

# Namespace Animal

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# Class Animal

Namespace: [Animal](#)

Assembly: Extensions.dll

```
[WorkflowElementCategory(ElementCategory.Source)]
[Combinator(MethodName = "Generate")]
public class Animal
```

Inheritance

[object](#) ← Animal

Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

## Constructors

Animal()

```
public Animal()
```

Animal(Animal)

```
protected Animal(Animal other)
```

Parameters

other [Animal](#)

## Properties

AnimalId

The ID of the animal.

```
[JsonProperty("animal_id", Required = Required.Always)]
[YamlMember(Alias = "animal_id")]
public string AnimalId { get; set; }
```

Property Value

[string](#)

## AutobiasCorrection

Contains parameters related to the autobias correction algorithm.

```
[JsonProperty("autobias_correction")]
[YamlMember(Alias = "autobias_correction")]
public AutobiasCorrection AutobiasCorrection { get; set; }
```

Property Value

[AutobiasCorrection](#)

## Batch

The batch to which the current animal belongs to.

```
[JsonProperty("batch", Required = Required.Always)]
[YamlMember(Alias = "batch")]
public string Batch { get; set; }
```

Property Value

[string](#)

## BiasedSession

Contains the parameter to configure a biased session.

```
[JsonProperty("biased_session")]
[YamlMember(Alias = "biased_session")]
public BiasedSession BiasedSession { get; set; }
```

Property Value

[BiasedSession](#)

## FixationTime

Contains parameters related to the fixation time.

```
[JsonProperty("fixation_time", Required = Required.Always)]
[YamlMember(Alias = "fixation_time")]
public FixationTime FixationTime { get; set; }
```

Property Value

[FixationTime](#)

## LnpTime

Contains parameters related to the LNP (Lateral Nose Poke) time. The units of each of the parameters is seconds.

```
[JsonProperty("lnp_time")]
[YamlMember(Alias = "lnp_time")]
public TimeConstrains LnpTime { get; set; }
```

Property Value

[TimeConstrains](#)

## MinMovementTime

The minimum allowed movement time (s).

```
[JsonProperty("min_movement_time")]
[YamlMember(Alias = "min_movement_time")]
public double MinMovementTime { get; set; }
```

Property Value

[double](#) ↗

## Optogenetics

Contains the optogenetics-related parameters.

```
[JsonProperty("optogenetics")]
[YamlMember(Alias = "optogenetics")]
public Optogenetics Optogenetics { get; set; }
```

Property Value

[Optogenetics](#)

## ReactionTime

Contains parameters related to the reaction time. The units of each of the parameters is seconds.

```
[JsonProperty("reaction_time")]
[YamlMember(Alias = "reaction_time")]
public ReactionTime ReactionTime { get; set; }
```

Property Value

[ReactionTime](#)

## Reward

Contains the parameters that configure the reward delivery.

```
[JsonProperty("reward", Required = Required.Always)]
[YamlMember(Alias = "reward")]
public Reward Reward { get; set; }
```

## Property Value

[Reward](#)

## Session

Contains the session-related parameters.

```
[JsonProperty("session", Required = Required.Always)]
[YamlMember(Alias = "session")]
public Session Session { get; set; }
```

## Property Value

[Session](#)

## Sound

Contains the sound-related parameters.

```
[JsonProperty("sound", Required = Required.Always)]
[YamlMember(Alias = "sound")]
public Sound Sound { get; set; }
```

## Property Value

[Sound](#)

## Methods

### Generate()

```
public IObservable<Animal> Generate()
```

Returns

[IObservable](#)<Animal>

## Generate<TSource>(IObservable<TSource>)

```
public IObservable<Animal> Generate<TSource>(IObservable<TSource> source)
```

Parameters

source [IObservable](#)<TSource>

Returns

[IObservable](#)<Animal>

Type Parameters

TSource

## PrintMembers(StringBuilder)

```
protected virtual bool PrintMembers(StringBuilder stringBuilder)
```

Parameters

stringBuilder [StringBuilder](#)

Returns

[bool](#)

## ToString()

Returns a string that represents the current object.

```
public override string ToString()
```

Returns

[string](#)

A string that represents the current object.

# Class AutobiasCorrection

Namespace: [Animal](#)

Assembly: Extensions.dll

```
[WorkflowElementCategory(ElementCategory.Source)]
[Combinator(MethodName = "Generate")]
public class AutobiasCorrection
```

## Inheritance

[object](#) ← AutobiasCorrection

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

## Constructors

### AutobiasCorrection()

```
public AutobiasCorrection()
```

### AutobiasCorrection(AutobiasCorrection)

```
protected AutobiasCorrection(AutobiasCorrection other)
```

## Parameters

other [AutobiasCorrection](#)

## Properties

### CutoffBias

The minimum |bias| value from which the side rewards start to be corrected.

```
[JsonProperty("cutoff_bias", Required = Required.Always)]
[YamlMember(Alias = "cutoff_bias")]
public double CutoffBias { get; set; }
```

## Property Value

[double](#) ↗

## PerformanceThreshold

The minimum performance value for which the side rewards are not corrected.

```
[JsonProperty("performance_threshold", Required = Required.Always)]
[YamlMember(Alias = "performance_threshold")]
public double PerformanceThreshold { get; set; }
```

## Property Value

[double](#) ↗

## SlopeMultiplier

A multiplying factor to the slope of the increasing reward amount side (corresponds to the non-biased side).

```
[JsonProperty("slope_multiplier", Required = Required.Always)]
[YamlMember(Alias = "slope_multiplier")]
public double SlopeMultiplier { get; set; }
```

## Property Value

[double](#) ↗

## UseCorrection

Indicates whether the autobias correction feature should be used or not.

```
[JsonProperty("use_correction")]
[YamlMember(Alias = "use_correction")]
public bool UseCorrection { get; set; }
```

Property Value

[bool](#)

## Window

The amount of trials to consider to calculate the animal bias.

```
[JsonProperty("window", Required = Required.Always)]
[YamlMember(Alias = "window")]
public int Window { get; set; }
```

Property Value

[int](#)

## Methods

### Generate()

```
public IObservable<AutobiasCorrection> Generate()
```

Returns

[IObservable](#)<[AutobiasCorrection](#)>

### Generate<TSource>(IObservable<TSource>)

```
public IObservable<AutobiasCorrection> Generate<TSource>(IObservable<TSource> source)
```

Parameters

source [IObservable](#)<TSource>

Returns

[IObservable](#)<AutobiasCorrection>

Type Parameters

TSource

## PrintMembers(StringBuilder)

`protected virtual bool PrintMembers(StringBuilder stringBuilder)`

Parameters

stringBuilder [StringBuilder](#)

Returns

[bool](#)

## ToString()

Returns a string that represents the current object.

`public override string ToString()`

Returns

[string](#)

A string that represents the current object.

# Class BiasedBlockDistribution

Namespace: [Animal](#)

Assembly: Extensions.dll

```
[WorkflowElementCategory(ElementCategory.Source)]
[Combinator(MethodName = "Generate")]
public class BiasedBlockDistribution
```

## Inheritance

[object](#) ← BiasedBlockDistribution

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

## Constructors

### BiasedBlockDistribution()

```
public BiasedBlockDistribution()
```

### BiasedBlockDistribution(BiasedBlockDistribution)

```
protected BiasedBlockDistribution(BiasedBlockDistribution other)
```

## Parameters

other [BiasedBlockDistribution](#)

## Properties

### MaxValue

The maximum number of trials that a biased block should have.

```
[JsonProperty("max_value", Required = Required.Always)]
[YamlMember(Alias = "max_value")]
public int MaxValue { get; set; }
```

## Property Value

[int↗](#)

## Mean

The mean number of trials a biased block should have.

```
[JsonProperty("mean", Required = Required.Always)]
[YamlMember(Alias = "mean")]
public int Mean { get; set; }
```

## Property Value

[int↗](#)

## MinValue

The minimum number of trials that a biased block should have.

```
[JsonProperty("min_value", Required = Required.Always)]
[YamlMember(Alias = "min_value")]
public int MinValue { get; set; }
```

## Property Value

[int↗](#)

## Methods

### Generate()

```
public IObservable<BiasedBlockDistribution> Generate()
```

Returns

[IObservable](#)<[BiasedBlockDistribution](#)>

## Generate<TSource>(IObservable<TSource>)

```
public IObservable<BiasedBlockDistribution> Generate<TSource>(IObservable<TSource> source)
```

Parameters

source [IObservable](#)<TSource>

Returns

[IObservable](#)<[BiasedBlockDistribution](#)>

Type Parameters

TSource

## PrintMembers(StringBuilder)

```
protected virtual bool PrintMembers(StringBuilder stringBuilder)
```

Parameters

stringBuilder [StringBuilder](#)

Returns

[bool](#)

## ToString()

Returns a string that represents the current object.

```
public override string ToString()
```

Returns

[string](#)

A string that represents the current object.

# Class BiasedSession

Namespace: [Animal](#)

Assembly: Extensions.dll

```
[WorkflowElementCategory(ElementCategory.Source)]
[Combinator(MethodName = "Generate")]
public class BiasedSession
```

## Inheritance

[object](#) ← BiasedSession

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

## Constructors

### BiasedSession()

```
public BiasedSession()
```

### BiasedSession(BiasedSession)

```
protected BiasedSession(BiasedSession other)
```

## Parameters

other [BiasedSession](#)

## Properties

### BiasProbability

The probability of the preferencial side in a biased block.

```
[JsonProperty("bias_probability", Required = Required.Always)]
[YamlMember(Alias = "bias_probability")]
public double BiasProbability { get; set; }
```

Property Value

[double](#) ↗

## BlockDistributions

Contains the parameters of the exponential distribution from which the number of trials in a biased block is sampled.

```
[JsonProperty("block_distributions", Required = Required.Always)]
[YamlMember(Alias = "block_distributions")]
public BiasedBlockDistribution BlockDistributions { get; set; }
```

Property Value

[BiasedBlockDistribution](#)

## IsBiasedSession

Indicates whether the current session will have biased blocks.

```
[JsonProperty("is_biased_session")]
[YamlMember(Alias = "is_biased_session")]
public bool IsBiasedSession { get; set; }
```

Property Value

[bool](#) ↗

## Methods

Generate()

```
public IObservable<BiasedSession> Generate()
```

Returns

[IObservable](#)<[BiasedSession](#)>

## Generate<TSource>(IObservable<TSource>)

```
public IObservable<BiasedSession> Generate<TSource>(IObservable<TSource> source)
```

Parameters

source [IObservable](#)<TSource>

Returns

[IObservable](#)<[BiasedSession](#)>

Type Parameters

TSource

## PrintMembers(StringBuilder)

```
protected virtual bool PrintMembers(StringBuilder stringBuilder)
```

Parameters

stringBuilder [StringBuilder](#)

Returns

[bool](#)

## ToString()

Returns a string that represents the current object.

```
public override string ToString()
```

Returns

[string](#)

A string that represents the current object.

# Class DeserializeFromJson

Namespace: [Animal](#)

Assembly: Extensions.dll

Deserializes a sequence of JSON strings into data model objects.

```
[WorkflowElementCategory(ElementCategory.Transform)]
public class DeserializeFromJson : SingleArgumentExpressionBuilder, IExpressionBuilder
```

Inheritance

[object](#) ← [ExpressionBuilder](#) ← [SingleArgumentExpressionBuilder](#) ← [DeserializeFromJson](#)

Implements

[IExpressionBuilder](#)

Inherited Members

[SingleArgumentExpressionBuilder.ArgumentRange](#) , [ExpressionBuilder.ToString\(\)](#) ,  
[ExpressionBuilder.Unwrap\(ExpressionBuilder\)](#) ,  
[ExpressionBuilder.GetWorkflowElement\(ExpressionBuilder\)](#) ,  
[ExpressionBuilder.GetVisualizerElement\(ExpressionBuilder\)](#) ,  
[ExpressionBuilder.GetVisualizerMappings\(ExpressionBuilder\)](#) ,  
[ExpressionBuilder.FromWorkflowElement\(object, ElementCategory\)](#) ,  
[ExpressionBuilder.GetElementDisplayName\(Type\)](#) ,  
[ExpressionBuilder.GetElementDisplayName\(object\)](#) ,  
[ExpressionBuilder.SelectMembers\(Expression, string\)](#) ,  
[ExpressionBuilder.GetArgumentAccess\(IEnumerable<Expression>, string\)](#) , [object.Equals\(object\)](#) ,  
[object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) , [object.GetHashCode\(\)](#) ,  
[object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

## Constructors

[DeserializeFromJson\(\)](#)

```
public DeserializeFromJson()
```

# Properties

## Type

```
public TypeMapping Type { get; set; }
```

## Property Value

[TypeMapping](#)

# Methods

## Build(IEnumerable<Expression>)

Constructs an [Expression](#) node from a collection of input arguments. The result can be chained with other builders in a workflow.

```
public override Expression Build(IEnumerable<Expression> arguments)
```

## Parameters

**arguments** [IEnumerable](#)<[Expression](#)>

A collection of [Expression](#) nodes representing the input arguments.

## Returns

[Expression](#)

The constructed [Expression](#) node.

# Class DeserializeFromYaml

Namespace: [Animal](#)

Assembly: Extensions.dll

Deserializes a sequence of YAML strings into data model objects.

```
[WorkflowElementCategory(ElementCategory.Transform)]
public class DeserializeFromYaml : SingleArgumentExpressionBuilder, IExpressionBuilder
```

Inheritance

[object](#) ← [ExpressionBuilder](#) ← [SingleArgumentExpressionBuilder](#) ← [DeserializeFromYaml](#)

Implements

[IExpressionBuilder](#)

Inherited Members

[SingleArgumentExpressionBuilder.ArgumentRange](#) , [ExpressionBuilder.ToString\(\)](#) ,  
[ExpressionBuilder.Unwrap\(ExpressionBuilder\)](#) ,  
[ExpressionBuilder.GetWorkflowElement\(ExpressionBuilder\)](#) ,  
[ExpressionBuilder.GetVisualizerElement\(ExpressionBuilder\)](#) ,  
[ExpressionBuilder.GetVisualizerMappings\(ExpressionBuilder\)](#) ,  
[ExpressionBuilder.FromWorkflowElement\(object, ElementCategory\)](#) ,  
[ExpressionBuilder.GetElementDisplayName\(Type\)](#) ,  
[ExpressionBuilder.GetElementDisplayName\(object\)](#) ,  
[ExpressionBuilder.SelectMembers\(Expression, string\)](#) ,  
[ExpressionBuilder.GetArgumentAccess\(IEnumerable<Expression>, string\)](#) , [object.Equals\(object\)](#) ,  
[object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) , [object.GetHashCode\(\)](#) ,  
[object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

## Constructors

[DeserializeFromYaml\(\)](#)

```
public DeserializeFromYaml()
```

# Properties

## Type

```
public TypeMapping Type { get; set; }
```

## Property Value

[TypeMapping](#)

# Methods

## Build(IEnumerable<Expression>)

Constructs an [Expression](#) node from a collection of input arguments. The result can be chained with other builders in a workflow.

```
public override Expression Build(IEnumerable<Expression> arguments)
```

## Parameters

**arguments** [IEnumerable](#)<[Expression](#)>

A collection of [Expression](#) nodes representing the input arguments.

## Returns

[Expression](#)

The constructed [Expression](#) node.

# Class FixationTime

Namespace: [Animal](#)

Assembly: Extensions.dll

```
[WorkflowElementCategory(ElementCategory.Source)]
[Combinator(MethodName = "Generate")]
public class FixationTime
```

## Inheritance

[object](#) ← FixationTime

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

# Constructors

## FixationTime()

```
public FixationTime()
```

## FixationTime(FixationTime)

```
protected FixationTime(FixationTime other)
```

## Parameters

other [FixationTime](#)

# Properties

## OptoOnsetTime

Contains parameters related to the Optogenetics Onset Time part of the Fixation Time. The units of each of the parameters is milliseconds.

```
[JsonProperty("opto_onset_time")]
[YamlMember(Alias = "opto_onset_time")]
public TimeConstrains OptoOnsetTime { get; set; }
```

Property Value

[TimeConstrains](#)

## SoundOnsetTime

Contains parameters related to the Sound Onset Time part of the Fixation Time. The units of each of the parameters is milliseconds.

```
[JsonProperty("sound_onset_time")]
[YamlMember(Alias = "sound_onset_time")]
public TimeConstrains SoundOnsetTime { get; set; }
```

Property Value

[TimeConstrains](#)

## Methods

### Generate()

```
public IObservable<FixationTime> Generate()
```

Returns

[IObservable](#) <[FixationTime](#)>

**Generate<TSource>(IObservable<TSource>)**

```
public IObservable<FixationTime> Generate<TSource>(IObservable<TSource> source)
```

Parameters

source [IObservable](#)<TSource>

Returns

[IObservable](#)<FixationTime>

Type Parameters

TSource

## PrintMembers(StringBuilder)

```
protected virtual bool PrintMembers(StringBuilder stringBuilder)
```

Parameters

stringBuilder [StringBuilder](#)

Returns

[bool](#)

## ToString()

Returns a string that represents the current object.

```
public override string ToString()
```

Returns

[string](#)

A string that represents the current object.

# Class OptoLED

Namespace: [Animal](#)

Assembly: Extensions.dll

```
[WorkflowElementCategory(ElementCategory.Source)]
[Combinator(MethodName = "Generate")]
public class OptoLED
```

## Inheritance

[object](#) ← OptoLED

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

# Constructors

## OptoLED()

```
public OptoLED()
```

## OptoLED(OptoLED)

```
protected OptoLED(OptoLED other)
```

## Parameters

other [OptoLED](#)

# Properties

## DutyCycle

The duty cycle of the pulses (%). It only works when use\_pulses is true.

```
[JsonProperty("duty_cycle", Required = Required.Always)]
[YamlMember(Alias = "duty_cycle")]
public int DutyCycle { get; set; }
```

## Property Value

[int](#)

## Frequency

The frequency of the pulses (Hz). It only works when use\_pulses is true.

```
[JsonProperty("frequency", Required = Required.Always)]
[YamlMember(Alias = "frequency")]
public int Frequency { get; set; }
```

## Property Value

[int](#)

## Mode

Indicates whether the LED port is being used to control an external LED via TTL or if it's controlling a LED directly with the current sources.

```
[JsonProperty("mode", Required = Required.Always)]
[YamlMember(Alias = "mode")]
public OptoLEDMode Mode { get; set; }
```

## Property Value

[OptoLEDMode](#)

## Power

The power with which the animal is stimulated.

```
[JsonProperty("power", Required = Required.Always)]
[YamlMember(Alias = "power")]
public double Power { get; set; }
```

Property Value

[double](#) ↗

## UsePulses

Indicates whether the optogenetics protocol uses pulses of light (true) or a continuous emission (false).

```
[JsonProperty("use_pulses", Required = Required.Always)]
[YamlMember(Alias = "use_pulses")]
public bool UsePulses { get; set; }
```

Property Value

[bool](#) ↗

## Voltage

The voltage to use in the TTL signal.

```
[JsonProperty("voltage", Required = Required.Always)]
[YamlMember(Alias = "voltage")]
public double Voltage { get; set; }
```

Property Value

[double](#) ↗

## Methods

Generate()

```
public IObservable<OptoLED> Generate()
```

Returns

[IObservable](#)<[OptoLED](#)>

## Generate<TSource>(IObservable<TSource>)

```
public IObservable<OptoLED> Generate<TSource>(IObservable<TSource> source)
```

Parameters

source [IObservable](#)<TSource>

Returns

[IObservable](#)<[OptoLED](#)>

Type Parameters

TSource

## PrintMembers(StringBuilder)

```
protected virtual bool PrintMembers(StringBuilder stringBuilder)
```

Parameters

stringBuilder [StringBuilder](#)

Returns

[bool](#)

## ToString()

Returns a string that represents the current object.

```
public override string ToString()
```

Returns

[string](#)

A string that represents the current object.

# Enum OptoLEDMode

Namespace: [Animal](#)

Assembly: Extensions.dll

```
[JsonConverter(typeof(StringEnumConverter))]  
public enum OptoLEDMode
```

## Fields

```
[EnumMember(Value = "Current")] [YamlMember(Alias = "Current")] Current = 1
```

```
[EnumMember(Value = "TTL")] [YamlMember(Alias = "TTL")] TTL = 0
```

# Class Optogenetics

Namespace: [Animal](#)

Assembly: Extensions.dll

```
[WorkflowElementCategory(ElementCategory.Source)]
[Combinator(MethodName = "Generate")]
public class Optogenetics
```

## Inheritance

[object](#) ← Optogenetics

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

# Constructors

## Optogenetics()

```
public Optogenetics()
```

## Optogenetics(Optogenetics)

```
protected Optogenetics(Optogenetics other)
```

## Parameters

other [Optogenetics](#)

# Properties

## Duration

The duration of the optogenetics stimulation/inhibition protocol (s).

```
[JsonProperty("duration", Required = Required.Always)]
[YamlMember(Alias = "duration")]
public double Duration { get; set; }
```

## Property Value

[double](#) ↗

## Led0

The optogenetics protocol that LED 0 executes.

```
[JsonProperty("led0", Required = Required.Always)]
[YamlMember(Alias = "led0")]
public OptoLED Led0 { get; set; }
```

## Property Value

[OptoLED](#)

## Led1

The optogenetics protocol that LED 1 executes.

```
[JsonProperty("led1", Required = Required.Always)]
[YamlMember(Alias = "led1")]
public OptoLED Led1 { get; set; }
```

## Property Value

[OptoLED](#)

## Mode

Indicates the optogenetics mode used in the current session.

```
[JsonProperty("mode", Required = Required.Always)]
[YamlMember(Alias = "mode")]
public OptogeneticsMode Mode { get; set; }
```

## Property Value

[OptogeneticsMode](#)

## OptoRatio

The ratio of optogenetics trials.

```
[JsonProperty("opto_ratio", Required = Required.Always)]
[YamlMember(Alias = "opto_ratio")]
public double OptoRatio { get; set; }
```

## Property Value

[double](#)

## RampMode

Indicates the ramp mode used in the optogenetics protocol. It only works if the LED is not configured to use pulses.

```
[JsonProperty("ramp_mode", Required = Required.Always)]
[YamlMember(Alias = "ramp_mode")]
public OptogeneticsRampMode RampMode { get; set; }
```

## Property Value

[OptogeneticsRampMode](#)

## RampTime

The duration of the ramp of the optogenetics protocol (ms). It only works when use\_pulses is false.

```
[JsonProperty("ramp_time", Required = Required.Always)]
[YamlMember(Alias = "ramp_time")]
public int RampTime { get; set; }
```

Property Value

[int](#)

## UseOpto

Indicates whether optogenetics is used or not.

```
[JsonProperty("use_opto")]
[YamlMember(Alias = "use_opto")]
public bool UseOpto { get; set; }
```

Property Value

[bool](#)

## UseRt

Indicates whether the optogenetics stimulation/inhibition should stop when the animal leaves the poke (true) or not (false).

```
[JsonProperty("use_rt", Required = Required.Always)]
[YamlMember(Alias = "use_rt")]
public bool UseRt { get; set; }
```

Property Value

[bool](#)

## Methods

Generate()

```
public IObservable<Optogenetics> Generate()
```

Returns

[IObservable](#)<[Optogenetics](#)>

## Generate<TSource>(IObservable<TSource>)

```
public IObservable<Optogenetics> Generate<TSource>(IObservable<TSource> source)
```

Parameters

source [IObservable](#)<TSource>

Returns

[IObservable](#)<[Optogenetics](#)>

Type Parameters

TSource

## PrintMembers(StringBuilder)

```
protected virtual bool PrintMembers(StringBuilder stringBuilder)
```

Parameters

stringBuilder [StringBuilder](#)

Returns

[bool](#)

## ToString()

Returns a string that represents the current object.

```
public override string ToString()
```

Returns

[string](#)

A string that represents the current object.

