()

Engine is an object

Engine Methods
ChangeOil()
ReplaceOilFilter()
ReplaceSparkPlug()
CheckGasket()
ReplaceGasket()

PowerShell Pipelines described using factories

Factory 1

ByValue

ByPropertyName

Factory 2

- Check if we can send an object created by "factory 1" to "factory 2"
  - This is called pipeline **ByValue**
- If "factory 2" cannot accept the entire object
  - We break the object down into its properties
  - Check to see if factory 2 will accept the individual properties
  - This is called pipeline **ByPropertyName**

Pipeline via ByValue
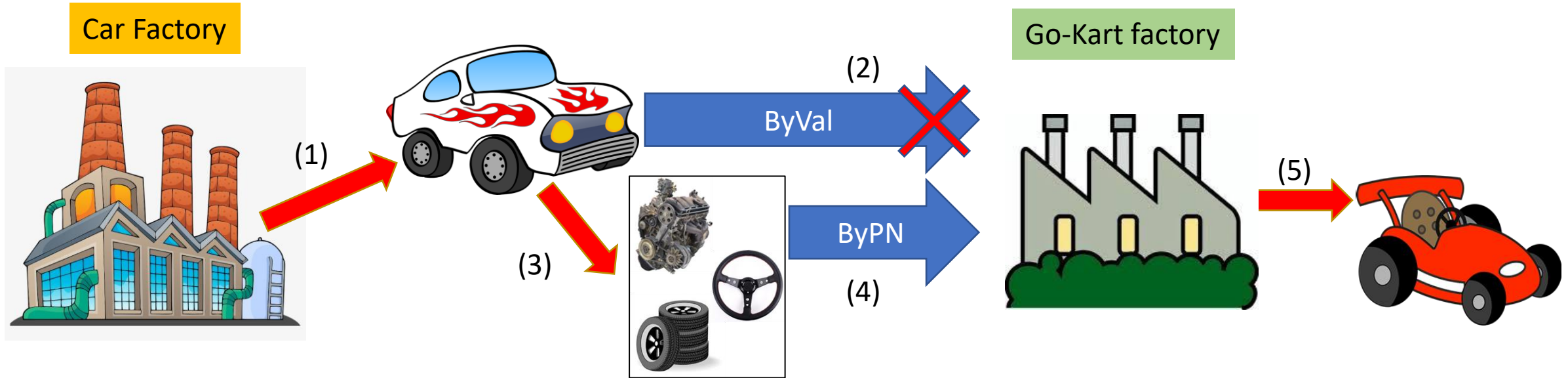

Car Factory

(1)

(2)

ByVal

Spray painting factory

(3)
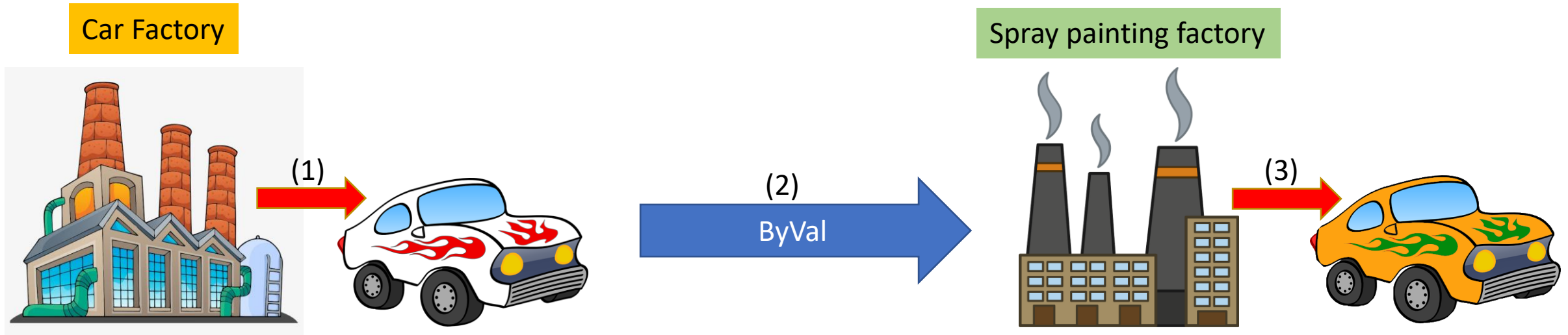
In this practical example:
(1) the first factory produces a car
(2) the second factory can receive the whole car (Object)
(3) the second factory paints it the correct color.

Pipeline via ByPropertyName

Car Factory

Go-Kart factory

(2)

ByVal

(1)

(3)

ByPN

(4)

(5)

In this practical example:
(1) The first factory produces a car
(2) The second factory cannot receive the whole car (ByValue)
(3) Car is broken down into parts (Properties)
(4) The relevant parts are sent the second factory (ByPropertyName)
(5) The second factory makes something new from the parts sent.

Golden Commands

Spray Painting Company

Go Kart Company

Get-Command
This helps us find the correct factory
Example: need a new car

Get-Help
This gives us the information about what the factory needs
Example: input, materials needed

Car Factory

Get-Member
This shows us what the factory produces
Example: What is produced and its properties and methods

Car Properties
- Engine
- Seats
- Doors
- Wheels

Car Methods
- StartEngine()
- StopEngine()
- OpenDoor()
- CloseDoor()
- ChangeGears
- Accelerate()
- Brake()