# Enum OptogeneticsMode

Namespace: [Animal](#)

Assembly: Extensions.dll

```
[JsonConverter(typeof(StringEnumConverter))]  
public enum OptogeneticsMode
```

## Fields

```
[EnumMember(Value = "BilateralExcitation")] [YamlMember(Alias =  
"BilateralExcitation")] BilateralExcitation = 3
```

```
[EnumMember(Value = "BilateralInhibition")] [YamlMember(Alias =  
"BilateralInhibition")] BilateralInhibition = 6
```

```
[EnumMember(Value = "LeftExcitation")] [YamlMember(Alias = "LeftExcitation")]  
LeftExcitation = 1
```

```
[EnumMember(Value = "LeftExcitationRightInhibition")] [YamlMember(Alias =  
"LeftExcitationRightInhibition")] LeftExcitationRightInhibition = 7
```

```
[EnumMember(Value = "LeftInhibition")] [YamlMember(Alias = "LeftInhibition")]  
LeftInhibition = 4
```

```
[EnumMember(Value = "LeftInhibitionRightExcitation")] [YamlMember(Alias =  
"LeftInhibitionRightExcitation")] LeftInhibitionRightExcitation = 8
```

```
[EnumMember(Value = "None")] [YamlMember(Alias = "None")] None = 0
```

```
[EnumMember(Value = "RightExcitation")] [YamlMember(Alias = "RightExcitation")]  
RightExcitation = 2
```

```
[EnumMember(Value = "RightInhibition")] [YamlMember(Alias = "RightInhibition")]  
RightInhibition = 5
```

# Enum OptogeneticsRampMode

Namespace: [Animal](#)

Assembly: Extensions.dll

```
[JsonConverter(typeof(StringEnumConverter))]  
public enum OptogeneticsRampMode
```

## Fields

```
[EnumMember(Value = "Both")] [YamlMember(Alias = "Both")] Both = 3
```

```
[EnumMember(Value = "Fall")] [YamlMember(Alias = "Fall")] Fall = 2
```

```
[EnumMember(Value = "None")] [YamlMember(Alias = "None")] None = 0
```

```
[EnumMember(Value = "Rise")] [YamlMember(Alias = "Rise")] Rise = 1
```

# Class ReactionTime

Namespace: [Animal](#)

Assembly: Extensions.dll

```
[WorkflowElementCategory(ElementCategory.Source)]
[Combinator(MethodName = "Generate")]
public class ReactionTime
```

## Inheritance

[object](#) ← ReactionTime

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

## Constructors

### ReactionTime()

```
public ReactionTime()
```

### ReactionTime(ReactionTime)

```
protected ReactionTime(ReactionTime other)
```

## Parameters

other [ReactionTime](#)

## Properties

### Delta

The increment to the base value every trial a certain condition is met until the target value is reached.

```
[JsonProperty("delta")]
[YamlMember(Alias = "delta")]
public double Delta { get; set; }
```

## Property Value

[double ↗](#)

## MaxValue

The maximum allowed reaction time (s).

```
[JsonProperty("max_value")]
[YamlMember(Alias = "max_value")]
public double MaxValue { get; set; }
```

## Property Value

[double ↗](#)

## MinValue

The initial base value.

```
[JsonProperty("min_value")]
[YamlMember(Alias = "min_value")]
public double MinValue { get; set; }
```

## Property Value

[double ↗](#)

## Target

The target value.

```
[JsonProperty("target")]
[YamlMember(Alias = "target")]
public double Target { get; set; }
```

Property Value

[double](#)

## Methods

Generate()

```
public IObservable<ReactionTime> Generate()
```

Returns

[IObservable](#)<[ReactionTime](#)>

Generate<TSource>(IObservable<TSource>)

```
public IObservable<ReactionTime> Generate<TSource>(IObservable<TSource> source)
```

Parameters

source [IObservable](#)<TSource>

Returns

[IObservable](#)<[ReactionTime](#)>

Type Parameters

TSource

PrintMembers(StringBuilder)

```
protected virtual bool PrintMembers(StringBuilder stringBuilder)
```

Parameters

**stringBuilder** [StringBuilder](#)

Returns

[bool](#)

## ToString()

Returns a string that represents the current object.

```
public override string ToString()
```

Returns

[string](#)

A string that represents the current object.

# Class Reward

Namespace: [Animal](#)

Assembly: Extensions.dll

```
[WorkflowElementCategory(ElementCategory.Source)]
[Combinator(MethodName = "Generate")]
public class Reward
```

## Inheritance

[object](#) ← Reward

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

# Constructors

## Reward()

```
public Reward()
```

## Reward(Reward)

```
protected Reward(Reward other)
```

## Parameters

other [Reward](#)

# Properties

## BaseAmount

The amount of reward delivered to the animal (uL).

```
[JsonProperty("base_amount", Required = Required.Always)]
[YamlMember(Alias = "base_amount")]
public double BaseAmount { get; set; }
```

Property Value

[double](#)

## Probability

The probability of the animal receiving reward given a right answer.

```
[JsonProperty("probability")]
[YamlMember(Alias = "probability")]
public double Probability { get; set; }
```

Property Value

[double](#)

## Methods

Generate()

```
public IObservable<Reward> Generate()
```

Returns

[IObservable](#)<[Reward](#)>

Generate<TSource>(IObservable<TSource>)

```
public IObservable<Reward> Generate<TSource>(IObservable<TSource> source)
```

Parameters

`source` [IObservable](#)<TSource>

Returns

[IObservable](#)<[Reward](#)>

Type Parameters

TSource

## PrintMembers(StringBuilder)

`protected virtual bool PrintMembers(StringBuilder stringBuilder)`

Parameters

`stringBuilder` [StringBuilder](#)

Returns

[bool](#)

## ToString()

Returns a string that represents the current object.

`public override string ToString()`

Returns

[string](#)

A string that represents the current object.

# Class SerializeToJson

Namespace: [Animal](#)

Assembly: Extensions.dll

Serializes a sequence of data model objects into JSON strings.

```
[WorkflowElementCategory(ElementCategory.Transform)]
[Combinator]
public class SerializeToJson
```

Inheritance

[object](#) ← SerializeToJson

Inherited Members

[object.ToString\(\)](#) , [object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) ,
[object.ReferenceEquals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) ,
[object.MemberwiseClone\(\)](#)

## Properties

Formatting

```
public Formatting Formatting { get; set; }
```

Property Value

Formatting

## Methods

Process(IObservable<Animal>)

```
public IObservable<string> Process(IObservable<Animal> source)
```

Parameters

source [IObservable<Animal>](#)

Returns

[IObservable<string>](#)

## Process(IObservable<AutobiasCorrection>)

public IObservable<string> Process(IObservable<AutobiasCorrection> source)

Parameters

source [IObservable<AutobiasCorrection>](#)

Returns

[IObservable<string>](#)

## Process(IObservable<BiasedBlockDistribution>)

public IObservable<string> Process(IObservable<BiasedBlockDistribution> source)

Parameters

source [IObservable<BiasedBlockDistribution>](#)

Returns

[IObservable<string>](#)

## Process(IObservable<BiasedSession>)

public IObservable<string> Process(IObservable<BiasedSession> source)

Parameters

source [IObservable<BiasedSession>](#)

Returns

[IObservable<string>](#)

## Process(IObservable<FixationTime>)

public IObservable<string> Process(IObservable<FixationTime> source)

Parameters

source [IObservable<FixationTime>](#)

Returns

[IObservable<string>](#)

## Process(IObservable<OptoLED>)

public IObservable<string> Process(IObservable<OptoLED> source)

Parameters

source [IObservable<OptoLED>](#)

Returns

[IObservable<string>](#)

## Process(IObservable<Optogenetics>)

public IObservable<string> Process(IObservable<Optogenetics> source)

Parameters

source [IObservable<Optogenetics>](#)

Returns

[IObservable<string>](#)

## Process(IObservable<ReactionTime>)

public IObservable<string> Process(IObservable<ReactionTime> source)

Parameters

source [IObservable<ReactionTime>](#)

Returns

[IObservable<string>](#)

## Process(IObservable<Reward>)

public IObservable<string> Process(IObservable<Reward> source)

Parameters

source [IObservable<Reward>](#)

Returns

[IObservable<string>](#)

## Process(IObservable<Session>)

public IObservable<string> Process(IObservable<Session> source)

Parameters

source [IObservable<Session>](#)

Returns

[IObservable<string>](#)

## Process(IObservable<Sound>)

```
public IObservable<string> Process(IObservable<Sound> source)
```

Parameters

source [IObservable<Sound>](#)

Returns

[IObservable<string>](#)

## Process(IObservable<TimeConstrains>)

```
public IObservable<string> Process(IObservable<TimeConstrains> source)
```

Parameters

source [IObservable<TimeConstrains>](#)

Returns

[IObservable<string>](#)

# Class SerializeToYaml

Namespace: [Animal](#)

Assembly: Extensions.dll

Serializes a sequence of data model objects into YAML strings.

```
[WorkflowElementCategory(ElementCategory.Transform)]
[Combinator]
public class SerializeToYaml
```

## Inheritance

[object](#) ← SerializeToYaml

## Inherited Members

[object.ToString\(\)](#) , [object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) ,
[object.ReferenceEquals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) ,
[object.MemberwiseClone\(\)](#)

## Methods

### Process(IObservable<Animal>)

```
public IObservable<string> Process(IObservable<Animal> source)
```

#### Parameters

source [IObservable](#)<[Animal](#)>

#### Returns

[IObservable](#)<[string](#)>

### Process(IObservable<AutobiasCorrection>)

```
public IObservable<string> Process(IObservable<AutobiasCorrection> source)
```

Parameters

source [IObservable<AutobiasCorrection>](#)

Returns

[IObservable<string>](#)

## Process([IObservable<BiasedBlockDistribution>](#))

```
public IObservable<string> Process(IObservable<BiasedBlockDistribution> source)
```

Parameters

source [IObservable<BiasedBlockDistribution>](#)

Returns

[IObservable<string>](#)

## Process([IObservable<BiasedSession>](#))

```
public IObservable<string> Process(IObservable<BiasedSession> source)
```

Parameters

source [IObservable<BiasedSession>](#)

Returns

[IObservable<string>](#)

## Process([IObservable<FixationTime>](#))

```
public IObservable<string> Process(IObservable<FixationTime> source)
```

Parameters

source [IObservable<FixationTime>](#)

Returns

[IObservable<string>](#)

## Process(IObservable<OptoLED>)

```
public IObservable<string> Process(IObservable<OptoLED> source)
```

Parameters

source [IObservable<OptoLED>](#)

Returns

[IObservable<string>](#)

## Process(IObservable<Optogenetics>)

```
public IObservable<string> Process(IObservable<Optogenetics> source)
```

Parameters

source [IObservable<Optogenetics>](#)

Returns

[IObservable<string>](#)

## Process(IObservable<ReactionTime>)

```
public IObservable<string> Process(IObservable<ReactionTime> source)
```

Parameters

source [IObservable<ReactionTime>](#)

Returns

[IObservable<string>](#)

## Process([IObservable<Reward>](#))

```
public IObservable<string> Process(IObservable<Reward> source)
```

Parameters

source [IObservable<Reward>](#)

Returns

[IObservable<string>](#)

## Process([IObservable<Session>](#))

```
public IObservable<string> Process(IObservable<Session> source)
```

Parameters

source [IObservable<Session>](#)

Returns

[IObservable<string>](#)

## Process([IObservable<Sound>](#))

```
public IObservable<string> Process(IObservable<Sound> source)
```

Parameters

source [IObservable<Sound>](#)

Returns

[IObservable<string>](#)

Process([IObservable<TimeConstrains>](#))

```
public IObservable<string> Process(IObservable<TimeConstrains> source)
```

Parameters

source [IObservable<TimeConstrains>](#)

Returns

[IObservable<string>](#)

# Class Session

Namespace: [Animal](#)

Assembly: Extensions.dll

```
[WorkflowElementCategory(ElementCategory.Source)]
[Combinator(MethodName = "Generate")]
public class Session
```

## Inheritance

[object](#) ← Session

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

# Constructors

## Session()

```
public Session()
```

## Session(Session)

```
protected Session(Session other)
```

## Parameters

other [Session](#)

# Properties

## BlockNumber

The number of the first block of the session.

```
[JsonProperty("block_number", Required = Required.Always)]
[YamlMember(Alias = "block_number")]
public int BlockNumber { get; set; }
```

## Property Value

[int](#)

## Duration

The duration of the session (in the hh:mm:ss format).

```
[JsonProperty("duration", Required = Required.Always)]
[YamlMember(Alias = "duration")]
public TimeSpan Duration { get; set; }
```

## Property Value

[TimeSpan](#)

## Experimenter

The person who trained the animal in the current session.

```
[JsonProperty("experimenter", Required = Required.Always)]
[YamlMember(Alias = "experimenter")]
public string Experimenter { get; set; }
```

## Property Value

[string](#)

## LastTrainingLevel

The last training level the animal is allowed to progress to in the current session.

```
[JsonProperty("last_training_level", Required = Required.Always)]
[YamlMember(Alias = "last_training_level")]
public int LastTrainingLevel { get; set; }
```

## Property Value

[int ↗](#)

## Number

The number of the current session.

```
[JsonProperty("number", Required = Required.Always)]
[YamlMember(Alias = "number")]
public int Number { get; set; }
```

## Property Value

[int ↗](#)

## StartingTrainingLevel

The training level the animal will start in the current session.

```
[JsonProperty("starting_training_level", Required = Required.Always)]
[YamlMember(Alias = "starting_training_level")]
public int StartingTrainingLevel { get; set; }
```

## Property Value

[int ↗](#)

## StartingTrialNumber

The number of the first trial of the session.

```
[JsonProperty("starting_trial_number", Required = Required.Always)]
[YamlMember(Alias = "starting_trial_number")]
public int StartingTrialNumber { get; set; }
```

## Property Value

[int ↗](#)

## Type

The number of the session type.

```
[JsonProperty("type", Required = Required.Always)]
[YamlMember(Alias = "type")]
public int Type { get; set; }
```

## Property Value

[int ↗](#)

# Methods

## Generate()

```
public IObservable<Session> Generate()
```

## Returns

[IObservable<Session>](#)

## Generate<TSource>(IObservable<TSource>)

```
public IObservable<Session> Generate<TSource>(IObservable<TSource> source)
```

## Parameters

source [IObservable](#)<TSource>

Returns

[IObservable](#)<[Session](#)>

Type Parameters

TSource

## PrintMembers(StringBuilder)

`protected virtual bool PrintMembers(StringBuilder stringBuilder)`

Parameters

`stringBuilder` [StringBuilder](#)

Returns

[bool](#)

## ToString()

Returns a string that represents the current object.

`public override string ToString()`

Returns

[string](#)

A string that represents the current object.

# Class Sound

Namespace: [Animal](#)

Assembly: Extensions.dll

```
[WorkflowElementCategory(ElementCategory.Source)]
[Combinator(MethodName = "Generate")]
public class Sound
```

## Inheritance

[object](#) ← Sound

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

# Constructors

## Sound()

```
public Sound()
```

## Sound(Sound)

```
protected Sound(Sound other)
```

## Parameters

other [Sound](#)

# Properties

## AblBlock

Indicates whether the same ABL should be used across the current block.

```
[JsonProperty("abl_block")]
[YamlMember(Alias = "abl_block")]
public bool AblBlock { get; set; }
```

## Property Value

[bool](#)

## MaxSide

The maximum amount of elements representing the left or right side in the pseudo-random array for when the side is picked pseudo-randomly.

```
[JsonProperty("max_side", Required = Required.Always)]
[YamlMember(Alias = "max_side")]
public int MaxSide { get; set; }
```

## Property Value

[int](#)

## PseudoRandomSide

Indicates whether the correct side is picked pseudo-randomly (true) or randomly (false). If it's picked pseudo-randomly, a shuffled array with equal amounts of -1's (left) and 1's (right) of size  $2 * \text{max\_side}$  is created and it's cycled through - a new shuffled array is generated when the end of the array is reached.

```
[JsonProperty("pseudo_random_side", Required = Required.Always)]
[YamlMember(Alias = "pseudo_random_side")]
public bool PseudoRandomSide { get; set; }
```

## Property Value

[bool](#)

## ShortDurationRatio

The percentage of short duration trials in a session.

```
[JsonProperty("short_duration_ratio")]
[YamlMember(Alias = "short_duration_ratio")]
public double ShortDurationRatio { get; set; }
```

Property Value

[double](#)

## ShortDurations

The list containing the possible sound durations in a short duration trial in ms.

```
[JsonProperty("short_durations")]
[YamlMember(Alias = "short_durations")]
public List<int> ShortDurations { get; set; }
```

Property Value

[List](#)<[int](#)>

## Methods

### Generate()

```
public IObservable<Sound> Generate()
```

Returns

[IObservable](#)<[Sound](#)>

### Generate<TSource>(IObservable<TSource>)

```
public IObservable<Sound> Generate<TSource>(IObservable<TSource> source)
```

Parameters

source [IObservable](#)<TSource>

Returns

[IObservable](#)<[Sound](#)>

Type Parameters

TSource

## PrintMembers(StringBuilder)

`protected virtual bool PrintMembers(StringBuilder stringBuilder)`

Parameters

stringBuilder [StringBuilder](#)

Returns

[bool](#)

## ToString()

Returns a string that represents the current object.

`public override string ToString()`

Returns

[string](#)

A string that represents the current object.

# Class TimeConstrains

Namespace: [Animal](#)

Assembly: Extensions.dll

```
[WorkflowElementCategory(ElementCategory.Source)]
[Combinator(MethodName = "Generate")]
public class TimeConstrains
```

## Inheritance

[object](#) ← TimeConstrains

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

# Constructors

## TimeConstrains()

```
public TimeConstrains()
```

## TimeConstrains(TimeConstrains)

```
protected TimeConstrains(TimeConstrains other)
```

## Parameters

other [TimeConstrains](#)

# Properties

## Delta

The increment to the base value every trial a certain condition is met until the target value is reached.

```
[JsonProperty("delta")]
[YamlMember(Alias = "delta")]
public double Delta { get; set; }
```

Property Value

double ↗

## MinValue

The initial base value.

```
[JsonProperty("min_value")]
[YamlMember(Alias = "min_value")]
public double MinValue { get; set; }
```

Property Value

double ↗

## Target

The target value.

```
[JsonProperty("target")]
[YamlMember(Alias = "target")]
public double Target { get; set; }
```

Property Value

double ↗

## Methods

Generate()

```
public IObservable<TimeConstraints> Generate()
```

Returns

[IObservable](#)<[TimeConstraints](#)>

## Generate<TSource>(IObservable<TSource>)

```
public IObservable<TimeConstraints> Generate<TSource>(IObservable<TSource> source)
```

Parameters

source [IObservable](#)<TSource>

Returns

[IObservable](#)<[TimeConstraints](#)>

Type Parameters

TSource

## PrintMembers(StringBuilder)

```
protected virtual bool PrintMembers(StringBuilder stringBuilder)
```

Parameters

stringBuilder [StringBuilder](#)

Returns

[bool](#)

## ToString()

Returns a string that represents the current object.

```
public override string ToString()
```

Returns

[string](#)

A string that represents the current object.

# Namespace CF

## Classes

[Antibias](#)

[CalculateRatio](#)

[GenerateILDArray](#)

Class **GenerateILDArray** contains the logic of the Bonsai node with the same name.

[GenerateLateralizedILDs](#)

Class **GenerateLateralizedILDs** contains the logic of the Bonsai node with the same name.

[GenerateLateralizedILDsFL](#)

Class **GenerateLateralizedILDsFL** contains the logic of the Bonsai node with the same name.

[GetOutputDir](#)

[ShuffleArray](#)

Class **ShuffleArray** contains the logic of the Bonsai node with the same name.

# Class Antibias

Namespace: [CF](#)

Assembly: Extensions.dll

```
[Combinator]
[WorkflowElementCategory(ElementCategory.Transform)]
public class Antibias
```

## Inheritance

[object](#) ← Antibias

## Inherited Members

[object.ToString\(\)](#) , [object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) ,  
[object.ReferenceEquals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) ,  
[object.MemberwiseClone\(\)](#)

# Properties

## BiasThreshold

```
public double BiasThreshold { get; set; }
```

## Property Value

[double](#)

# Methods

## Process(IObservable<Tuple<bool[], bool[]>>)

```
public IObservable<Tuple<double, double>> Process(IObservable<Tuple<bool[], bool[]>> source)
```

## Parameters

source [IObservable<Tuple<bool\[\], bool\[\]>>](#)

Returns

[IObservable<Tuple<double, double>>](#)

# Class CalculateRatio

Namespace: [CF](#)

Assembly: Extensions.dll

```
[Combinator]
[WorkflowElementCategory(ElementCategory.Transform)]
public class CalculateRatio
```

## Inheritance

[object](#) ← CalculateRatio

## Inherited Members

[object.ToString\(\)](#) , [object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) ,  
[object.ReferenceEquals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) ,  
[object.MemberwiseClone\(\)](#)

## Methods

### Process(IObservable<bool[]>)

```
public IObservable<double> Process(IObservable<bool[]> source)
```

#### Parameters

source [IObservable](#)<[bool](#)[]>

#### Returns

[IObservable](#)<[double](#)>

# Class GenerateILDArray

Namespace: [CF](#)

Assembly: Extensions.dll

Class [GenerateILDArray](#) contains the logic of the Bonsai node with the same name.

```
[Combinator]
[WorkflowElementCategory(ElementCategory.Source)]
public class GenerateILDArray
```

## Inheritance

[object](#) ← GenerateILDArray

## Inherited Members

[object.ToString\(\)](#) , [object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) ,
[object.ReferenceEquals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) ,
[object.MemberwiseClone\(\)](#)

## Properties

### LogBase

```
public double LogBase { get; set; }
```

#### Property Value

[double](#)

### NumSteps

```
public int NumSteps { get; set; }
```

#### Property Value

[int](#)

## StepSize

```
public double StepSize { get; set; }
```

Property Value

[double](#)

## UseLog

```
public bool UseLog { get; set; }
```

Property Value

[bool](#)

## Methods

### Process()

Generates an observable sequence which outputs an array of ILDs. This method is called when the node doesn't have an input data stream.

```
public IObservable<double[]> Process()
```

Returns

[IObservable](#)<[double](#)[]>

An observable sequence which sends a single event containing an array of ILD values.

### Process<TSource>(IObservable<TSource>)

Generates an observable sequence which outputs an array of ILDs. This method is called when the node has an input data stream.

```
public IObservable<double[]> Process<TSource>(IObservable<TSource> source)
```

## Parameters

source [IObservable](#)<TSource>

the input data stream.

## Returns

[IObservable](#)<[double](#)[]>

An observable sequence which sends a single event containing an array of ILD values.

## Type Parameters

TSource

# Class GenerateLateralizedILDs

Namespace: [CF](#)

Assembly: Extensions.dll

Class [GenerateLateralizedILDs](#) contains the logic of the Bonsai node with the same name.

```
[Combinator]
[WorkflowElementCategory(ElementCategory.Source)]
public class GenerateLateralizedILDs
```

## Inheritance

[object](#) ← GenerateLateralizedILDs

## Inherited Members

[object.ToString\(\)](#) , [object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) ,  
[object.ReferenceEquals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) ,  
[object.MemberwiseClone\(\)](#)

## Properties

### LogBase

```
public double LogBase { get; set; }
```

#### Property Value

[double](#)

### NumSteps

```
public int NumSteps { get; set; }
```

#### Property Value

[int](#)

## StepSize

```
public double StepSize { get; set; }
```

Property Value

[double](#)

## UseLog

```
public bool UseLog { get; set; }
```

Property Value

[bool](#)

## Methods

### Process()

Generates an observable sequence which outputs an array of ILDs. This method is called when the node doesn't have an input data stream.

```
public IObservable<double[]> Process()
```

Returns

[IObservable](#)<[double](#)[]>

An observable sequence which sends a single event containing an array of ILD values.

### Process<TSource>(IObservable<TSource>)

Generates an observable sequence which outputs an array of ILDs. This method is called when the node has an input data stream.

```
public IObservable<double[]> Process<TSource>(IObservable<TSource> source)
```

## Parameters

source [IObservable](#)<TSource>

the input data stream.

## Returns

[IObservable](#)<[double](#)[]>

An observable sequence which sends a single event containing an array of ILD values.

## Type Parameters

TSource

# Class GenerateLateralizedILDsFL

Namespace: [CF](#)

Assembly: Extensions.dll

Class [GenerateLateralizedILDsFL](#) contains the logic of the Bonsai node with the same name.

```
[Combinator]
[WorkflowElementCategory(ElementCategory.Source)]
public class GenerateLateralizedILDsFL
```

## Inheritance

[object](#) ← GenerateLateralizedILDsFL

## Inherited Members

[object.ToString\(\)](#) , [object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) ,  
[object.ReferenceEquals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) ,  
[object.MemberwiseClone\(\)](#)

# Properties

## ILDs

```
public double[] ILDs { get; set; }
```

### Property Value

[double](#)[]

# Methods

## Process()

Generates an observable sequence which outputs an array of ILDs. This method is called when the node doesn't have an input data stream.

```
public IObservable<double[]> Process()
```

Returns

[IObservable<double\[\]>](#)

An observable sequence which sends a single event containing an array of ILD values.

## Process<TSource>(IObservable<TSource>)

Generates an observable sequence which outputs an array of ILDs. This method is called when the node has an input data stream.

```
public IObservable<double[]> Process<TSource>(IObservable<TSource> source)
```

Parameters

**source** [IObservable<TSource>](#)

the input data stream.

Returns

[IObservable<double\[\]>](#)

An observable sequence which sends a single event containing an array of ILD values.

Type Parameters

**TSource**

# Class GetOutputDir

Namespace: [CF](#)

Assembly: Extensions.dll

```
[Combinator]
[WorkflowElementCategory(ElementCategory.Source)]
public class GetOutputDir
```

## Inheritance

[object](#) ← GetOutputDir

## Inherited Members

[object.ToString\(\)](#) , [object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) ,  
[object.ReferenceEquals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) ,  
[object.MemberwiseClone\(\)](#)

# Properties

## OutputDirPath

```
public string OutputDirPath { get; set; }
```

## Property Value

[string](#)

# Methods

## Process()

```
public IObservable<string> Process()
```

## Returns

[IObservable](#)<[string](#)>



# Class ShuffleArray

Namespace: [CF](#)

Assembly: Extensions.dll

Class [ShuffleArray](#) contains the logic of the Bonsai node with the same name.

```
[Combinator]
[WorkflowElementCategory(ElementCategory.Transform)]
public class ShuffleArray
```

## Inheritance

[object](#) ← ShuffleArray

## Inherited Members

[object.ToString\(\)](#) , [object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) ,
[object.ReferenceEquals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) ,
[object.MemberwiseClone\(\)](#)

## Methods

### Process<TSource>(IObservable<TSource[]>)

Shuffles the input array.

```
public IObservable<TSource[]> Process<TSource>(IObservable<TSource[]> source)
```

#### Parameters

source [IObservable](#)<TSource[]>

the input data stream, which sends arrays of the type TSource.

#### Returns

[IObservable](#)<TSource[]>

The shuffled input array (of type TSource).

## Type Parameters

### TSource

The type of the elements of the input array.

# Namespace Config

## Classes

### [Config](#)

#### [DeserializeFromJson](#)

Deserializes a sequence of JSON strings into data model objects.

#### [DeserializeFromYaml](#)

Deserializes a sequence of YAML strings into data model objects.

### [Paths](#)

### [Ports](#)

### [SerializeToJson](#)

Serializes a sequence of data model objects into JSON strings.

### [SerializeToYaml](#)

Serializes a sequence of data model objects into YAML strings.

# Class Config

Namespace: [Config](#)

Assembly: Extensions.dll

```
[WorkflowElementCategory(ElementCategory.Source)]
[Combinator(MethodName = "Generate")]
public class Config
```

Inheritance

[object](#) ← Config

Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

## Constructors

Config()

```
public Config()
```

Config(Config)

```
protected Config(Config other)
```

Parameters

other [Config](#)

## Properties

Paths

Contains the paths to the configuration files and to the output directory.

```
[JsonProperty("paths", Required = Required.Always)]
[YamlMember(Alias = "paths")]
public Paths Paths { get; set; }
```

## Property Value

[Paths](#)

## Ports

Contains the COM ports for the different Harp boards.

```
[JsonProperty("ports", Required = Required.Always)]
[YamlMember(Alias = "ports")]
public Ports Ports { get; set; }
```

## Property Value

[Ports](#)

## Setup

The setup number.

```
[JsonProperty("setup", Required = Required.Always)]
[YamlMember(Alias = "setup")]
public int Setup { get; set; }
```

## Property Value

[int↗](#)

## Methods

### Generate()

```
public IObservable<Config> Generate()
```

Returns

[IObservable](#)<Config>

## Generate<TSource>(IObservable<TSource>)

```
public IObservable<Config> Generate<TSource>(IObservable<TSource> source)
```

Parameters

source [IObservable](#)<TSource>

Returns

[IObservable](#)<Config>

Type Parameters

TSource

## PrintMembers(StringBuilder)

```
protected virtual bool PrintMembers(StringBuilder stringBuilder)
```

Parameters

stringBuilder [StringBuilder](#)

Returns

[bool](#)

## ToString()

Returns a string that represents the current object.

```
public override string ToString()
```

Returns

[string](#)

A string that represents the current object.

# Class DeserializeFromJson

Namespace: [Config](#)

Assembly: Extensions.dll

Deserializes a sequence of JSON strings into data model objects.

```
[WorkflowElementCategory(ElementCategory.Transform)]
public class DeserializeFromJson : SingleArgumentExpressionBuilder, IExpressionBuilder
```

Inheritance

[object](#) ← [ExpressionBuilder](#) ← [SingleArgumentExpressionBuilder](#) ← [DeserializeFromJson](#)

Implements

[IExpressionBuilder](#)

Inherited Members

[SingleArgumentExpressionBuilder.ArgumentRange](#) , [ExpressionBuilder.ToString\(\)](#) ,  
[ExpressionBuilder.Unwrap\(ExpressionBuilder\)](#) ,  
[ExpressionBuilder.GetWorkflowElement\(ExpressionBuilder\)](#) ,  
[ExpressionBuilder.GetVisualizerElement\(ExpressionBuilder\)](#) ,  
[ExpressionBuilder.GetVisualizerMappings\(ExpressionBuilder\)](#) ,  
[ExpressionBuilder.FromWorkflowElement\(object, ElementCategory\)](#) ,  
[ExpressionBuilder.GetElementDisplayName\(Type\)](#) ,  
[ExpressionBuilder.GetElementDisplayName\(object\)](#) ,  
[ExpressionBuilder.SelectMembers\(Expression, string\)](#) ,  
[ExpressionBuilder.GetArgumentAccess\(IEnumerable<Expression>, string\)](#) , [object.Equals\(object\)](#) ,  
[object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) , [object.GetHashCode\(\)](#) ,  
[object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

## Constructors

[DeserializeFromJson\(\)](#)

```
public DeserializeFromJson()
```

# Properties

## Type

```
public TypeMapping Type { get; set; }
```

## Property Value

[TypeMapping](#)

# Methods

## Build(IEnumerable<Expression>)

Constructs an [Expression](#) node from a collection of input arguments. The result can be chained with other builders in a workflow.

```
public override Expression Build(IEnumerable<Expression> arguments)
```

## Parameters

**arguments** [IEnumerable](#)<[Expression](#)>

A collection of [Expression](#) nodes representing the input arguments.

## Returns

[Expression](#)

The constructed [Expression](#) node.

# Class DeserializeFromYaml

Namespace: [Config](#)

Assembly: Extensions.dll

Deserializes a sequence of YAML strings into data model objects.

```
[WorkflowElementCategory(ElementCategory.Transform)]
public class DeserializeFromYaml : SingleArgumentExpressionBuilder, IExpressionBuilder
```

Inheritance

[object](#) ← [ExpressionBuilder](#) ← [SingleArgumentExpressionBuilder](#) ← [DeserializeFromYaml](#)

Implements

[IExpressionBuilder](#)

Inherited Members

[SingleArgumentExpressionBuilder.ArgumentRange](#) , [ExpressionBuilder.ToString\(\)](#) ,  
[ExpressionBuilder.Unwrap\(ExpressionBuilder\)](#) ,  
[ExpressionBuilder.GetWorkflowElement\(ExpressionBuilder\)](#) ,  
[ExpressionBuilder.GetVisualizerElement\(ExpressionBuilder\)](#) ,  
[ExpressionBuilder.GetVisualizerMappings\(ExpressionBuilder\)](#) ,  
[ExpressionBuilder.FromWorkflowElement\(object, ElementCategory\)](#) ,  
[ExpressionBuilder.GetElementDisplayName\(Type\)](#) ,  
[ExpressionBuilder.GetElementDisplayName\(object\)](#) ,  
[ExpressionBuilder.SelectMembers\(Expression, string\)](#) ,  
[ExpressionBuilder.GetArgumentAccess\(IEnumerable<Expression>, string\)](#) , [object.Equals\(object\)](#) ,  
[object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) , [object.GetHashCode\(\)](#) ,  
[object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

## Constructors

### DeserializeFromYaml()

```
public DeserializeFromYaml()
```

# Properties

## Type

```
public TypeMapping Type { get; set; }
```

## Property Value

[TypeMapping](#)

# Methods

## Build(IEnumerable<Expression>)

Constructs an [Expression](#) node from a collection of input arguments. The result can be chained with other builders in a workflow.

```
public override Expression Build(IEnumerable<Expression> arguments)
```

## Parameters

**arguments** [IEnumerable](#)<[Expression](#)>

A collection of [Expression](#) nodes representing the input arguments.

## Returns

[Expression](#)

The constructed [Expression](#) node.

# Class Paths

Namespace: [Config](#)

Assembly: Extensions.dll

```
[WorkflowElementCategory(ElementCategory.Source)]
[Combinator(MethodName = "Generate")]
public class Paths
```

Inheritance

[object](#) ← Paths

Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

## Constructors

Paths()

```
public Paths()
```

Paths(Paths)

```
protected Paths(Paths other)
```

Parameters

other [Paths](#)

## Properties

Animal

The path to the animal.yml configuration file.

```
[JsonProperty("animal", Required = Required.Always)]
[YamlMember(Alias = "animal")]
public string Animal { get; set; }
```

## Property Value

[string](#)

## AnimalDir

The path to the directory containing the animal ID files.

```
[JsonProperty("animal_dir", Required = Required.Always)]
[YamlMember(Alias = "animal_dir")]
public string AnimalDir { get; set; }
```

## Property Value

[string](#)

## Output

The path to the output directory, where the output date will be saved.

```
[JsonProperty("output", Required = Required.Always)]
[YamlMember(Alias = "output")]
public string Output { get; set; }
```

## Property Value

[string](#)

## OutputBackup

The path to the backup output directory.

```
[JsonProperty("output_backup", Required = Required.AllowNull)]
[YamlMember(Alias = "output_backup")]
public string OutputBackup { get; set; }
```

## Property Value

[string](#)

## Setup

The path to the setup.json configuration file.

```
[JsonProperty("setup", Required = Required.Always)]
[YamlMember(Alias = "setup")]
public string Setup { get; set; }
```

## Property Value

[string](#)

## Training

The path to the training.yml configuration file.

```
[JsonProperty("training", Required = Required.Always)]
[YamlMember(Alias = "training")]
public string Training { get; set; }
```

## Property Value

[string](#)

## Methods

### Generate()

```
public IObservable<Paths> Generate()
```

Returns

[IObservable](#)<Paths>

## Generate<TSource>(IObservable<TSource>)

```
public IObservable<Paths> Generate<TSource>(IObservable<TSource> source)
```

Parameters

source [IObservable](#)<TSource>

Returns

[IObservable](#)<Paths>

Type Parameters

TSource

## PrintMembers(StringBuilder)

```
protected virtual bool PrintMembers(StringBuilder stringBuilder)
```

Parameters

stringBuilder [StringBuilder](#)

Returns

[bool](#)

## ToString()

Returns a string that represents the current object.

```
public override string ToString()
```

Returns

[string](#)

A string that represents the current object.

# Class Ports

Namespace: [Config](#)

Assembly: Extensions.dll

```
[WorkflowElementCategory(ElementCategory.Source)]
[Combinator(MethodName = "Generate")]
public class Ports
```

## Inheritance

[object](#) ← Ports

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

# Constructors

## Ports()

```
public Ports()
```

## Ports(Ports)

```
protected Ports(Ports other)
```

## Parameters

other [Ports](#)

# Properties

## Behavior

The COM port of the Harp Behavior.

```
[JsonProperty("behavior", Required = Required.Always)]
[YamlMember(Alias = "behavior")]
public string Behavior { get; set; }
```

Property Value

[string](#) ↗

## Clocksynchronizer

The COM port of the Harp ClockSynchronizer.

```
[JsonProperty("clocksynchronizer", Required = Required.Always)]
[YamlMember(Alias = "clocksynchronizer")]
public string Clocksynchronizer { get; set; }
```

Property Value

[string](#) ↗

## Currentdriver

The COM port of the Harp CurrentDriver.

```
[JsonProperty("currentdriver", Required = Required.Always)]
[YamlMember(Alias = "currentdriver")]
public string Currentdriver { get; set; }
```

Property Value

[string](#) ↗

## LeftPump

The COM port of the left Harp SyringePump.

```
[JsonProperty("left_pump", Required = Required.Always)]
[YamlMember(Alias = "left_pump")]
public string LeftPump { get; set; }
```

Property Value

[string](#)

## RightPump

The COM port of the right Harp SyringePump.

```
[JsonProperty("right_pump", Required = Required.Always)]
[YamlMember(Alias = "right_pump")]
public string RightPump { get; set; }
```

Property Value

[string](#)

## Soundcard

The COM port of the Harp SoundCard.

```
[JsonProperty("soundcard", Required = Required.Always)]
[YamlMember(Alias = "soundcard")]
public string Soundcard { get; set; }
```

Property Value

[string](#)

## Methods

### Generate()

```
public IObservable<Ports> Generate()
```

Returns

[IObservable](#)<Ports>

## Generate<TSource>(IObservable<TSource>)

```
public IObservable<Ports> Generate<TSource>(IObservable<TSource> source)
```

Parameters

source [IObservable](#)<TSource>

Returns

[IObservable](#)<Ports>

Type Parameters

TSource

## PrintMembers(StringBuilder)

```
protected virtual bool PrintMembers(StringBuilder stringBuilder)
```

Parameters

stringBuilder [StringBuilder](#)

Returns

[bool](#)

## ToString()

Returns a string that represents the current object.

```
public override string ToString()
```

Returns

[string](#)

A string that represents the current object.

# Class SerializeToJson

Namespace: [Config](#)

Assembly: Extensions.dll

Serializes a sequence of data model objects into JSON strings.

```
[WorkflowElementCategory(ElementCategory.Transform)]
[Combinator]
public class SerializeToJson
```

Inheritance

[object](#) ← SerializeToJson

Inherited Members

[object.ToString\(\)](#) , [object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) ,
[object.ReferenceEquals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) ,
[object.MemberwiseClone\(\)](#)

## Properties

Formatting

```
public Formatting Formatting { get; set; }
```

Property Value

Formatting

## Methods

Process(I`Observable`<Config>)

```
public IObservable<string> Process(IObservable<Config> source)
```

Parameters

source [IObservable<Config>](#)

Returns

[IObservable<string>](#)

## Process(IObservable<Paths>)

**public** IObservable<string> **Process**(IObservable<Paths> source)

Parameters

source [IObservable<Paths>](#)

Returns

[IObservable<string>](#)

## Process(IObservable<Ports>)

**public** IObservable<string> **Process**(IObservable<Ports> source)

Parameters

source [IObservable<Ports>](#)

Returns

[IObservable<string>](#)

# Class SerializeToYaml

Namespace: [Config](#)

Assembly: Extensions.dll

Serializes a sequence of data model objects into YAML strings.

```
[WorkflowElementCategory(ElementCategory.Transform)]
[Combinator]
public class SerializeToYaml
```

## Inheritance

[object](#) ← SerializeToYaml

## Inherited Members

[object.ToString\(\)](#) , [object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) ,
[object.ReferenceEquals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) ,
[object.MemberwiseClone\(\)](#)

## Methods

### Process(IObservable<Config>)

```
public IObservable<string> Process(IObservable<Config> source)
```

#### Parameters

source [IObservable](#)<[Config](#)>

#### Returns

[IObservable](#)<[string](#)>

### Process(IObservable<Paths>)

```
public IObservable<string> Process(IObservable<Paths> source)
```

Parameters

source [IObservable<Paths>](#)

Returns

[IObservable<string>](#)

Process([IObservable<Ports>](#))

```
public IObservable<string> Process(IObservable<Ports> source)
```

Parameters

source [IObservable<Ports>](#)

Returns

[IObservable<string>](#)

# Namespace Output

## Classes

[Block](#)

[Cnp](#)

[DeserializeFromJson](#)

Deserializes a sequence of JSON strings into data model objects.

[DeserializeFromYaml](#)

Deserializes a sequence of YAML strings into data model objects.

[FixationTime](#)

[FixationTimeParts](#)

[ITI](#)

[LnpTime](#)

[MovementTime](#)

[Optogenetics](#)

[Outcome](#)

[Output](#)

[PenaltyTimes](#)

[ReactionTime](#)

[Reward](#)

[SerializeToJson](#)

Serializes a sequence of data model objects into JSON strings.

[SerializeToYaml](#)

Serializes a sequence of data model objects into YAML strings.

[Session](#)

[Sound](#)

[Trial](#)

## Enums

[OptogeneticsMode](#)

[OutcomeAbortType](#)

# Class Block

Namespace: [Output](#)

Assembly: Extensions.dll

```
[WorkflowElementCategory(ElementCategory.Source)]
[Combinator(MethodName = "Generate")]
public class Block
```

Inheritance

[object](#) ← Block

Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

## Constructors

Block()

```
public Block()
```

Block(Block)

```
protected Block(Block other)
```

Parameters

other [Block](#)

## Properties

Number

The block number.

```
[JsonProperty("number", Required = Required.Always)]
[YamlMember(Alias = "number")]
public int Number { get; set; }
```

Property Value

[int↗](#)

## TrainingLevel

The training level of the current block.

```
[JsonProperty("training_level", Required = Required.Always)]
[YamlMember(Alias = "training_level")]
public int TrainingLevel { get; set; }
```

Property Value

[int↗](#)

## TrialsPerBlock

The number of trials that the current block is expected to have.

```
[JsonProperty("trials_per_block", Required = Required.Always)]
[YamlMember(Alias = "trials_per_block")]
public int TrialsPerBlock { get; set; }
```

Property Value

[int↗](#)

## Methods

### Generate()

```
public IObservable<Block> Generate()
```

Returns

[IObservable](#)<[Block](#)>

## Generate<TSource>(IObservable<TSource>)

```
public IObservable<Block> Generate<TSource>(IObservable<TSource> source)
```

Parameters

source [IObservable](#)<[TSource](#)>

Returns

[IObservable](#)<[Block](#)>

Type Parameters

[TSource](#)

## PrintMembers(StringBuilder)

```
protected virtual bool PrintMembers(StringBuilder stringBuilder)
```

Parameters

stringBuilder [StringBuilder](#)

Returns

[bool](#)

## ToString()

Returns a string that represents the current object.

```
public override string ToString()
```

Returns

[string](#)

A string that represents the current object.

# Class Cnp

Namespace: [Output](#)

Assembly: Extensions.dll

```
[WorkflowElementCategory(ElementCategory.Source)]
[Combinator(MethodName = "Generate")]
public class Cnp
```

Inheritance

[object](#) ← Cnp

Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

## Constructors

Cnp()

```
public Cnp()
```

Cnp(Cnp)

```
protected Cnp(Cnp other)
```

Parameters

other [Cnp](#)

## Properties

MaxDuration

The maximum allowed time to start the trial (s).

```
[JsonProperty("max_duration", Required = Required.Always)]
[YamlMember(Alias = "max_duration")]
public double MaxDuration { get; set; }
```

Property Value

[double ↗](#)

## StartTime

The timestamp at which the animal poked in the central port (s).

```
[JsonProperty("start_time", Required = Required.Always)]
[YamlMember(Alias = "start_time")]
public double StartTime { get; set; }
```

Property Value

[double ↗](#)

## TimedValue

The time it took for the animal to start the trial (s).

```
[JsonProperty("timed_value", Required = Required.Always)]
[YamlMember(Alias = "timed_value")]
public double TimedValue { get; set; }
```

Property Value

[double ↗](#)

## Methods

Generate()

```
public IObservable<Cnp> Generate()
```

Returns

[IObservable](#)<Cnp>

## Generate<TSource>(IObservable<TSource>)

```
public IObservable<Cnp> Generate<TSource>(IObservable<TSource> source)
```

Parameters

source [IObservable](#)<TSource>

Returns

[IObservable](#)<Cnp>

Type Parameters

TSource

## PrintMembers(StringBuilder)

```
protected virtual bool PrintMembers(StringBuilder stringBuilder)
```

Parameters

stringBuilder [StringBuilder](#)

Returns

[bool](#)

## ToString()

Returns a string that represents the current object.

```
public override string ToString()
```

Returns

[string](#)

A string that represents the current object.

# Class DeserializeFromJson

Namespace: [Output](#)

Assembly: Extensions.dll

Deserializes a sequence of JSON strings into data model objects.

```
[WorkflowElementCategory(ElementCategory.Transform)]
public class DeserializeFromJson : SingleArgumentExpressionBuilder, IExpressionBuilder
```

## Inheritance

[object](#) ← [ExpressionBuilder](#) ← [SingleArgumentExpressionBuilder](#) ← [DeserializeFromJson](#)

## Implements

[IExpressionBuilder](#)

## Inherited Members

[SingleArgumentExpressionBuilder.ArgumentRange](#) , [ExpressionBuilder.ToString\(\)](#) ,  
[ExpressionBuilder.Unwrap\(ExpressionBuilder\)](#) ,  
[ExpressionBuilder.GetWorkflowElement\(ExpressionBuilder\)](#) ,  
[ExpressionBuilder.GetVisualizerElement\(ExpressionBuilder\)](#) ,  
[ExpressionBuilder.GetVisualizerMappings\(ExpressionBuilder\)](#) ,  
[ExpressionBuilder.FromWorkflowElement\(object, ElementCategory\)](#) ,  
[ExpressionBuilder.GetElementDisplayName\(Type\)](#) ,  
[ExpressionBuilder.GetElementDisplayName\(object\)](#) ,  
[ExpressionBuilder.SelectMembers\(Expression, string\)](#) ,  
[ExpressionBuilder.GetArgumentAccess\(IEnumerable<Expression>, string\)](#) , [object.Equals\(object\)](#) ,  
[object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) , [object.GetHashCode\(\)](#) ,  
[object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

## Constructors

### DeserializeFromJson()

```
public DeserializeFromJson()
```

# Properties

## Type

```
public TypeMapping Type { get; set; }
```

## Property Value

[TypeMapping](#)

# Methods

## Build(IEnumerable<Expression>)

Constructs an [Expression](#) node from a collection of input arguments. The result can be chained with other builders in a workflow.

```
public override Expression Build(IEnumerable<Expression> arguments)
```

## Parameters

**arguments** [IEnumerable](#)<[Expression](#)>

A collection of [Expression](#) nodes representing the input arguments.

## Returns

[Expression](#)

The constructed [Expression](#) node.

# Class DeserializeFromYaml

Namespace: [Output](#)

Assembly: Extensions.dll

Deserializes a sequence of YAML strings into data model objects.

```
[WorkflowElementCategory(ElementCategory.Transform)]
public class DeserializeFromYaml : SingleArgumentExpressionBuilder, IExpressionBuilder
```

Inheritance

[object](#) ← [ExpressionBuilder](#) ← [SingleArgumentExpressionBuilder](#) ← [DeserializeFromYaml](#)

Implements

[IExpressionBuilder](#)

Inherited Members

[SingleArgumentExpressionBuilder.ArgumentRange](#) , [ExpressionBuilder.ToString\(\)](#) ,  
[ExpressionBuilder.Unwrap\(ExpressionBuilder\)](#) ,  
[ExpressionBuilder.GetWorkflowElement\(ExpressionBuilder\)](#) ,  
[ExpressionBuilder.GetVisualizerElement\(ExpressionBuilder\)](#) ,  
[ExpressionBuilder.GetVisualizerMappings\(ExpressionBuilder\)](#) ,  
[ExpressionBuilder.FromWorkflowElement\(object, ElementCategory\)](#) ,  
[ExpressionBuilder.GetElementDisplayName\(Type\)](#) ,  
[ExpressionBuilder.GetElementDisplayName\(object\)](#) ,  
[ExpressionBuilder.SelectMembers\(Expression, string\)](#) ,  
[ExpressionBuilder.GetArgumentAccess\(IEnumerable<Expression>, string\)](#) , [object.Equals\(object\)](#) ,  
[object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) , [object.GetHashCode\(\)](#) ,  
[object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

## Constructors

### DeserializeFromYaml()

```
public DeserializeFromYaml()
```

# Properties

## Type

```
public TypeMapping Type { get; set; }
```

## Property Value

[TypeMapping](#)

# Methods

## Build(IEnumerable<Expression>)

Constructs an [Expression](#) node from a collection of input arguments. The result can be chained with other builders in a workflow.

```
public override Expression Build(IEnumerable<Expression> arguments)
```

## Parameters

**arguments** [IEnumerable](#)<[Expression](#)>

A collection of [Expression](#) nodes representing the input arguments.

## Returns

[Expression](#)

The constructed [Expression](#) node.

# Class FixationTime

Namespace: [Output](#)

Assembly: Extensions.dll

```
[WorkflowElementCategory(ElementCategory.Source)]
[Combinator(MethodName = "Generate")]
public class FixationTime
```

## Inheritance

[object](#) ← FixationTime

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

# Constructors

## FixationTime()

```
public FixationTime()
```

## FixationTime(FixationTime)

```
protected FixationTime(FixationTime other)
```

## Parameters

other [FixationTime](#)

# Properties

## IntendedDuration

The intended duration for the total fixation time (ms).

```
[JsonProperty("intended_duration", Required = Required.Always)]
[YamlMember(Alias = "intended_duration")]
public double IntendedDuration { get; set; }
```

Property Value

[double](#)

## OptoOnsetTime

Contains the data related to the Optogenetics Onset Time part of the Fixation Time.

```
[JsonProperty("opto_onset_time", Required = Required.Always)]
[YamlMember(Alias = "opto_onset_time")]
public FixationTimeParts OptoOnsetTime { get; set; }
```

Property Value

[FixationTimeParts](#)

## SoundOnsetTime

Contains the data related to the Sound Onset Time part of the Fixation Time.

```
[JsonProperty("sound_onset_time", Required = Required.Always)]
[YamlMember(Alias = "sound_onset_time")]
public FixationTimeParts SoundOnsetTime { get; set; }
```

Property Value

[FixationTimeParts](#)

## TimedDuration

The timed duration for the total fixation time (ms).

```
[JsonProperty("timed_duration", Required = Required.Always)]
[YamlMember(Alias = "timed_duration")]
public double TimedDuration { get; set; }
```

Property Value

[double](#)

## TotalDuration

The total fixation time corresponds to the sum of the fixation time with the reaction time (ms).

```
[JsonProperty("total_duration", Required = Required.Always)]
[YamlMember(Alias = "total_duration")]
public double TotalDuration { get; set; }
```

Property Value

[double](#)

## Methods

### Generate()

```
public IObservable<FixationTime> Generate()
```

Returns

[IObservable](#)<[FixationTime](#)>

### Generate<TSource>(IObservable<TSource>)

```
public IObservable<FixationTime> Generate<TSource>(IObservable<TSource> source)
```

Parameters

**source** [IObservable](#)<TSource>

Returns

[IObservable](#)<[FixationTime](#)>

Type Parameters

TSource

## PrintMembers(StringBuilder)

**protected virtual bool PrintMembers(StringBuilder stringBuilder)**

Parameters

stringBuilder [StringBuilder](#)

Returns

[bool](#)

## ToString()

Returns a string that represents the current object.

**public override string ToString()**

Returns

[string](#)

A string that represents the current object.

# Class FixationTimeParts

Namespace: [Output](#)

Assembly: Extensions.dll

```
[WorkflowElementCategory(ElementCategory.Source)]
[Combinator(MethodName = "Generate")]
public class FixationTimeParts
```

## Inheritance

[object](#) ← FixationTimeParts

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

## Constructors

### FixationTimeParts()

```
public FixationTimeParts()
```

### FixationTimeParts(FixationTimeParts)

```
protected FixationTimeParts(FixationTimeParts other)
```

## Parameters

other [FixationTimeParts](#)

## Properties

### BaseTime

The constant part of the fixation time (ms).

```
[JsonProperty("base_time", Required = Required.Always)]
[YamlMember(Alias = "base_time")]
public double BaseTime { get; set; }
```

Property Value

[double ↗](#)

## ExpMean

The mean value of the random part of the fixation time (ms), which follows an exponential distribution.

```
[JsonProperty("exp_mean", Required = Required.Always)]
[YamlMember(Alias = "exp_mean")]
public double ExpMean { get; set; }
```

Property Value

[double ↗](#)

## IntendedDuration

The intended duration for this part of the fixation time (ms).

```
[JsonProperty("intended_duration", Required = Required.Always)]
[YamlMember(Alias = "intended_duration")]
public double IntendedDuration { get; set; }
```

Property Value

[double ↗](#)

## TimedDuration

The timed duration for this part of the fixation time (ms).

```
[JsonProperty("timed_duration", Required = Required.Always)]
[YamlMember(Alias = "timed_duration")]
public double TimedDuration { get; set; }
```

Property Value

[double](#)

## Methods

Generate()

```
public IObservable<FixationTimeParts> Generate()
```

Returns

[IObservable](#)<[FixationTimeParts](#)>

Generate<TSource>(IObservable<TSource>)

```
public IObservable<FixationTimeParts> Generate<TSource>(IObservable<TSource> source)
```

Parameters

source [IObservable](#)<TSource>

Returns

[IObservable](#)<[FixationTimeParts](#)>

Type Parameters

TSource

PrintMembers(StringBuilder)

```
protected virtual bool PrintMembers(StringBuilder stringBuilder)
```

Parameters

**stringBuilder** [StringBuilder](#)

Returns

[bool](#)

## ToString()

Returns a string that represents the current object.

```
public override string ToString()
```

Returns

[string](#)

A string that represents the current object.

# Class ITI

Namespace: [Output](#)

Assembly: Extensions.dll

```
[WorkflowElementCategory(ElementCategory.Source)]
[Combinator(MethodName = "Generate")]
public class ITI
```

## Inheritance

[object](#) ← ITI

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

# Constructors

## ITI()

```
public ITI()
```

## ITI(ITI)

```
protected ITI(ITI other)
```

## Parameters

other [ITI](#)

# Properties

## EndTime

The timestamp at which the trial ended (s).

```
[JsonProperty("end_time", Required = Required.Always)]
[YamlMember(Alias = "end_time")]
public double EndTime { get; set; }
```

Property Value

[double ↗](#)

## IntendedDuration

The intended duration of the ITI (s).

```
[JsonProperty("intended_duration", Required = Required.Always)]
[YamlMember(Alias = "intended_duration")]
public double IntendedDuration { get; set; }
```

Property Value

[double ↗](#)

## StartTime

The timestamp at which the trial started (s).

```
[JsonProperty("start_time", Required = Required.Always)]
[YamlMember(Alias = "start_time")]
public double StartTime { get; set; }
```

Property Value

[double ↗](#)

## TimedDuration

The ITI duration (s).

```
[JsonProperty("timed_duration", Required = Required.Always)]
[YamlMember(Alias = "timed_duration")]
public double TimedDuration { get; set; }
```

Property Value

[double](#)

## Methods

Generate()

```
public IObservable<ITI> Generate()
```

Returns

[IObservable](#)<ITI>

Generate<TSource>(IObservable<TSource>)

```
public IObservable<ITI> Generate<TSource>(IObservable<TSource> source)
```

Parameters

source [IObservable](#)<TSource>

Returns

[IObservable](#)<ITI>

Type Parameters

TSource

PrintMembers(StringBuilder)

```
protected virtual bool PrintMembers(StringBuilder stringBuilder)
```

Parameters

**stringBuilder** [StringBuilder](#)

Returns

[bool](#)

## ToString()

Returns a string that represents the current object.

```
public override string ToString()
```

Returns

[string](#)

A string that represents the current object.

# Class LnpTime

Namespace: [Output](#)

Assembly: Extensions.dll

```
[WorkflowElementCategory(ElementCategory.Source)]
[Combinator(MethodName = "Generate")]
public class LnpTime
```

## Inheritance

[object](#) ← LnpTime

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

## Constructors

### LnpTime()

```
public LnpTime()
```

### LnpTime(LnpTime)

```
protected LnpTime(LnpTime other)
```

## Parameters

other [LnpTime](#)

## Properties

### IntendedDuration

The minimum allowed LNP time (s).

```
[JsonProperty("intended_duration", Required = Required.Always)]
[YamlMember(Alias = "intended_duration")]
public double IntendedDuration { get; set; }
```

Property Value

[double ↗](#)

## StartTime

The timestamp at which the LNP time started (s).

```
[JsonProperty("start_time", Required = Required.Always)]
[YamlMember(Alias = "start_time")]
public double StartTime { get; set; }
```

Property Value

[double ↗](#)

## TimedDuration

The timed LNP time (s).

```
[JsonProperty("timed_duration", Required = Required.Always)]
[YamlMember(Alias = "timed_duration")]
public double TimedDuration { get; set; }
```

Property Value

[double ↗](#)

## Methods

Generate()

```
public IObservable<LnpTime> Generate()
```

Returns

[IObservable](#)<[LnpTime](#)>

## Generate<TSource>(IObservable<TSource>)

```
public IObservable<LnpTime> Generate<TSource>(IObservable<TSource> source)
```

Parameters

source [IObservable](#)<TSource>

Returns

[IObservable](#)<[LnpTime](#)>

Type Parameters

TSource

## PrintMembers(StringBuilder)

```
protected virtual bool PrintMembers(StringBuilder stringBuilder)
```

Parameters

stringBuilder [StringBuilder](#)

Returns

[bool](#)

## ToString()

Returns a string that represents the current object.

```
public override string ToString()
```

Returns

[string](#)

A string that represents the current object.

# Class MovementTime

Namespace: [Output](#)

Assembly: Extensions.dll

```
[WorkflowElementCategory(ElementCategory.Source)]
[Combinator(MethodName = "Generate")]
public class MovementTime
```

## Inheritance

[object](#) ← MovementTime

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

## Constructors

### MovementTime()

```
public MovementTime()
```

### MovementTime(MovementTime)

```
protected MovementTime(MovementTime other)
```

## Parameters

other [MovementTime](#)

## Properties

### MaxDuration

The maximum allowed movement time (s).

```
[JsonProperty("max_duration", Required = Required.Always)]
[YamlMember(Alias = "max_duration")]
public double MaxDuration { get; set; }
```

Property Value

[double ↗](#)

## StartTime

The timestamp at which the movement time started (s).

```
[JsonProperty("start_time", Required = Required.Always)]
[YamlMember(Alias = "start_time")]
public double StartTime { get; set; }
```

Property Value

[double ↗](#)

## TimedDuration

The timed movement time (s).

```
[JsonProperty("timed_duration", Required = Required.Always)]
[YamlMember(Alias = "timed_duration")]
public double TimedDuration { get; set; }
```

Property Value

[double ↗](#)

## Methods

Generate()

```
public IObservable<MovementTime> Generate()
```

Returns

[IObservable](#)<[MovementTime](#)>

## Generate<TSource>(IObservable<TSource>)

```
public IObservable<MovementTime> Generate<TSource>(IObservable<TSource> source)
```

Parameters

source [IObservable](#)<TSource>

Returns

[IObservable](#)<[MovementTime](#)>

Type Parameters

TSource

## PrintMembers(StringBuilder)

```
protected virtual bool PrintMembers(StringBuilder stringBuilder)
```

Parameters

stringBuilder [StringBuilder](#)

Returns

[bool](#)

## ToString()

Returns a string that represents the current object.

```
public override string ToString()
```

Returns

[string](#)

A string that represents the current object.

# Class Optogenetics

Namespace: [Output](#)

Assembly: Extensions.dll

```
[WorkflowElementCategory(ElementCategory.Source)]
[Combinator(MethodName = "Generate")]
public class Optogenetics
```

## Inheritance

[object](#) ← Optogenetics

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

# Constructors

## Optogenetics()

```
public Optogenetics()
```

## Optogenetics(Optogenetics)

```
protected Optogenetics(Optogenetics other)
```

## Parameters

other [Optogenetics](#)

# Properties

## Duration

The duration of the optogenetics used during the trial (s).

```
[JsonProperty("duration", Required = Required.Always)]
[YamlMember(Alias = "duration")]
public double Duration { get; set; }
```

Property Value

[double ↗](#)

## Led0Power

The power with which the animal is stimulated.

```
[JsonProperty("led0_power", Required = Required.Always)]
[YamlMember(Alias = "led0_power")]
public double Led0Power { get; set; }
```

Property Value

[double ↗](#)

## Led0Voltage

The voltage to use in the TTL signal.

```
[JsonProperty("led0_voltage", Required = Required.Always)]
[YamlMember(Alias = "led0_voltage")]
public double Led0Voltage { get; set; }
```

Property Value

[double ↗](#)

## Led1Power

The power with which the animal is stimulated.

```
[JsonProperty("led1_power", Required = Required.Always)]
[YamlMember(Alias = "led1_power")]
public double Led1Power { get; set; }
```

Property Value

[double](#) ↗

## Led1Voltage

The voltage to use in the TTL signal.

```
[JsonProperty("led1_voltage", Required = Required.Always)]
[YamlMember(Alias = "led1_voltage")]
public double Led1Voltage { get; set; }
```

Property Value

[double](#) ↗

## Mode

Indicates the optogenetics mode used in the current session.

```
[JsonProperty("mode", Required = Required.Always)]
[YamlMember(Alias = "mode")]
public OptogeneticsMode Mode { get; set; }
```

Property Value

[OptogeneticsMode](#)

## OptoTrial

Indicates if optogenetics was used in the current trial.

```
[JsonProperty("opto_trial", Required = Required.Always)]
[YamlMember(Alias = "opto_trial")]
public bool OptoTrial { get; set; }
```

Property Value

[bool](#)

## Methods

Generate()

```
public IObservable<Optogenetics> Generate()
```

Returns

[IObservable](#)<[Optogenetics](#)>

Generate<TSource>(IObservable<TSource>)

```
public IObservable<Optogenetics> Generate<TSource>(IObservable<TSource> source)
```

Parameters

source [IObservable](#)<TSource>

Returns

[IObservable](#)<[Optogenetics](#)>

Type Parameters

TSource

PrintMembers(StringBuilder)

```
protected virtual bool PrintMembers(StringBuilder stringBuilder)
```

Parameters

**stringBuilder** [StringBuilder](#)

Returns

[bool](#)

## ToString()

Returns a string that represents the current object.

```
public override string ToString()
```

Returns

[string](#)

A string that represents the current object.

# Enum OptogeneticsMode

Namespace: [Output](#)

Assembly: Extensions.dll

```
[JsonConverter(typeof(StringEnumConverter))]  
public enum OptogeneticsMode
```

## Fields

```
[EnumMember(Value = "BilateralExcitation")] [YamlMember(Alias =  
"BilateralExcitation")] BilateralExcitation = 3
```

```
[EnumMember(Value = "BilateralInhibition")] [YamlMember(Alias =  
"BilateralInhibition")] BilateralInhibition = 6
```

```
[EnumMember(Value = "LeftExcitation")] [YamlMember(Alias = "LeftExcitation")]  
LeftExcitation = 1
```

```
[EnumMember(Value = "LeftExcitationRightInhibition")] [YamlMember(Alias =  
"LeftExcitationRightInhibition")] LeftExcitationRightInhibition = 7
```

```
[EnumMember(Value = "LeftInhibition")] [YamlMember(Alias = "LeftInhibition")]  
LeftInhibition = 4
```

```
[EnumMember(Value = "LeftInhibitionRightExcitation")] [YamlMember(Alias =  
"LeftInhibitionRightExcitation")] LeftInhibitionRightExcitation = 8
```

```
[EnumMember(Value = "None")] [YamlMember(Alias = "None")] None = 0
```

```
[EnumMember(Value = "RightExcitation")] [YamlMember(Alias = "RightExcitation")]  
RightExcitation = 2
```

```
[EnumMember(Value = "RightInhibition")] [YamlMember(Alias = "RightInhibition")]  
RightInhibition = 5
```

# Class Outcome

Namespace: [Output](#)

Assembly: Extensions.dll

```
[WorkflowElementCategory(ElementCategory.Source)]
[Combinator(MethodName = "Generate")]
public class Outcome
```

## Inheritance

[object](#) ← Outcome

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

# Constructors

## Outcome()

```
public Outcome()
```

## Outcome(Outcome)

```
protected Outcome(Outcome other)
```

## Parameters

other [Outcome](#)

# Properties

## AbortType

Indicates the type of abort that happened in the trial.

```
[JsonProperty("abort_type", Required = Required.Always)]
[YamlMember(Alias = "abort_type")]
public OutcomeAbortType AbortType { get; set; }
```

Property Value

[OutcomeAbortType](#)

## BlockAbortRatio

The block abort ratio.

```
[JsonProperty("block_abort_ratio", Required = Required.Always)]
[YamlMember(Alias = "block_abort_ratio")]
public double BlockAbortRatio { get; set; }
```

Property Value

[double](#)

## BlockPerformance

The block performance.

```
[JsonProperty("block_performance", Required = Required.Always)]
[YamlMember(Alias = "block_performance")]
public double BlockPerformance { get; set; }
```

Property Value

[double](#)

## ResponsePoke

The answer given by the animal in the current trial.

```
[JsonProperty("response_poke", Required = Required.Always)]
[YamlMember(Alias = "response_poke")]
public double ResponsePoke { get; set; }
```

Property Value

[double](#)

## Success

Indicates whether the animal answered correctly (1), incorrectly (-1) or whether the trial was aborted (0).

```
[JsonProperty("success", Required = Required.Always)]
[YamlMember(Alias = "success")]
public int Success { get; set; }
```

Property Value

[int](#)

## Methods

### Generate()

```
public IObservable<Outcome> Generate()
```

Returns

[IObservable](#)<[Outcome](#)>

### Generate<TSource>(IObservable<TSource>)

```
public IObservable<Outcome> Generate<TSource>(IObservable<TSource> source)
```

Parameters

source [IObservable](#)<TSource>

Returns

[IObservable](#)<Outcome>

Type Parameters

TSource

## PrintMembers(StringBuilder)

`protected virtual bool PrintMembers(StringBuilder stringBuilder)`

Parameters

stringBuilder [StringBuilder](#)

Returns

[bool](#)

## ToString()

Returns a string that represents the current object.

`public override string ToString()`

Returns

[string](#)

A string that represents the current object.

# Enum OutcomeAbortType

Namespace: [Output](#)

Assembly: Extensions.dll

```
[JsonConverter(typeof(StringEnumConverter))]  
public enum OutcomeAbortType
```

## Fields

```
[EnumMember(Value = "CNP")] [YamlMember(Alias = "CNP")] CNP = 1
```

```
[EnumMember(Value = "")] [YamlMember(Alias = "")] Empty = 0
```

```
[EnumMember(Value = "Fixation")] [YamlMember(Alias = "Fixation")] Fixation = 2
```

```
[EnumMember(Value = "IO")] [YamlMember(Alias = "IO")] IO = 8
```

```
[EnumMember(Value = "LNP")] [YamlMember(Alias = "LNP")] LNP = 7
```

```
[EnumMember(Value = "MT-")] [YamlMember(Alias = "MT-")] MTMinus = 6
```

```
[EnumMember(Value = "MT+")] [YamlMember(Alias = "MT+")] MTPlus = 5
```

```
[EnumMember(Value = "RT-")] [YamlMember(Alias = "RT-")] RTMinus = 4
```

```
[EnumMember(Value = "RT+")] [YamlMember(Alias = "RT+")] RTPlus = 3
```

# Class Output

Namespace: [Output](#)

Assembly: Extensions.dll

```
[WorkflowElementCategory(ElementCategory.Source)]
[Combinator(MethodName = "Generate")]
public class Output
```

## Inheritance

[object](#) ← Output

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

# Constructors

## Output()

```
public Output()
```

## Output(Output)

```
protected Output(Output other)
```

## Parameters

other [Output](#)

# Properties

## AnimalId

The ID of the animal.

```
[JsonProperty("animal_id", Required = Required.Always)]
[YamlMember(Alias = "animal_id")]
public string AnimalId { get; set; }
```

## Property Value

[string](#)

## Batch

The batch to which the current animal belongs to.

```
[JsonProperty("batch", Required = Required.Always)]
[YamlMember(Alias = "batch")]
public string Batch { get; set; }
```

## Property Value

[string](#)

## Bias

Indicates the bias of the animal in the last n trials, where negative bias is a bias towards the left side and positive bias is a bias towards the right side.

```
[JsonProperty("bias", Required = Required.Always)]
[YamlMember(Alias = "bias")]
public double Bias { get; set; }
```

## Property Value

[double](#)

## Block

Contains the block-related data.

```
[JsonProperty("block", Required = Required.Always)]
[YamlMember(Alias = "block")]
public Block Block { get; set; }
```

Property Value

[Block](#)

## Cnp

Contains the data related to the time to CNP.

```
[JsonProperty("cnp", Required = Required.Always)]
[YamlMember(Alias = "cnp")]
public Cnp Cnp { get; set; }
```

Property Value

[Cnp](#)

## Experimenter

The person who trained the animal in the current session.

```
[JsonProperty("experimenter", Required = Required.Always)]
[YamlMember(Alias = "experimenter")]
public string Experimenter { get; set; }
```

Property Value

[string](#) ↗

## FixationTime

Contains the data related to the fixation time.

```
[JsonProperty("fixation_time", Required = Required.Always)]
[YamlMember(Alias = "fixation_time")]
public FixationTime FixationTime { get; set; }
```

## Property Value

[FixationTime](#)

## Iti

Contains the ITI-related data.

```
[JsonProperty("iti", Required = Required.Always)]
[YamlMember(Alias = "iti")]
public ITI Iti { get; set; }
```

## Property Value

[ITI](#)

## LnpTime

Contains the data related to the LNP time.

```
[JsonProperty("lnp_time", Required = Required.Always)]
[YamlMember(Alias = "lnp_time")]
public LnpTime LnpTime { get; set; }
```

## Property Value

[LnpTime](#)

## MovementTime

Contains the data related to the movement time.

```
[JsonProperty("movement_time", Required = Required.Always)]
[YamlMember(Alias = "movement_time")]
public MovementTime MovementTime { get; set; }
```

## Property Value

[MovementTime](#)

## Optogenetics

Contains the data related to optogenetics.

```
[JsonProperty("optogenetics", Required = Required.Always)]
[YamlMember(Alias = "optogenetics")]
public Optogenetics Optogenetics { get; set; }
```

## Property Value

[Optogenetics](#)

## Outcome

Contains the data related to the trial outcome.

```
[JsonProperty("outcome", Required = Required.Always)]
[YamlMember(Alias = "outcome")]
public Outcome Outcome { get; set; }
```

## Property Value

[Outcome](#)

## PenaltyTimes

Contains the penalty times for different occasions.

```
[JsonProperty("penalty_times", Required = Required.Always)]
[YamlMember(Alias = "penalty_times")]
public PenaltyTimes PenaltyTimes { get; set; }
```

Property Value

[PenaltyTimes](#)

## ReactionTime

Contains the data related to the reaction time.

```
[JsonProperty("reaction_time", Required = Required.Always)]
[YamlMember(Alias = "reaction_time")]
public ReactionTime ReactionTime { get; set; }
```

Property Value

[ReactionTime](#)

## RepeatedTrial

Indicates whether the current trial is a repetition of the previous trial (true) or not (false).

```
[JsonProperty("repeated_trial", Required = Required.Always)]
[YamlMember(Alias = "repeated_trial")]
public bool RepeatedTrial { get; set; }
```

Property Value

[bool](#) ↗

## Reward

Contains the reward to be delivered for each side in case they are the correct answer.

```
[JsonProperty("reward", Required = Required.Always)]
[YamlMember(Alias = "reward")]
public Reward Reward { get; set; }
```

## Property Value

[Reward](#)

## Session

Contains the session-related data.

```
[JsonProperty("session", Required = Required.Always)]
[YamlMember(Alias = "session")]
public Session Session { get; set; }
```

## Property Value

[Session](#)

## Sound

Contains the sound-related data.

```
[JsonProperty("sound", Required = Required.Always)]
[YamlMember(Alias = "sound")]
public Sound Sound { get; set; }
```

## Property Value

[Sound](#)

## Trial

Contains the trial-related data.

```
[JsonProperty("trial", Required = Required.Always)]
[YamlMember(Alias = "trial")]
public Trial Trial { get; set; }
```

## Property Value

[Trial](#)

## Version

The version of the project used in the session.

```
[JsonProperty("version", Required = Required.Always)]
[YamlMember(Alias = "version")]
public string Version { get; set; }
```

## Property Value

[string](#)

## Methods

### Generate()

```
public IObservable<Output> Generate()
```

#### Returns

[IObservable](#)<[Output](#)>

### Generate<TSource>(IObservable<TSource>)

```
public IObservable<Output> Generate<TSource>(IObservable<TSource> source)
```

#### Parameters

source [IObservable](#)<TSource>

Returns

[IObservable](#)<Output>

Type Parameters

TSource

## PrintMembers(StringBuilder)

`protected virtual bool PrintMembers(StringBuilder stringBuilder)`

Parameters

stringBuilder [StringBuilder](#)

Returns

[bool](#)

## ToString()

Returns a string that represents the current object.

`public override string ToString()`

Returns

[string](#)

A string that represents the current object.

# Class PenaltyTimes

Namespace: [Output](#)

Assembly: Extensions.dll

```
[WorkflowElementCategory(ElementCategory.Source)]
[Combinator(MethodName = "Generate")]
public class PenaltyTimes
```

## Inheritance

[object](#) ← PenaltyTimes

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

## Constructors

### PenaltyTimes()

```
public PenaltyTimes()
```

### PenaltyTimes(PenaltyTimes)

```
protected PenaltyTimes(PenaltyTimes other)
```

## Parameters

other [PenaltyTimes](#)

## Properties

### Abort

The penalty time to be applied when the animal aborts a trial (except if it's a fixation abort).

```
[JsonProperty("abort", Required = Required.Always)]
[YamlMember(Alias = "abort")]
public double Abort { get; set; }
```

Property Value

[double ↗](#)

## FixationAbort

The penalty time to be applied in case of a fixation abort.

```
[JsonProperty("fixation_abort", Required = Required.Always)]
[YamlMember(Alias = "fixation_abort")]
public double FixationAbort { get; set; }
```

Property Value

[double ↗](#)

## Incorrect

The penalty time to be applied when the animal answers incorrectly.

```
[JsonProperty("incorrect", Required = Required.Always)]
[YamlMember(Alias = "incorrect")]
public double Incorrect { get; set; }
```

Property Value

[double ↗](#)

## Methods

### Generate()

```
public IObservable<PenaltyTimes> Generate()
```

Returns

[IObservable](#)<[PenaltyTimes](#)>

## Generate<TSource>(IObservable<TSource>)

```
public IObservable<PenaltyTimes> Generate<TSource>(IObservable<TSource> source)
```

Parameters

source [IObservable](#)<TSource>

Returns

[IObservable](#)<[PenaltyTimes](#)>

Type Parameters

TSource

## PrintMembers(StringBuilder)

```
protected virtual bool PrintMembers(StringBuilder stringBuilder)
```

Parameters

stringBuilder [StringBuilder](#)

Returns

[bool](#)

## ToString()

Returns a string that represents the current object.

```
public override string ToString()
```

Returns

[string](#)

A string that represents the current object.

# Class ReactionTime

Namespace: [Output](#)

Assembly: Extensions.dll

```
[WorkflowElementCategory(ElementCategory.Source)]
[Combinator(MethodName = "Generate")]
public class ReactionTime
```

## Inheritance

[object](#) ← ReactionTime

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

## Constructors

### ReactionTime()

```
public ReactionTime()
```

### ReactionTime(ReactionTime)

```
protected ReactionTime(ReactionTime other)
```

## Parameters

other [ReactionTime](#)

## Properties

### BaseTime

The minimum allowed reaction time (s).

```
[JsonProperty("base_time", Required = Required.Always)]
[YamlMember(Alias = "base_time")]
public double BaseTime { get; set; }
```

Property Value

[double ↗](#)

## MaxDuration

The maximum allowed reaction time (s).

```
[JsonProperty("max_duration", Required = Required.Always)]
[YamlMember(Alias = "max_duration")]
public double MaxDuration { get; set; }
```

Property Value

[double ↗](#)

## StartTime

The timestamp at which the reaction time started (s).

```
[JsonProperty("start_time", Required = Required.Always)]
[YamlMember(Alias = "start_time")]
public double StartTime { get; set; }
```

Property Value

[double ↗](#)

## TimedDuration

The timed reaction time (s).

```
[JsonProperty("timed_duration", Required = Required.Always)]
[YamlMember(Alias = "timed_duration")]
public double TimedDuration { get; set; }
```

Property Value

[double](#)

## Methods

Generate()

```
public IObservable<ReactionTime> Generate()
```

Returns

[IObservable](#)<[ReactionTime](#)>

Generate<TSource>(IObservable<TSource>)

```
public IObservable<ReactionTime> Generate<TSource>(IObservable<TSource> source)
```

Parameters

source [IObservable](#)<TSource>

Returns

[IObservable](#)<[ReactionTime](#)>

Type Parameters

TSource

PrintMembers(StringBuilder)

```
protected virtual bool PrintMembers(StringBuilder stringBuilder)
```

Parameters

**stringBuilder** [StringBuilder](#)

Returns

[bool](#)

## ToString()

Returns a string that represents the current object.

```
public override string ToString()
```

Returns

[string](#)

A string that represents the current object.

# Class Reward

Namespace: [Output](#)

Assembly: Extensions.dll

```
[WorkflowElementCategory(ElementCategory.Source)]
[Combinator(MethodName = "Generate")]
public class Reward
```

## Inheritance

[object](#) ← Reward

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

# Constructors

## Reward()

```
public Reward()
```

## Reward(Reward)

```
protected Reward(Reward other)
```

## Parameters

other [Reward](#)

# Properties

## Delivered

Indicates whether a reward was delivered in the current trial as a result of a correct answer.

```
[JsonProperty("delivered", Required = Required.Always)]
[YamlMember(Alias = "delivered")]
public bool Delivered { get; set; }
```

Property Value

[bool ↗](#)

## Left

The amount of reward to be delivered in case the left poke is the correct answer.

```
[JsonProperty("left", Required = Required.Always)]
[YamlMember(Alias = "left")]
public double Left { get; set; }
```

Property Value

[double ↗](#)

## Right

The amount of reward to be delivered in case the right poke is the correct answer.

```
[JsonProperty("right", Required = Required.Always)]
[YamlMember(Alias = "right")]
public double Right { get; set; }
```

Property Value

[double ↗](#)

## Methods

Generate()

```
public IObservable<Reward> Generate()
```

Returns

[IObservable](#)<[Reward](#)>

## Generate<TSource>(IObservable<TSource>)

```
public IObservable<Reward> Generate<TSource>(IObservable<TSource> source)
```

Parameters

source [IObservable](#)<TSource>

Returns

[IObservable](#)<[Reward](#)>

Type Parameters

TSource

## PrintMembers(StringBuilder)

```
protected virtual bool PrintMembers(StringBuilder stringBuilder)
```

Parameters

stringBuilder [StringBuilder](#)

Returns

[bool](#)

## ToString()

Returns a string that represents the current object.

```
public override string ToString()
```

Returns

[string](#)

A string that represents the current object.

# Class SerializeToJson

Namespace: [Output](#)

Assembly: Extensions.dll

Serializes a sequence of data model objects into JSON strings.

```
[WorkflowElementCategory(ElementCategory.Transform)]
[Combinator]
public class SerializeToJson
```

Inheritance

[object](#) ← SerializeToJson

Inherited Members

[object.ToString\(\)](#) , [object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) ,
[object.ReferenceEquals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) ,
[object.MemberwiseClone\(\)](#)

## Properties

### Formatting

```
public Formatting Formatting { get; set; }
```

Property Value

Formatting

## Methods

### Process(IObservable<Block>)

```
public IObservable<string> Process(IObservable<Block> source)
```

Parameters

source [IObservable<Block>](#)

Returns

[IObservable<string>](#)

## Process(IObservable<Cnp>)

public IObservable<string> Process(IObservable<Cnp> source)

Parameters

source [IObservable<Cnp>](#)

Returns

[IObservable<string>](#)

## Process(IObservable<FixationTimeParts>)

public IObservable<string> Process(IObservable<FixationTimeParts> source)

Parameters

source [IObservable<FixationTimeParts>](#)

Returns

[IObservable<string>](#)

## Process(IObservable<FixationTime>)

public IObservable<string> Process(IObservable<FixationTime> source)

Parameters

source [IObservable<FixationTime>](#)

Returns

[IObservable<string>](#)

## Process(IObservable<ITI>)

public IObservable<string> Process(IObservable<ITI> source)

Parameters

source [IObservable<ITI>](#)

Returns

[IObservable<string>](#)

## Process(IObservable<LnpTime>)

public IObservable<string> Process(IObservable<LnpTime> source)

Parameters

source [IObservable<LnpTime>](#)

Returns

[IObservable<string>](#)

## Process(IObservable<MovementTime>)

public IObservable<string> Process(IObservable<MovementTime> source)

Parameters

source [IObservable<MovementTime>](#)

Returns

[IObservable<string>](#)

## Process(IObservable<Optogenetics>)

public IObservable<string> Process(IObservable<Optogenetics> source)

Parameters

source [IObservable<Optogenetics>](#)

Returns

[IObservable<string>](#)

## Process(IObservable<Outcome>)

public IObservable<string> Process(IObservable<Outcome> source)

Parameters

source [IObservable<Outcome>](#)

Returns

[IObservable<string>](#)

## Process(IObservable<Output>)

public IObservable<string> Process(IObservable<Output> source)

Parameters

source [IObservable<Output>](#)

Returns

[IObservable<string>](#)

## Process(IObservable<PenaltyTimes>)

public IObservable<string> Process(IObservable<PenaltyTimes> source)

Parameters

source [IObservable<PenaltyTimes>](#)

Returns

[IObservable<string>](#)

## Process(IObservable<ReactionTime>)

public IObservable<string> Process(IObservable<ReactionTime> source)

Parameters

source [IObservable<ReactionTime>](#)

Returns

[IObservable<string>](#)

## Process(IObservable<Reward>)

public IObservable<string> Process(IObservable<Reward> source)

Parameters

source [IObservable<Reward>](#)

Returns

[IObservable<string>](#)

## Process(IObservable<Session>)

public IObservable<string> Process(IObservable<Session> source)

Parameters

source [IObservable<Session>](#)

Returns

[IObservable<string>](#)

## Process(IObservable<Sound>)

public IObservable<string> Process(IObservable<Sound> source)

Parameters

source [IObservable<Sound>](#)

Returns

[IObservable<string>](#)

## Process(IObservable<Trial>)

public IObservable<string> Process(IObservable<Trial> source)

Parameters

source [IObservable<Trial>](#)

Returns

[IObservable<string>](#)

# Class SerializeToYaml

Namespace: [Output](#)

Assembly: Extensions.dll

Serializes a sequence of data model objects into YAML strings.

```
[WorkflowElementCategory(ElementCategory.Transform)]
[Combinator]
public class SerializeToYaml
```

## Inheritance

[object](#) ← SerializeToYaml

## Inherited Members

[object.ToString\(\)](#) , [object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) ,
[object.ReferenceEquals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) ,
[object.MemberwiseClone\(\)](#)

## Methods

### Process(IObservable<Block>)

```
public IObservable<string> Process(IObservable<Block> source)
```

#### Parameters

source [IObservable](#)<[Block](#)>

#### Returns

[IObservable](#)<[string](#)>

### Process(IObservable<Cnp>)

```
public IObservable<string> Process(IObservable<Cnp> source)
```

Parameters

source [IObservable<Cnp>](#)

Returns

[IObservable<string>](#)

## Process([IObservable<FixationTimeParts>](#))

```
public IObservable<string> Process(IObservable<FixationTimeParts> source)
```

Parameters

source [IObservable<FixationTimeParts>](#)

Returns

[IObservable<string>](#)

## Process([IObservable<FixationTime>](#))

```
public IObservable<string> Process(IObservable<FixationTime> source)
```

Parameters

source [IObservable<FixationTime>](#)

Returns

[IObservable<string>](#)

## Process([IObservable<ITI>](#))

```
public IObservable<string> Process(IObservable<ITI> source)
```

Parameters

source [IObservable<ITI>](#)

Returns

[IObservable<string>](#)

## Process([IObservable<LnpTime>](#))

```
public IObservable<string> Process(IObservable<LnpTime> source)
```

Parameters

source [IObservable<LnpTime>](#)

Returns

[IObservable<string>](#)

## Process([IObservable<MovementTime>](#))

```
public IObservable<string> Process(IObservable<MovementTime> source)
```

Parameters

source [IObservable<MovementTime>](#)

Returns

[IObservable<string>](#)

## Process([IObservable<Optogenetics>](#))

```
public IObservable<string> Process(IObservable<Optogenetics> source)
```

Parameters

source [IObservable<Optogenetics>](#)

Returns

[IObservable<string>](#)

## Process(IObservable<Outcome>)

```
public IObservable<string> Process(IObservable<Outcome> source)
```

Parameters

source [IObservable<Outcome>](#)

Returns

[IObservable<string>](#)

## Process(IObservable<Output>)

```
public IObservable<string> Process(IObservable<Output> source)
```

Parameters

source [IObservable<Output>](#)

Returns

[IObservable<string>](#)

## Process(IObservable<PenaltyTimes>)

```
public IObservable<string> Process(IObservable<PenaltyTimes> source)
```

Parameters

source [IObservable<PenaltyTimes>](#)

Returns

[IObservable<string>](#)

## Process([IObservable<ReactionTime>](#))

**public** [IObservable<string>](#) **Process**([IObservable<ReactionTime>](#) source)

Parameters

source [IObservable<ReactionTime>](#)

Returns

[IObservable<string>](#)

## Process([IObservable<Reward>](#))

**public** [IObservable<string>](#) **Process**([IObservable<Reward>](#) source)

Parameters

source [IObservable<Reward>](#)

Returns

[IObservable<string>](#)

## Process([IObservable<Session>](#))

**public** [IObservable<string>](#) **Process**([IObservable<Session>](#) source)

Parameters

source [IObservable<Session>](#)

Returns

[IObservable<string>](#)

## Process(IObservable<Sound>)

```
public IObservable<string> Process(IObservable<Sound> source)
```

Parameters

source [IObservable<Sound>](#)

Returns

[IObservable<string>](#)

## Process(IObservable<Trial>)

```
public IObservable<string> Process(IObservable<Trial> source)
```

Parameters

source [IObservable<Trial>](#)

Returns

[IObservable<string>](#)

# Class Session

Namespace: [Output](#)

Assembly: Extensions.dll

```
[WorkflowElementCategory(ElementCategory.Source)]
[Combinator(MethodName = "Generate")]
public class Session
```

## Inheritance

[object](#) ← Session

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

# Constructors

## Session()

```
public Session()
```

## Session(Session)

```
protected Session(Session other)
```

## Parameters

other [Session](#)

# Properties

## Box

The ID number of the setup where the animal will performed the trial.

```
[JsonProperty("box", Required = Required.Always)]
[YamlMember(Alias = "box")]
public int Box { get; set; }
```

## Property Value

[int ↗](#)

## Number

The number of the current session.

```
[JsonProperty("number", Required = Required.Always)]
[YamlMember(Alias = "number")]
public int Number { get; set; }
```

## Property Value

[int ↗](#)

## Type

The number of the session type.

```
[JsonProperty("type", Required = Required.Always)]
[YamlMember(Alias = "type")]
public int Type { get; set; }
```

## Property Value

[int ↗](#)

## Methods

### Generate()

```
public IObservable<Session> Generate()
```

Returns

[IObservable](#)<[Session](#)>

## Generate<TSource>(IObservable<TSource>)

```
public IObservable<Session> Generate<TSource>(IObservable<TSource> source)
```

Parameters

source [IObservable](#)<TSource>

Returns

[IObservable](#)<[Session](#)>

Type Parameters

TSource

## PrintMembers(StringBuilder)

```
protected virtual bool PrintMembers(StringBuilder stringBuilder)
```

Parameters

stringBuilder [StringBuilder](#)

Returns

[bool](#)

## ToString()

Returns a string that represents the current object.

```
public override string ToString()
```

Returns

[string](#)

A string that represents the current object.

# Class Sound

Namespace: [Output](#)

Assembly: Extensions.dll

```
[WorkflowElementCategory(ElementCategory.Source)]
[Combinator(MethodName = "Generate")]
public class Sound
```

## Inheritance

[object](#) ← Sound

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

# Constructors

## Sound()

```
public Sound()
```

## Sound(Sound)

```
protected Sound(Sound other)
```

## Parameters

other [Sound](#)

# Properties

## Abl

The trial ABL value (dB).

```
[JsonProperty("abl", Required = Required.Always)]
[YamlMember(Alias = "abl")]
public double Abl { get; set; }
```

## Property Value

[double](#)

## Ild

The trial ILD value (dB).

```
[JsonProperty("ild", Required = Required.Always)]
[YamlMember(Alias = "ild")]
public double Ild { get; set; }
```

## Property Value

[double](#)

## IsShortSound

Indicates whether the sound presented in the current trial had a short duration.

```
[JsonProperty("is_short_sound", Required = Required.Always)]
[YamlMember(Alias = "is_short_sound")]
public bool IsShortSound { get; set; }
```

## Property Value

[bool](#)

## LeftAmp

The amplification applied to the left speaker in the trial.

```
[JsonProperty("left_amp", Required = Required.Always)]
[YamlMember(Alias = "left_amp")]
public double LeftAmp { get; set; }
```

Property Value

[double](#) ↗

## RightAmp

The amplification applied to the right speaker in the trial.

```
[JsonProperty("right_amp", Required = Required.Always)]
[YamlMember(Alias = "right_amp")]
public double RightAmp { get; set; }
```

Property Value

[double](#) ↗

## ShortDuration

The duration of the sound in a short duration trial.

```
[JsonProperty("short_duration", Required = Required.Always)]
[YamlMember(Alias = "short_duration")]
public int ShortDuration { get; set; }
```

Property Value

[int](#) ↗

## SoundIndex

The index of the sound that played in the trial.

```
[JsonProperty("sound_index", Required = Required.Always)]
[YamlMember(Alias = "sound_index")]
public int SoundIndex { get; set; }
```

Property Value

[int](#)

## Methods

Generate()

```
public IObservable<Sound> Generate()
```

Returns

[IObservable](#)<[Sound](#)>

Generate<TSource>(IObservable<TSource>)

```
public IObservable<Sound> Generate<TSource>(IObservable<TSource> source)
```

Parameters

source [IObservable](#)<TSource>

Returns

[IObservable](#)<[Sound](#)>

Type Parameters

TSource

PrintMembers(StringBuilder)

```
protected virtual bool PrintMembers(StringBuilder stringBuilder)
```

Parameters

**stringBuilder** [StringBuilder](#)

Returns

[bool](#)

## ToString()

Returns a string that represents the current object.

```
public override string ToString()
```

Returns

[string](#)

A string that represents the current object.

# Class Trial

Namespace: [Output](#)

Assembly: Extensions.dll

```
[WorkflowElementCategory(ElementCategory.Source)]
[Combinator(MethodName = "Generate")]
public class Trial
```

## Inheritance

[object](#) ← Trial

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

# Constructors

## Trial()

```
public Trial()
```

## Trial(Trial)

```
protected Trial(Trial other)
```

## Parameters

other [Trial](#)

# Properties

## Duration

The trial duration in Harp time (s).

```
[JsonProperty("duration", Required = Required.Always)]
[YamlMember(Alias = "duration")]
public double Duration { get; set; }
```

## Property Value

[double](#) ↗

## EndTime

The timestamp at which the trial ended in Harp time (s).

```
[JsonProperty("end_time", Required = Required.Always)]
[YamlMember(Alias = "end_time")]
public double EndTime { get; set; }
```

## Property Value

[double](#) ↗

## Number

The trial number.

```
[JsonProperty("number", Required = Required.Always)]
[YamlMember(Alias = "number")]
public int Number { get; set; }
```

## Property Value

[int](#) ↗

## StartTime

The timestamp at which the trial started in Harp time (s).

```
[JsonProperty("start_time", Required = Required.Always)]
[YamlMember(Alias = "start_time")]
public double StartTime { get; set; }
```

Property Value

[double](#)

## TaredStartTime

The tared timestamp at which the trial started in which t = 0 is the start time of the first trial of the session (s).

```
[JsonProperty("tared_start_time", Required = Required.Always)]
[YamlMember(Alias = "tared_start_time")]
public double TaredStartTime { get; set; }
```

Property Value

[double](#)

## Methods

### Generate()

```
public IObservable<Trial> Generate()
```

Returns

[IObservable](#)<[Trial](#)>

### Generate<TSource>(IObservable<TSource>)

```
public IObservable<Trial> Generate<TSource>(IObservable<TSource> source)
```

Parameters

source [IObservable](#)<TSource>

Returns

[IObservable](#)<Trial>

Type Parameters

TSource

## PrintMembers(StringBuilder)

`protected virtual bool PrintMembers(StringBuilder stringBuilder)`

Parameters

stringBuilder [StringBuilder](#)

Returns

[bool](#)

## ToString()

Returns a string that represents the current object.

`public override string ToString()`

Returns

[string](#)

A string that represents the current object.

# Namespace PrintDict

## Classes

### [DeserializeFromJson](#)

Deserializes a sequence of JSON strings into data model objects.

### [DeserializeFromYaml](#)

Deserializes a sequence of YAML strings into data model objects.

### [Print](#)

### [PrintDict](#)

### [SerializeToJson](#)

Serializes a sequence of data model objects into JSON strings.

### [SerializeToYaml](#)

Serializes a sequence of data model objects into YAML strings.

# Class DeserializeFromJson

Namespace: [PrintDict](#)

Assembly: Extensions.dll

Deserializes a sequence of JSON strings into data model objects.

```
[WorkflowElementCategory(ElementCategory.Transform)]
public class DeserializeFromJson : SingleArgumentExpressionBuilder, IExpressionBuilder
```

## Inheritance

[object](#) ← [ExpressionBuilder](#) ← [SingleArgumentExpressionBuilder](#) ← [DeserializeFromJson](#)

## Implements

[IExpressionBuilder](#)

## Inherited Members

[SingleArgumentExpressionBuilder.ArgumentRange](#) , [ExpressionBuilder.ToString\(\)](#) ,  
[ExpressionBuilder.Unwrap\(ExpressionBuilder\)](#) ,  
[ExpressionBuilder.GetWorkflowElement\(ExpressionBuilder\)](#) ,  
[ExpressionBuilder.GetVisualizerElement\(ExpressionBuilder\)](#) ,  
[ExpressionBuilder.GetVisualizerMappings\(ExpressionBuilder\)](#) ,  
[ExpressionBuilder.FromWorkflowElement\(object, ElementCategory\)](#) ,  
[ExpressionBuilder.GetElementDisplayName\(Type\)](#) ,  
[ExpressionBuilder.GetElementDisplayName\(object\)](#) ,  
[ExpressionBuilder.SelectMembers\(Expression, string\)](#) ,  
[ExpressionBuilder.GetArgumentAccess\(IEnumerable<Expression>, string\)](#) , [object.Equals\(object\)](#) ,  
[object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) , [object.GetHashCode\(\)](#) ,  
[object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

## Constructors

### DeserializeFromJson()

```
public DeserializeFromJson()
```

# Properties

## Type

```
public TypeMapping Type { get; set; }
```

## Property Value

[TypeMapping](#)

# Methods

## Build(IEnumerable<Expression>)

Constructs an [Expression](#) node from a collection of input arguments. The result can be chained with other builders in a workflow.

```
public override Expression Build(IEnumerable<Expression> arguments)
```

## Parameters

**arguments** [IEnumerable](#)<[Expression](#)>

A collection of [Expression](#) nodes representing the input arguments.

## Returns

[Expression](#)

The constructed [Expression](#) node.

# Class DeserializeFromYaml

Namespace: [PrintDict](#)

Assembly: Extensions.dll

Deserializes a sequence of YAML strings into data model objects.

```
[WorkflowElementCategory(ElementCategory.Transform)]
public class DeserializeFromYaml : SingleArgumentExpressionBuilder, IExpressionBuilder
```

Inheritance

[object](#) ← [ExpressionBuilder](#) ← [SingleArgumentExpressionBuilder](#) ← [DeserializeFromYaml](#)

Implements

[IExpressionBuilder](#)

Inherited Members

[SingleArgumentExpressionBuilder.ArgumentRange](#) , [ExpressionBuilder.ToString\(\)](#) ,  
[ExpressionBuilder.Unwrap\(ExpressionBuilder\)](#) ,  
[ExpressionBuilder.GetWorkflowElement\(ExpressionBuilder\)](#) ,  
[ExpressionBuilder.GetVisualizerElement\(ExpressionBuilder\)](#) ,  
[ExpressionBuilder.GetVisualizerMappings\(ExpressionBuilder\)](#) ,  
[ExpressionBuilder.FromWorkflowElement\(object, ElementCategory\)](#) ,  
[ExpressionBuilder.GetElementDisplayName\(Type\)](#) ,  
[ExpressionBuilder.GetElementDisplayName\(object\)](#) ,  
[ExpressionBuilder.SelectMembers\(Expression, string\)](#) ,  
[ExpressionBuilder.GetArgumentAccess\(IEnumerable<Expression>, string\)](#) , [object.Equals\(object\)](#) ,  
[object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) , [object.GetHashCode\(\)](#) ,  
[object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

## Constructors

### DeserializeFromYaml()

```
public DeserializeFromYaml()
```

# Properties

## Type

```
public TypeMapping Type { get; set; }
```

## Property Value

[TypeMapping](#)

# Methods

## Build(IEnumerable<Expression>)

Constructs an [Expression](#) node from a collection of input arguments. The result can be chained with other builders in a workflow.

```
public override Expression Build(IEnumerable<Expression> arguments)
```

## Parameters

**arguments** [IEnumerable](#)<[Expression](#)>

A collection of [Expression](#) nodes representing the input arguments.

## Returns

[Expression](#)

The constructed [Expression](#) node.

# Class Print

Namespace: [PrintDict](#)

Assembly: Extensions.dll

```
[WorkflowElementCategory(ElementCategory.Source)]
[Combinator(MethodName = "Generate")]
public class Print
```

## Inheritance

[object](#) ← Print

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

# Constructors

## Print()

```
public Print()
```

## Print(Print)

```
protected Print(Print other)
```

## Parameters

other [Print](#)

# Properties

## Text

The text to be printed.

```
[JsonProperty("text", Required = Required.Always)]
[YamlMember(Alias = "text")]
public string Text { get; set; }
```

## Property Value

[string](#)

## Units

The units of the quantity being printed (if necessary).

```
[JsonProperty("units", Required = Required.Always)]
[YamlMember(Alias = "units")]
public string Units { get; set; }
```

## Property Value

[string](#)

## Methods

### Generate()

```
public IObservable<Print> Generate()
```

## Returns

[IObservable](#)<[Print](#)>

### Generate<TSource>(IObservable<TSource>)

```
public IObservable<Print> Generate<TSource>(IObservable<TSource> source)
```

## Parameters

source [IObservable](#)<TSource>

Returns

[IObservable](#)<Print>

Type Parameters

TSource

## PrintMembers(StringBuilder)

`protected virtual bool PrintMembers(StringBuilder stringBuilder)`

Parameters

`stringBuilder` [StringBuilder](#)

Returns

[bool](#)

## ToString()

Returns a string that represents the current object.

`public override string ToString()`

Returns

[string](#)

A string that represents the current object.

# Class PrintDict

Namespace: [PrintDict](#)

Assembly: Extensions.dll

```
[WorkflowElementCategory(ElementCategory.Source)]
[Combinator(MethodName = "Generate")]
public class PrintDict
```

## Inheritance

[object](#) ← PrintDict

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

# Constructors

## PrintDict()

```
public PrintDict()
```

## PrintDict(PrintDict)

```
protected PrintDict(PrintDict other)
```

## Parameters

other [PrintDict](#)

# Properties

## Prints

The dictionary containing all of the task's prints.

```
[JsonProperty("prints", Required = Required.Always)]
[YamlMember(Alias = "prints")]
public Dictionary<string, Print> Prints { get; set; }
```

## Property Value

[Dictionary](#)<[string](#), [Print](#)>

## Methods

### Generate()

```
public IObservable<PrintDict> Generate()
```

#### Returns

[IObservable](#)<[PrintDict](#)>

### Generate<TSource>(IObservable<TSource>)

```
public IObservable<PrintDict> Generate<TSource>(IObservable<TSource> source)
```

#### Parameters

source [IObservable](#)<TSource>

#### Returns

[IObservable](#)<[PrintDict](#)>

#### Type Parameters

TSource

## PrintMembers(StringBuilder)

```
protected virtual bool PrintMembers(StringBuilder stringBuilder)
```

Parameters

**stringBuilder** [StringBuilder](#)

Returns

[bool](#)

## ToString()

Returns a string that represents the current object.

```
public override string ToString()
```

Returns

[string](#)

A string that represents the current object.

# Class SerializeToJson

Namespace: [PrintDict](#)

Assembly: Extensions.dll

Serializes a sequence of data model objects into JSON strings.

```
[WorkflowElementCategory(ElementCategory.Transform)]
[Combinator]
public class SerializeToJson
```

## Inheritance

[object](#) ← SerializeToJson

## Inherited Members

[object.ToString\(\)](#) , [object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) ,
[object.ReferenceEquals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) ,
[object.MemberwiseClone\(\)](#)

# Properties

## Formatting

```
public Formatting Formatting { get; set; }
```

## Property Value

Formatting

# Methods

## Process(IObservable<PrintDict>)

```
public IObservable<string> Process(IObservable<PrintDict> source)
```

## Parameters

source [IObservable<PrintDict>](#)

Returns

[IObservable<string>](#)

Process([IObservable<Print>](#))

**public** [IObservable<string>](#) Process([IObservable<Print>](#) source)

Parameters

source [IObservable<Print>](#)

Returns

[IObservable<string>](#)

# Class SerializeToYaml

Namespace: [PrintDict](#)

Assembly: Extensions.dll

Serializes a sequence of data model objects into YAML strings.

```
[WorkflowElementCategory(ElementCategory.Transform)]
[Combinator]
public class SerializeToYaml
```

## Inheritance

[object](#) ← SerializeToYaml

## Inherited Members

[object.ToString\(\)](#) , [object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) ,
[object.ReferenceEquals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) ,
[object.MemberwiseClone\(\)](#)

## Methods

### Process(IObservable<PrintDict>)

```
public IObservable<string> Process(IObservable<PrintDict> source)
```

#### Parameters

source [IObservable](#)<[PrintDict](#)>

#### Returns

[IObservable](#)<[string](#)>

### Process(IObservable<Print>)

```
public IObservable<string> Process(IObservable<Print> source)
```

## Parameters

source [IObservable<Print>](#)

## Returns

[IObservable<string>](#)

# Namespace Setup

## Classes

[Camera](#)

[DeserializeFromJson](#)

Deserializes a sequence of JSON strings into data model objects.

[DeserializeFromYaml](#)

Deserializes a sequence of YAML strings into data model objects.

[Lights](#)

[Poke](#)

[SerializeToJson](#)

Serializes a sequence of data model objects into JSON strings.

[SerializeToYaml](#)

Serializes a sequence of data model objects into YAML strings.

[Setup](#)

[Speakers](#)

[SyringePumps](#)

## Enums

[CameraCodec](#)

[CameraType](#)

# Class Camera

Namespace: [Setup](#)

Assembly: Extensions.dll

```
[WorkflowElementCategory(ElementCategory.Source)]
[Combinator(MethodName = "Generate")]
public class Camera
```

## Inheritance

[object](#) ← Camera

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

# Constructors

## Camera()

```
public Camera()
```

## Camera(Camera)

```
protected Camera(Camera other)
```

## Parameters

other [Camera](#)

# Properties

## Codec

The codec used to save the video with FFMPEG.

```
[JsonProperty("codec", Required = Required.Always)]
[YamlMember(Alias = "codec")]
public CameraCodec Codec { get; set; }
```

Property Value

[CameraCodec](#)

## FramesPerSecond

The number of frames per second of the camera.

```
[JsonProperty("frames_per_second", Required = Required.Always)]
[YamlMember(Alias = "frames_per_second")]
public double FramesPerSecond { get; set; }
```

Property Value

[double](#)

## QpB

Quantization parameter for B-Frame. It only works with the h264\_amf encoder.

```
[JsonProperty("qp_b")]
[YamlMember(Alias = "qp_b")]
public int QpB { get; set; }
```

Property Value

[int](#)

## QpI

Quantization parameter for I-Frame. It only works with the h264\_amf encoder.

```
[JsonProperty("qp_i")]
[YamlMember(Alias = "qp_i")]
public int QpI { get; set; }
```

Property Value

[int ↗](#)

## QpP

Quantization parameter for P-Frame. It only works with the h264\_amf encoder.

```
[JsonProperty("qp_p")]
[YamlMember(Alias = "qp_p")]
public int QpP { get; set; }
```

Property Value

[int ↗](#)

## Resolution

The resolution with which the camera is recording the video.

```
[JsonProperty("resolution", Required = Required.Always)]
[YamlMember(Alias = "resolution")]
public string Resolution { get; set; }
```

Property Value

[string ↗](#)

## Type

The type of camera used in the setup.

```
[JsonProperty("type", Required = Required.Always)]
[YamlMember(Alias = "type")]
public CameraType Type { get; set; }
```

Property Value

[CameraType](#)

## UseCamera

Indicates whether the setup has a camera (true) or not (false).

```
[JsonProperty("use_camera", Required = Required.Always)]
[YamlMember(Alias = "use_camera")]
public bool UseCamera { get; set; }
```

Property Value

[bool](#)

## Methods

### Generate()

```
public IObservable<Camera> Generate()
```

Returns

[IObservable](#)<[Camera](#)>

### Generate<TSource>(IObservable<TSource>)

```
public IObservable<Camera> Generate<TSource>(IObservable<TSource> source)
```

Parameters

source [IObservable](#)<TSource>

Returns

[IObservable](#)<Camera>

Type Parameters

TSource

## PrintMembers(StringBuilder)

`protected virtual bool PrintMembers(StringBuilder stringBuilder)`

Parameters

`stringBuilder` [StringBuilder](#)

Returns

[bool](#)

## ToString()

Returns a string that represents the current object.

`public override string ToString()`

Returns

[string](#)

A string that represents the current object.

# Enum CameraCodec

Namespace: [Setup](#)

Assembly: Extensions.dll

```
[JsonConverter(typeof(StringEnumConverter))]  
public enum CameraCodec
```

## Fields

```
[EnumMember(Value = "h264")] [YamlMember(Alias = "h264")] H264 = 0
```

```
[EnumMember(Value = "h264_amf")] [YamlMember(Alias = "h264_amf")] H264Amf = 1
```

# Enum CameraType

Namespace: [Setup](#)

Assembly: Extensions.dll

```
[JsonConverter(typeof(StringEnumConverter))]  
public enum CameraType
```

## Fields

```
[EnumMember(Value = "FLIR")] [YamlMember(Alias = "FLIR")] FLIR = 1
```

```
[EnumMember(Value = "Point Grey")] [YamlMember(Alias = "Point Grey")] PointGrey = 0
```

# Class DeserializeFromJson

Namespace: [Setup](#)

Assembly: Extensions.dll

Deserializes a sequence of JSON strings into data model objects.

```
[WorkflowElementCategory(ElementCategory.Transform)]
public class DeserializeFromJson : SingleArgumentExpressionBuilder, IExpressionBuilder
```

Inheritance

[object](#) ← [ExpressionBuilder](#) ← [SingleArgumentExpressionBuilder](#) ← [DeserializeFromJson](#)

Implements

[IExpressionBuilder](#)

Inherited Members

[SingleArgumentExpressionBuilder.ArgumentRange](#) , [ExpressionBuilder.ToString\(\)](#) ,  
[ExpressionBuilder.Unwrap\(ExpressionBuilder\)](#) ,  
[ExpressionBuilder.GetWorkflowElement\(ExpressionBuilder\)](#) ,  
[ExpressionBuilder.GetVisualizerElement\(ExpressionBuilder\)](#) ,  
[ExpressionBuilder.GetVisualizerMappings\(ExpressionBuilder\)](#) ,  
[ExpressionBuilder.FromWorkflowElement\(object, ElementCategory\)](#) ,  
[ExpressionBuilder.GetElementDisplayName\(Type\)](#) ,  
[ExpressionBuilder.GetElementDisplayName\(object\)](#) ,  
[ExpressionBuilder.SelectMembers\(Expression, string\)](#) ,  
[ExpressionBuilder.GetArgumentAccess\(IEnumerable<Expression>, string\)](#) , [object.Equals\(object\)](#) ,  
[object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) , [object.GetHashCode\(\)](#) ,  
[object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

## Constructors

[DeserializeFromJson\(\)](#)

```
public DeserializeFromJson()
```

# Properties

## Type

```
public TypeMapping Type { get; set; }
```

## Property Value

[TypeMapping](#)

# Methods

## Build(IEnumerable<Expression>)

Constructs an [Expression](#) node from a collection of input arguments. The result can be chained with other builders in a workflow.

```
public override Expression Build(IEnumerable<Expression> arguments)
```

## Parameters

**arguments** [IEnumerable](#)<[Expression](#)>

A collection of [Expression](#) nodes representing the input arguments.

## Returns

[Expression](#)

The constructed [Expression](#) node.

# Class DeserializeFromYaml

Namespace: [Setup](#)

Assembly: Extensions.dll

Deserializes a sequence of YAML strings into data model objects.

```
[WorkflowElementCategory(ElementCategory.Transform)]
public class DeserializeFromYaml : SingleArgumentExpressionBuilder, IExpressionBuilder
```

Inheritance

[object](#) ← [ExpressionBuilder](#) ← [SingleArgumentExpressionBuilder](#) ← [DeserializeFromYaml](#)

Implements

[IExpressionBuilder](#)

Inherited Members

[SingleArgumentExpressionBuilder.ArgumentRange](#) , [ExpressionBuilder.ToString\(\)](#) ,  
[ExpressionBuilder.Unwrap\(ExpressionBuilder\)](#) ,  
[ExpressionBuilder.GetWorkflowElement\(ExpressionBuilder\)](#) ,  
[ExpressionBuilder.GetVisualizerElement\(ExpressionBuilder\)](#) ,  
[ExpressionBuilder.GetVisualizerMappings\(ExpressionBuilder\)](#) ,  
[ExpressionBuilder.FromWorkflowElement\(object, ElementCategory\)](#) ,  
[ExpressionBuilder.GetElementDisplayName\(Type\)](#) ,  
[ExpressionBuilder.GetElementDisplayName\(object\)](#) ,  
[ExpressionBuilder.SelectMembers\(Expression, string\)](#) ,  
[ExpressionBuilder.GetArgumentAccess\(IEnumerable<Expression>, string\)](#) , [object.Equals\(object\)](#) ,  
[object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) , [object.GetHashCode\(\)](#) ,  
[object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

## Constructors

### DeserializeFromYaml()

```
public DeserializeFromYaml()
```

# Properties

## Type

```
public TypeMapping Type { get; set; }
```

## Property Value

[TypeMapping](#)

# Methods

## Build(IEnumerable<Expression>)

Constructs an [Expression](#) node from a collection of input arguments. The result can be chained with other builders in a workflow.

```
public override Expression Build(IEnumerable<Expression> arguments)
```

## Parameters

**arguments** [IEnumerable](#)<[Expression](#)>

A collection of [Expression](#) nodes representing the input arguments.

## Returns

[Expression](#)

The constructed [Expression](#) node.

# Class Lights

Namespace: [Setup](#)

Assembly: Extensions.dll

```
[WorkflowElementCategory(ElementCategory.Source)]
[Combinator(MethodName = "Generate")]
public class Lights
```

## Inheritance

[object](#) ← Lights

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

# Constructors

## Lights()

```
public Lights()
```

## Lights(Lights)

```
protected Lights(Lights other)
```

## Parameters

other [Lights](#)

# Properties

## BoxPeriod

The period of the blinking of the box LED (ms).

```
[JsonProperty("box_period", Required = Required.Always)]
[YamlMember(Alias = "box_period")]
public double BoxPeriod { get; set; }
```

Property Value

[double](#) ↗

## FixationLight

Indicates whether the central poke LED should blink during fixation time (true) or not (false).

```
[JsonProperty("fixation_light", Required = Required.Always)]
[YamlMember(Alias = "fixation_light")]
public bool FixationLight { get; set; }
```

Property Value

[bool](#) ↗

## ItiLight

Indicates whether the box LED should turn of when the new trial is ready (true) or not (false).

```
[JsonProperty("iti_light", Required = Required.Always)]
[YamlMember(Alias = "iti_light")]
public bool ItiLight { get; set; }
```

Property Value

[bool](#) ↗

## PenaltyLight

Indicates whether the box LED should blink during penalty times (true) or not (false).

```
[JsonProperty("penalty_light", Required = Required.Always)]
[YamlMember(Alias = "penalty_light")]
public bool PenaltyLight { get; set; }
```

Property Value

[bool](#) ↗

## PokeLight

Indicates whether the central poke LED should turn of when the new trial is ready (true) or not (false).

```
[JsonProperty("poke_light", Required = Required.Always)]
[YamlMember(Alias = "poke_light")]
public bool PokeLight { get; set; }
```

Property Value

[bool](#) ↗

## PokePeriod

The period of the blinking of the central poke LED (ms).

```
[JsonProperty("poke_period", Required = Required.Always)]
[YamlMember(Alias = "poke_period")]
public double PokePeriod { get; set; }
```

Property Value

[double](#) ↗

## Methods

Generate()

```
public IObservable<Lights> Generate()
```

Returns

[IObservable](#)<[Lights](#)>

## Generate<TSource>(IObservable<TSource>)

```
public IObservable<Lights> Generate<TSource>(IObservable<TSource> source)
```

Parameters

source [IObservable](#)<TSource>

Returns

[IObservable](#)<[Lights](#)>

Type Parameters

TSource

## PrintMembers(StringBuilder)

```
protected virtual bool PrintMembers(StringBuilder stringBuilder)
```

Parameters

stringBuilder [StringBuilder](#)

Returns

[bool](#)

## ToString()

Returns a string that represents the current object.

```
public override string ToString()
```

Returns

[string](#)

A string that represents the current object.

# Class Poke

Namespace: [Setup](#)

Assembly: Extensions.dll

```
[WorkflowElementCategory(ElementCategory.Source)]
[Combinator(MethodName = "Generate")]
public class Poke
```

Inheritance

[object](#) ← Poke

Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

## Constructors

Poke()

```
public Poke()
```

Poke(Poke)

```
protected Poke(Poke other)
```

Parameters

other [Poke](#)

## Properties

LowToHigh

Indicates whether the poke is a low-to-high (true) or a high-to-low (false) device.

```
[JsonProperty("low_to_high", Required = Required.Always)]
[YamlMember(Alias = "low_to_high")]
public bool LowToHigh { get; set; }
```

Property Value

[bool](#)

## Methods

Generate()

```
public IObservable<Poke> Generate()
```

Returns

[IObservable](#)<[Poke](#)>

Generate<TSource>(IObservable<TSource>)

```
public IObservable<Poke> Generate<TSource>(IObservable<TSource> source)
```

Parameters

source [IObservable](#)<TSource>

Returns

[IObservable](#)<[Poke](#)>

Type Parameters

TSource

PrintMembers(StringBuilder)

```
protected virtual bool PrintMembers(StringBuilder stringBuilder)
```

Parameters

**stringBuilder** [StringBuilder](#)

Returns

[bool](#)

## ToString()

Returns a string that represents the current object.

```
public override string ToString()
```

Returns

[string](#)

A string that represents the current object.

# Class SerializeToJson

Namespace: [Setup](#)

Assembly: Extensions.dll

Serializes a sequence of data model objects into JSON strings.

```
[WorkflowElementCategory(ElementCategory.Transform)]
[Combinator]
public class SerializeToJson
```

Inheritance

[object](#) ← SerializeToJson

Inherited Members

[object.ToString\(\)](#) , [object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) ,
[object.ReferenceEquals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) ,
[object.MemberwiseClone\(\)](#)

## Properties

Formatting

```
public Formatting Formatting { get; set; }
```

Property Value

Formatting

## Methods

Process(IObservable<Camera>)

```
public IObservable<string> Process(IObservable<Camera> source)
```

Parameters

source [IObservable<Camera>](#)

Returns

[IObservable<string>](#)

## Process(IObservable<Lights>)

**public** IObservable<string> **Process**(IObservable<Lights> source)

Parameters

source [IObservable<Lights>](#)

Returns

[IObservable<string>](#)

## Process(IObservable<Poke>)

**public** IObservable<string> **Process**(IObservable<Poke> source)

Parameters

source [IObservable<Poke>](#)

Returns

[IObservable<string>](#)

## Process(IObservable<Setup>)

**public** IObservable<string> **Process**(IObservable<Setup> source)

Parameters

source [IObservable<Setup>](#)

Returns

[IObservable<string>](#)

## Process(IObservable<Speakers>)

public IObservable<string> Process(IObservable<Speakers> source)

Parameters

source [IObservable<Speakers>](#)

Returns

[IObservable<string>](#)

## Process(IObservable<SyringePumps>)

public IObservable<string> Process(IObservable<SyringePumps> source)

Parameters

source [IObservable<SyringePumps>](#)

Returns

[IObservable<string>](#)

# Class SerializeToYaml

Namespace: [Setup](#)

Assembly: Extensions.dll

Serializes a sequence of data model objects into YAML strings.

```
[WorkflowElementCategory(ElementCategory.Transform)]
[Combinator]
public class SerializeToYaml
```

## Inheritance

[object](#) ← SerializeToYaml

## Inherited Members

[object.ToString\(\)](#) , [object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) ,
[object.ReferenceEquals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) ,
[object.MemberwiseClone\(\)](#)

## Methods

### Process(IObservable<Camera>)

```
public IObservable<string> Process(IObservable<Camera> source)
```

#### Parameters

source [IObservable](#)<[Camera](#)>

#### Returns

[IObservable](#)<[string](#)>

### Process(IObservable<Lights>)

```
public IObservable<string> Process(IObservable<Lights> source)
```

Parameters

source [IObservable<Lights>](#)

Returns

[IObservable<string>](#)

## Process([IObservable<Poke>](#))

```
public IObservable<string> Process(IObservable<Poke> source)
```

Parameters

source [IObservable<Poke>](#)

Returns

[IObservable<string>](#)

## Process([IObservable<Setup>](#))

```
public IObservable<string> Process(IObservable<Setup> source)
```

Parameters

source [IObservable<Setup>](#)

Returns

[IObservable<string>](#)

## Process([IObservable<Speakers>](#))

```
public IObservable<string> Process(IObservable<Speakers> source)
```

Parameters

source [IObservable<Speakers>](#)

Returns

[IObservable<string>](#)

Process([IObservable<SyringePumps>](#))

```
public IObservable<string> Process(IObservable<SyringePumps> source)
```

Parameters

source [IObservable<SyringePumps>](#)

Returns

[IObservable<string>](#)

# Class Setup

Namespace: [Setup](#)

Assembly: Extensions.dll

```
[WorkflowElementCategory(ElementCategory.Source)]
[Combinator(MethodName = "Generate")]
public class Setup
```

Inheritance

[object](#) ← Setup

Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

## Constructors

Setup()

```
public Setup()
```

Setup(Setup)

```
protected Setup(Setup other)
```

Parameters

other [Setup](#)

## Properties

Camera

Contains parameters related to the camera.

```
[JsonProperty("camera", Required = Required.Always)]
[YamlMember(Alias = "camera")]
public Camera Camera { get; set; }
```

## Property Value

[Camera](#)

## CenterPoke

Contains parameters related to the center poke.

```
[JsonProperty("center_poke", Required = Required.Always)]
[YamlMember(Alias = "center_poke")]
public Poke CenterPoke { get; set; }
```

## Property Value

[Poke](#)

## LeftPoke

Contains parameters related to the left poke.

```
[JsonProperty("left_poke", Required = Required.Always)]
[YamlMember(Alias = "left_poke")]
public Poke LeftPoke { get; set; }
```

## Property Value

[Poke](#)

## Lights

Contains parameters related to the box and poke LEDs.

```
[JsonProperty("lights", Required = Required.Always)]
[YamlMember(Alias = "lights")]
public Lights Lights { get; set; }
```

## Property Value

[Lights](#)

## RightPoke

Contains parameters related to the right poke.

```
[JsonProperty("right_poke", Required = Required.Always)]
[YamlMember(Alias = "right_poke")]
public Poke RightPoke { get; set; }
```

## Property Value

[Poke](#)

## SetupId

The ID number of the setup.

```
[JsonProperty("setup_id", Required = Required.Always)]
[YamlMember(Alias = "setup_id")]
public int SetupId { get; set; }
```

## Property Value

[int](#)

## Sounds

The list containing the indexes where the non-short-duration sounds are saved in the Harp SoundCard.

```
[JsonProperty("sounds", Required = Required.Always)]
[YamlMember(Alias = "sounds")]
public List<int> Sounds { get; set; }
```

## Property Value

[List](#) <[int](#)>

## Speakers

Contains parameters related to the speakers.

```
[JsonProperty("speakers", Required = Required.Always)]
[YamlMember(Alias = "speakers")]
public Speakers Speakers { get; set; }
```

## Property Value

[Speakers](#)

## SyringePumps

Contains the parameters related to the SyringePumps.

```
[JsonProperty("syringe_pumps", Required = Required.Always)]
[YamlMember(Alias = "syringe_pumps")]
public SyringePumps SyringePumps { get; set; }
```

## Property Value

[SyringePumps](#)

## Methods

### Generate()

```
public IObservable<Setup> Generate()
```

Returns

[IObservable](#)<[Setup](#)>

## Generate<TSource>(IObservable<TSource>)

```
public IObservable<Setup> Generate<TSource>(IObservable<TSource> source)
```

Parameters

source [IObservable](#)<[TSource](#)>

Returns

[IObservable](#)<[Setup](#)>

Type Parameters

[TSource](#)

## PrintMembers(StringBuilder)

```
protected virtual bool PrintMembers(StringBuilder stringBuilder)
```

Parameters

stringBuilder [StringBuilder](#)

Returns

[bool](#)

## ToString()

Returns a string that represents the current object.

```
public override string ToString()
```

Returns

[string](#)

A string that represents the current object.

# Class Speakers

Namespace: [Setup](#)

Assembly: Extensions.dll

```
[WorkflowElementCategory(ElementCategory.Source)]
[Combinator(MethodName = "Generate")]
public class Speakers
```

## Inheritance

[object](#) ← Speakers

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

# Constructors

## Speakers()

```
public Speakers()
```

## Speakers(Speakers)

```
protected Speakers(Speakers other)
```

## Parameters

other [Speakers](#)

# Properties

## LeftIntercept

The intercept of the calibration curve of the left speaker.

```
[JsonProperty("left_intercept", Required = Required.Always)]
[YamlMember(Alias = "left_intercept")]
public double LeftIntercept { get; set; }
```

Property Value

[double ↗](#)

## LeftSlope

The slope of the calibration curve of the left speaker.

```
[JsonProperty("left_slope", Required = Required.Always)]
[YamlMember(Alias = "left_slope")]
public double LeftSlope { get; set; }
```

Property Value

[double ↗](#)

## RightIntercept

The intercept of the calibration curve of the right speaker.

```
[JsonProperty("right_intercept", Required = Required.Always)]
[YamlMember(Alias = "right_intercept")]
public double RightIntercept { get; set; }
```

Property Value

[double ↗](#)

## RightSlope

The slope of the calibration curve of the right speaker.

```
[JsonProperty("right_slope", Required = Required.Always)]
[YamlMember(Alias = "right_slope")]
public double RightSlope { get; set; }
```

Property Value

[double](#)

## Methods

Generate()

```
public IObservable<Speakers> Generate()
```

Returns

[IObservable](#)<[Speakers](#)>

Generate<TSource>(IObservable<TSource>)

```
public IObservable<Speakers> Generate<TSource>(IObservable<TSource> source)
```

Parameters

source [IObservable](#)<TSource>

Returns

[IObservable](#)<[Speakers](#)>

Type Parameters

TSource

PrintMembers(StringBuilder)

```
protected virtual bool PrintMembers(StringBuilder stringBuilder)
```

Parameters

**stringBuilder** [StringBuilder](#)

Returns

[bool](#)

## ToString()

Returns a string that represents the current object.

```
public override string ToString()
```

Returns

[string](#)

A string that represents the current object.

# Class SyringePumps

Namespace: [Setup](#)

Assembly: Extensions.dll

```
[WorkflowElementCategory(ElementCategory.Source)]
[Combinator(MethodName = "Generate")]
public class SyringePumps
```

## Inheritance

[object](#) ← SyringePumps

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

## Constructors

### SyringePumps()

```
public SyringePumps()
```

### SyringePumps(SyringePumps)

```
protected SyringePumps(SyringePumps other)
```

## Parameters

other [SyringePumps](#)

## Properties

### LeftIntercept

The intercept of the calibration curve of the left Harp SyringePump.

```
[JsonProperty("left_intercept", Required = Required.Always)]
[YamlMember(Alias = "left_intercept")]
public double LeftIntercept { get; set; }
```

Property Value

[double](#) ↗

## LeftSlope

The slope of the calibration curve of the left Harp SyringePump.

```
[JsonProperty("left_slope", Required = Required.Always)]
[YamlMember(Alias = "left_slope")]
public double LeftSlope { get; set; }
```

Property Value

[double](#) ↗

## NumPumps

Indicates the number of Harp SyringePumps used in the reward delivery system. If the system only has one pump, a water valve must be connected to lateralize the reward.

```
[JsonProperty("num_pumps", Required = Required.Always)]
[YamlMember(Alias = "num_pumps")]
public int NumPumps { get; set; }
```

Property Value

[int](#) ↗

## RightIntercept

The intercept of the calibration curve of the right Harp SyringePump.

```
[JsonProperty("right_intercept", Required = Required.Always)]
[YamlMember(Alias = "right_intercept")]
public double RightIntercept { get; set; }
```

Property Value

[double](#) ↗

## RightSlope

The slope of the calibration curve of the right Harp SyringePump.

```
[JsonProperty("right_slope", Required = Required.Always)]
[YamlMember(Alias = "right_slope")]
public double RightSlope { get; set; }
```

Property Value

[double](#) ↗

## UsePumps

Indicates whether the reward delivery system is active or not.

```
[JsonProperty("use_pumps", Required = Required.Always)]
[YamlMember(Alias = "use_pumps")]
public bool UsePumps { get; set; }
```

Property Value

[bool](#) ↗

## Methods

### Generate()

```
public IObservable<SyringePumps> Generate()
```

Returns

[IObservable](#)<[SyringePumps](#)>

## Generate<TSource>(IObservable<TSource>)

```
public IObservable<SyringePumps> Generate<TSource>(IObservable<TSource> source)
```

Parameters

source [IObservable](#)<TSource>

Returns

[IObservable](#)<[SyringePumps](#)>

Type Parameters

TSource

## PrintMembers(StringBuilder)

```
protected virtual bool PrintMembers(StringBuilder stringBuilder)
```

Parameters

stringBuilder [StringBuilder](#)

Returns

[bool](#)

## ToString()

Returns a string that represents the current object.

```
public override string ToString()
```

Returns

[string](#)

A string that represents the current object.

# Namespace Training

## Classes

[ABL](#)

[CriticalPerformance](#)

[DeserializeFromJson](#)

Deserializes a sequence of JSON strings into data model objects.

[DeserializeFromYaml](#)

Deserializes a sequence of YAML strings into data model objects.

[FixationTime](#)

[ILD](#)

[ITI](#)

[Level](#)

[PenaltyTimes](#)

[ReactionTime](#)

[SerializeToJson](#)

Serializes a sequence of data model objects into JSON strings.

[SerializeToYaml](#)

Serializes a sequence of data model objects into YAML strings.

[Sound](#)

[Training](#)

[TrialRepetition](#)

# Class ABL

Namespace: [Training](#)

Assembly: Extensions.dll

```
[WorkflowElementCategory(ElementCategory.Source)]  
[Combinator(MethodName = "Generate")]  
public class ABL
```

Inheritance

[object](#) ← ABL

Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

## Constructors

ABL()

```
public ABL()
```

ABL(ABL)

```
protected ABL(ABL other)
```

Parameters

other [ABL](#)

## Properties

AblList

The list of ABL values to be used in the task (dB SPL).

```
[JsonProperty("abl_list", Required = Required.Always)]
[YamlMember(Alias = "abl_list")]
public List<double> AbList { get; set; }
```

## Property Value

[List](#) <[double](#)>

## FixedAbl

The ABL value to use when use\_fixed\_abl from the training.json file is true (dB).

```
[JsonProperty("fixed_abl", Required = Required.Always)]
[YamlMember(Alias = "fixed_abl")]
public double FixedAbl { get; set; }
```

## Property Value

[double](#)

## UseFixedAbl

Indicates whether the fixed\_abl should be used in the fully lateralized trials (true) or not (false).

```
[JsonProperty("use_fixed_abl", Required = Required.Always)]
[YamlMember(Alias = "use_fixed_abl")]
public bool UseFixedAbl { get; set; }
```

## Property Value

[bool](#)

## Methods

### Generate()

```
public IObservable<ABL> Generate()
```

Returns

[IObservable](#)<ABL>

## Generate<TSource>(IObservable<TSource>)

```
public IObservable<ABL> Generate<TSource>(IObservable<TSource> source)
```

Parameters

source [IObservable](#)<TSource>

Returns

[IObservable](#)<ABL>

## Type Parameters

TSource

## PrintMembers(StringBuilder)

```
protected virtual bool PrintMembers(StringBuilder stringBuilder)
```

Parameters

stringBuilder [StringBuilder](#)

Returns

[bool](#)

## ToString()

Returns a string that represents the current object.

```
public override string ToString()
```

Returns

[string](#)

A string that represents the current object.

# Class CriticalPerformance

Namespace: [Training](#)

Assembly: Extensions.dll

```
[WorkflowElementCategory(ElementCategory.Source)]
[Combinator(MethodName = "Generate")]
public class CriticalPerformance
```

## Inheritance

[object](#) ← CriticalPerformance

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

## Constructors

### CriticalPerformance()

```
public CriticalPerformance()
```

### CriticalPerformance(CriticalPerformance)

```
protected CriticalPerformance(CriticalPerformance other)
```

## Parameters

other [CriticalPerformance](#)

## Properties

### UsePerformance

Indicates whether there is a minimum performance requirement to advance to the next block.

```
[JsonProperty("use_performance", Required = Required.Always)]
[YamlMember(Alias = "use_performance")]
public bool UsePerformance { get; set; }
```

Property Value

[bool](#)

## Value

The minimum correct answer ratio required to advance to the next block (if use\_performance is true).

```
[JsonProperty("value", Required = Required.Always)]
[YamlMember(Alias = "value")]
public double Value { get; set; }
```

Property Value

[double](#)

## Methods

### Generate()

```
public IObservable<CriticalPerformance> Generate()
```

Returns

[IObservable](#)<[CriticalPerformance](#)>

### Generate<TSource>(IObservable<TSource>)

```
public IObservable<CriticalPerformance> Generate<TSource>(IObservable<TSource> source)
```

Parameters

source [IObservable](#)<TSource>

Returns

[IObservable](#)<[CriticalPerformance](#)>

Type Parameters

TSource

## PrintMembers(StringBuilder)

`protected virtual bool PrintMembers(StringBuilder stringBuilder)`

Parameters

stringBuilder [StringBuilder](#)

Returns

[bool](#)

## ToString()

Returns a string that represents the current object.

`public override string ToString()`

Returns

[string](#)

A string that represents the current object.

# Class DeserializeFromJson

Namespace: [Training](#)

Assembly: Extensions.dll

Deserializes a sequence of JSON strings into data model objects.

```
[WorkflowElementCategory(ElementCategory.Transform)]
public class DeserializeFromJson : SingleArgumentExpressionBuilder, IExpressionBuilder
```

## Inheritance

[object](#) ← [ExpressionBuilder](#) ← [SingleArgumentExpressionBuilder](#) ← [DeserializeFromJson](#)

## Implements

[IExpressionBuilder](#)

## Inherited Members

[SingleArgumentExpressionBuilder.ArgumentRange](#) , [ExpressionBuilder.ToString\(\)](#) ,  
[ExpressionBuilder.Unwrap\(ExpressionBuilder\)](#) ,  
[ExpressionBuilder.GetWorkflowElement\(ExpressionBuilder\)](#) ,  
[ExpressionBuilder.GetVisualizerElement\(ExpressionBuilder\)](#) ,  
[ExpressionBuilder.GetVisualizerMappings\(ExpressionBuilder\)](#) ,  
[ExpressionBuilder.FromWorkflowElement\(object, ElementCategory\)](#) ,  
[ExpressionBuilder.GetElementDisplayName\(Type\)](#) ,  
[ExpressionBuilder.GetElementDisplayName\(object\)](#) ,  
[ExpressionBuilder.SelectMembers\(Expression, string\)](#) ,  
[ExpressionBuilder.GetArgumentAccess\(IEnumerable<Expression>, string\)](#) , [object.Equals\(object\)](#) ,  
[object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) , [object.GetHashCode\(\)](#) ,  
[object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

## Constructors

### DeserializeFromJson()

```
public DeserializeFromJson()
```

# Properties

## Type

```
public TypeMapping Type { get; set; }
```

## Property Value

[TypeMapping](#)

# Methods

## Build(IEnumerable<Expression>)

Constructs an [Expression](#) node from a collection of input arguments. The result can be chained with other builders in a workflow.

```
public override Expression Build(IEnumerable<Expression> arguments)
```

## Parameters

**arguments** [IEnumerable](#)<[Expression](#)>

A collection of [Expression](#) nodes representing the input arguments.

## Returns

[Expression](#)

The constructed [Expression](#) node.

# Class DeserializeFromYaml

Namespace: [Training](#)

Assembly: Extensions.dll

Deserializes a sequence of YAML strings into data model objects.

```
[WorkflowElementCategory(ElementCategory.Transform)]
public class DeserializeFromYaml : SingleArgumentExpressionBuilder, IExpressionBuilder
```

Inheritance

[object](#) ← [ExpressionBuilder](#) ← [SingleArgumentExpressionBuilder](#) ← [DeserializeFromYaml](#)

Implements

[IExpressionBuilder](#)

Inherited Members

[SingleArgumentExpressionBuilder.ArgumentRange](#) , [ExpressionBuilder.ToString\(\)](#) ,  
[ExpressionBuilder.Unwrap\(ExpressionBuilder\)](#) ,  
[ExpressionBuilder.GetWorkflowElement\(ExpressionBuilder\)](#) ,  
[ExpressionBuilder.GetVisualizerElement\(ExpressionBuilder\)](#) ,  
[ExpressionBuilder.GetVisualizerMappings\(ExpressionBuilder\)](#) ,  
[ExpressionBuilder.FromWorkflowElement\(object, ElementCategory\)](#) ,  
[ExpressionBuilder.GetElementDisplayName\(Type\)](#) ,  
[ExpressionBuilder.GetElementDisplayName\(object\)](#) ,  
[ExpressionBuilder.SelectMembers\(Expression, string\)](#) ,  
[ExpressionBuilder.GetArgumentAccess\(IEnumerable<Expression>, string\)](#) , [object.Equals\(object\)](#) ,  
[object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) , [object.GetHashCode\(\)](#) ,  
[object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

## Constructors

### DeserializeFromYaml()

```
public DeserializeFromYaml()
```

# Properties

## Type

```
public TypeMapping Type { get; set; }
```

## Property Value

[TypeMapping](#)

# Methods

## Build(IEnumerable<Expression>)

Constructs an [Expression](#) node from a collection of input arguments. The result can be chained with other builders in a workflow.

```
public override Expression Build(IEnumerable<Expression> arguments)
```

## Parameters

**arguments** [IEnumerable](#)<[Expression](#)>

A collection of [Expression](#) nodes representing the input arguments.

## Returns

[Expression](#)

The constructed [Expression](#) node.

# Class FixationTime

Namespace: [Training](#)

Assembly: Extensions.dll

```
[WorkflowElementCategory(ElementCategory.Source)]
[Combinator(MethodName = "Generate")]
public class FixationTime
```

## Inheritance

[object](#) ← FixationTime

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

# Constructors

## FixationTime()

```
public FixationTime()
```

## FixationTime(FixationTime)

```
protected FixationTime(FixationTime other)
```

## Parameters

other [FixationTime](#)

# Properties

## OptoExpMean

The mean value of the random part of the optogenetics onset time (ms), which follows an exponential distribution.

```
[JsonProperty("opto_exp_mean", Required = Required.Always)]
[YamlMember(Alias = "opto_exp_mean")]
public double OptoExpMean { get; set; }
```

Property Value

[double](#)

## SoundExpMean

The mean value of the random part of the sound onset time (ms), which follows an exponential distribution.

```
[JsonProperty("sound_exp_mean", Required = Required.Always)]
[YamlMember(Alias = "sound_exp_mean")]
public double SoundExpMean { get; set; }
```

Property Value

[double](#)

## Methods

### Generate()

```
public IObservable<FixationTime> Generate()
```

Returns

[IObservable](#) <[FixationTime](#)>

### Generate<TSource>(IObservable<TSource>)

```
public IObservable<FixationTime> Generate<TSource>(IObservable<TSource> source)
```

Parameters

source [IObservable](#)<TSource>

Returns

[IObservable](#)<FixationTime>

Type Parameters

TSource

## PrintMembers(StringBuilder)

```
protected virtual bool PrintMembers(StringBuilder stringBuilder)
```

Parameters

stringBuilder [StringBuilder](#)

Returns

[bool](#)

## ToString()

Returns a string that represents the current object.

```
public override string ToString()
```

Returns

[string](#)

A string that represents the current object.

# Class ILD

Namespace: [Training](#)

Assembly: Extensions.dll

```
[WorkflowElementCategory(ElementCategory.Source)]
[Combinator(MethodName = "Generate")]
public class ILD
```

## Inheritance

[object](#) ← ILD

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

# Constructors

## ILD()

```
public ILD()
```

## ILD(ILD)

```
protected ILD(ILD other)
```

## Parameters

other [ILD](#)

# Properties

## LogBase

The base of the logarithm.

```
[JsonProperty("log_base", Required = Required.Always)]
[YamlMember(Alias = "log_base")]
public double LogBase { get; set; }
```

Property Value

[double](#)

## NumSteps

The number of |ILD| values.

```
[JsonProperty("num_steps", Required = Required.Always)]
[YamlMember(Alias = "num_steps")]
public int NumSteps { get; set; }
```

Property Value

[int](#)

## StepSize

The separation between two consecutive |ILD| values.

```
[JsonProperty("step_size", Required = Required.Always)]
[YamlMember(Alias = "step_size")]
public double StepSize { get; set; }
```

Property Value

[double](#)

## UseLog

Indicates whether to use logarithmic steps between consecutive ILD values.

```
[JsonProperty("use_log", Required = Required.Always)]
[YamlMember(Alias = "use_log")]
public bool UseLog { get; set; }
```

Property Value

[bool](#)

## Methods

Generate()

```
public IObservable<ILD> Generate()
```

Returns

[IObservable](#)<ILD>

Generate<TSource>(IObservable<TSource>)

```
public IObservable<ILD> Generate<TSource>(IObservable<TSource> source)
```

Parameters

source [IObservable](#)<TSource>

Returns

[IObservable](#)<ILD>

Type Parameters

TSource

PrintMembers(StringBuilder)

```
protected virtual bool PrintMembers(StringBuilder stringBuilder)
```

Parameters

**stringBuilder** [StringBuilder](#)

Returns

[bool](#)

## ToString()

Returns a string that represents the current object.

```
public override string ToString()
```

Returns

[string](#)

A string that represents the current object.

# Class ITI

Namespace: [Training](#)

Assembly: Extensions.dll

```
[WorkflowElementCategory(ElementCategory.Source)]
[Combinator(MethodName = "Generate")]
public class ITI
```

## Inheritance

[object](#) ← ITI

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

# Constructors

## ITI()

```
public ITI()
```

## ITI(ITI)

```
protected ITI(ITI other)
```

## Parameters

other [ITI](#)

# Properties

## CanReset

Indicates whether the ITI partially resets if the animal tries to poke in the CNP before it ends.

```
[JsonProperty("can_reset", Required = Required.Always)]
[YamlMember(Alias = "can_reset")]
public bool CanReset { get; set; }
```

Property Value

[bool](#)

## Value

The intended ITI duration (s).

```
[JsonProperty("value", Required = Required.Always)]
[YamlMember(Alias = "value")]
public double Value { get; set; }
```

Property Value

[double](#)

## Methods

### Generate()

```
public IObservable<ITI> Generate()
```

Returns

[IObservable](#)<[ITI](#)>

### Generate<TSource>(IObservable<TSource>)

```
public IObservable<ITI> Generate<TSource>(IObservable<TSource> source)
```

Parameters

`source` [IObservable](#)<TSource>

Returns

[IObservable](#)<ITI>

Type Parameters

TSource

## PrintMembers(StringBuilder)

`protected virtual bool PrintMembers(StringBuilder stringBuilder)`

Parameters

`stringBuilder` [StringBuilder](#)

Returns

[bool](#)

## ToString()

Returns a string that represents the current object.

`public override string ToString()`

Returns

[string](#)

A string that represents the current object.

# Class Level

Namespace: [Training](#)

Assembly: Extensions.dll

```
[WorkflowElementCategory(ElementCategory.Source)]
[Combinator(MethodName = "Generate")]
public class Level
```

## Inheritance

[object](#) ← Level

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

# Constructors

## Level()

```
public Level()
```

## Level(Level)

```
protected Level(Level other)
```

## Parameters

other [Level](#)

# Properties

## CriticalPerformance

Contains the critical performance for the animal to progress to the next level and whether this feature is used or not.

```
[JsonProperty("critical_performance", Required = Required.Always)]
[YamlMember(Alias = "critical_performance")]
public CriticalPerformance CriticalPerformance { get; set; }
```

Property Value

[CriticalPerformance](#)

## FixationTime

Contains parameters related to the fixation time.

```
[JsonProperty("fixation_time", Required = Required.Always)]
[YamlMember(Alias = "fixation_time")]
public FixationTime FixationTime { get; set; }
```

Property Value

[FixationTime](#)

## Iti

Contains the parameters related to the Inter-trial Interval.

```
[JsonProperty("iti", Required = Required.Always)]
[YamlMember(Alias = "iti")]
public ITI Iti { get; set; }
```

Property Value

[ITI](#)

## LevelId

The ID number of the training level.

```
[JsonProperty("level_id", Required = Required.Always)]
[YamlMember(Alias = "level_id")]
public int LevelId { get; set; }
```

Property Value

[int ↗](#)

## MaxAborts

NOT IMPLEMENTED!!

```
[JsonProperty("max_aborts", Required = Required.Always)]
[YamlMember(Alias = "max_aborts")]
public int MaxAborts { get; set; }
```

Property Value

[int ↗](#)

## MaxMt

The maximum allowed movement time (s).

```
[JsonProperty("max_mt", Required = Required.Always)]
[YamlMember(Alias = "max_mt")]
public double MaxMt { get; set; }
```

Property Value

[double ↗](#)

## MaxWait

The maximum allowed time to start the trial (s).

```
[JsonProperty("max_wait", Required = Required.Always)]
[YamlMember(Alias = "max_wait")]
public double MaxWait { get; set; }
```

## Property Value

[double](#)

## PenaltyTimes

Contains the penalty times for different occasions.

```
[JsonProperty("penalty_times", Required = Required.Always)]
[YamlMember(Alias = "penalty_times")]
public PenaltyTimes PenaltyTimes { get; set; }
```

## Property Value

[PenaltyTimes](#)

## ReactionTime

Contains parameters related to the reaction time.

```
[JsonProperty("reaction_time", Required = Required.Always)]
[YamlMember(Alias = "reaction_time")]
public ReactionTime ReactionTime { get; set; }
```

## Property Value

[ReactionTime](#)

## Sound

Contains the sound-related parameters.

```
[JsonProperty("sound", Required = Required.Always)]
[YamlMember(Alias = "sound")]
public Sound Sound { get; set; }
```

Property Value

[Sound](#)

## Speakers

Indicates whether the animal is using headphones (true) or box speakers (false). At the moment, this parameter doesn't modify the behavior of the task. Perhaps in the future, it might be possible to input the calibration curves of both the box speakers and the headphones so that this parameter switches to the correct calibration curves.

```
[JsonProperty("speakers", Required = Required.Always)]
[YamlMember(Alias = "speakers")]
public bool Speakers { get; set; }
```

Property Value

[bool](#)

## TrialRepetition

Contains the conditions for which a certain trial should be repeated.

```
[JsonProperty("trial_repetition", Required = Required.Always)]
[YamlMember(Alias = "trial_repetition")]
public TrialRepetition TrialRepetition { get; set; }
```

Property Value

[TrialRepetition](#)

## TrialsPerBlock

The number of trials that a block of the current level has.

```
[JsonProperty("trials_per_block", Required = Required.Always)]
[YamlMember(Alias = "trials_per_block")]
public int TrialsPerBlock { get; set; }
```

Property Value

[int](#)

## Methods

Generate()

```
public IObservable<Level> Generate()
```

Returns

[IObservable](#)<Level>

Generate<TSource>(IObservable<TSource>)

```
public IObservable<Level> Generate<TSource>(IObservable<TSource> source)
```

Parameters

source [IObservable](#)<TSource>

Returns

[IObservable](#)<Level>

Type Parameters

TSource

## PrintMembers(StringBuilder)

```
protected virtual bool PrintMembers(StringBuilder stringBuilder)
```

Parameters

`stringBuilder` [StringBuilder](#)

Returns

`bool`

## ToString()

Returns a string that represents the current object.

```
public override string ToString()
```

Returns

`string`

A string that represents the current object.

# Class PenaltyTimes

Namespace: [Training](#)

Assembly: Extensions.dll

```
[WorkflowElementCategory(ElementCategory.Source)]
[Combinator(MethodName = "Generate")]
public class PenaltyTimes
```

## Inheritance

[object](#) ← PenaltyTimes

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

## Constructors

### PenaltyTimes()

```
public PenaltyTimes()
```

### PenaltyTimes(PenaltyTimes)

```
protected PenaltyTimes(PenaltyTimes other)
```

## Parameters

other [PenaltyTimes](#)

## Properties

### Abort

The penalty time to be applied when the animal aborts a trial (except if it's a fixation abort).

```
[JsonProperty("abort", Required = Required.Always)]
[YamlMember(Alias = "abort")]
public double Abort { get; set; }
```

Property Value

[double ↗](#)

## FixationAbort

The penalty time to be applied in case of a fixation abort.

```
[JsonProperty("fixation_abort", Required = Required.Always)]
[YamlMember(Alias = "fixation_abort")]
public double FixationAbort { get; set; }
```

Property Value

[double ↗](#)

## Incorrect

The penalty time to be applied when the animal answers incorrectly.

```
[JsonProperty("incorrect", Required = Required.Always)]
[YamlMember(Alias = "incorrect")]
public double Incorrect { get; set; }
```

Property Value

[double ↗](#)

## Methods

Generate()

```
public IObservable<PenaltyTimes> Generate()
```

Returns

[IObservable](#)<[PenaltyTimes](#)>

## Generate<TSource>(IObservable<TSource>)

```
public IObservable<PenaltyTimes> Generate<TSource>(IObservable<TSource> source)
```

Parameters

source [IObservable](#)<TSource>

Returns

[IObservable](#)<[PenaltyTimes](#)>

Type Parameters

TSource

## PrintMembers(StringBuilder)

```
protected virtual bool PrintMembers(StringBuilder stringBuilder)
```

Parameters

stringBuilder [StringBuilder](#)

Returns

[bool](#)

## ToString()

Returns a string that represents the current object.

```
public override string ToString()
```

Returns

[string](#)

A string that represents the current object.

# Class ReactionTime

Namespace: [Training](#)

Assembly: Extensions.dll

```
[WorkflowElementCategory(ElementCategory.Source)]
[Combinator(MethodName = "Generate")]
public class ReactionTime
```

## Inheritance

[object](#) ← ReactionTime

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

## Constructors

### ReactionTime()

```
public ReactionTime()
```

### ReactionTime(ReactionTime)

```
protected ReactionTime(ReactionTime other)
```

## Parameters

other [ReactionTime](#)

## Properties

### TurnSoundOff

Indicates whether the sound should stop playing when the animal leaves the central poke.

```
[JsonProperty("turn_sound_off", Required = Required.Always)]
[YamlMember(Alias = "turn_sound_off")]
public bool TurnSoundOff { get; set; }
```

Property Value

[bool](#)

## UseMaxRt

Indicates whether there is a maximum reaction time (true) or not (false).

```
[JsonProperty("use_max_rt", Required = Required.Always)]
[YamlMember(Alias = "use_max_rt")]
public bool UseMaxRt { get; set; }
```

Property Value

[bool](#)

## UseMinRt

Indicates whether there is a minimum reaction time (true) or not (false).

```
[JsonProperty("use_min_rt", Required = Required.Always)]
[YamlMember(Alias = "use_min_rt")]
public bool UseMinRt { get; set; }
```

Property Value

[bool](#)

## Methods

### Generate()

```
public IObservable<ReactionTime> Generate()
```

Returns

[IObservable](#)<[ReactionTime](#)>

## Generate<TSource>(IObservable<TSource>)

```
public IObservable<ReactionTime> Generate<TSource>(IObservable<TSource> source)
```

Parameters

source [IObservable](#)<TSource>

Returns

[IObservable](#)<[ReactionTime](#)>

Type Parameters

TSource

## PrintMembers(StringBuilder)

```
protected virtual bool PrintMembers(StringBuilder stringBuilder)
```

Parameters

stringBuilder [StringBuilder](#)

Returns

[bool](#)

## ToString()

Returns a string that represents the current object.

```
public override string ToString()
```

Returns

[string](#)

A string that represents the current object.

# Class SerializeToJson

Namespace: [Training](#)

Assembly: Extensions.dll

Serializes a sequence of data model objects into JSON strings.

```
[WorkflowElementCategory(ElementCategory.Transform)]
[Combinator]
public class SerializeToJson
```

Inheritance

[object](#) ← SerializeToJson

Inherited Members

[object.ToString\(\)](#) , [object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) ,
[object.ReferenceEquals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) ,
[object.MemberwiseClone\(\)](#)

## Properties

### Formatting

```
public Formatting Formatting { get; set; }
```

Property Value

Formatting

## Methods

### Process(IObservable<ABL>)

```
public IObservable<string> Process(IObservable<ABL> source)
```

Parameters

source [IObservable<ABL>](#)

Returns

[IObservable<string>](#)

## Process([IObservable<CriticalPerformance>](#))

```
public IObservable<string> Process(IObservable<CriticalPerformance> source)
```

Parameters

source [IObservable<CriticalPerformance>](#)

Returns

[IObservable<string>](#)

## Process([IObservable<FixationTime>](#))

```
public IObservable<string> Process(IObservable<FixationTime> source)
```

Parameters

source [IObservable<FixationTime>](#)

Returns

[IObservable<string>](#)

## Process([IObservable<ILD>](#))

```
public IObservable<string> Process(IObservable<ILD> source)
```

Parameters

source [IObservable<ILD>](#)

Returns

[IObservable<string>](#)

## Process(IObservable<ITI>)

public IObservable<string> Process(IObservable<ITI> source)

Parameters

source [IObservable<ITI>](#)

Returns

[IObservable<string>](#)

## Process(IObservable<Level>)

public IObservable<string> Process(IObservable<Level> source)

Parameters

source [IObservable<Level>](#)

Returns

[IObservable<string>](#)

## Process(IObservable<PenaltyTimes>)

public IObservable<string> Process(IObservable<PenaltyTimes> source)

Parameters

source [IObservable<PenaltyTimes>](#)

Returns

[IObservable<string>](#)

## Process(IObservable<ReactionTime>)

public IObservable<string> Process(IObservable<ReactionTime> source)

Parameters

source [IObservable<ReactionTime>](#)

Returns

[IObservable<string>](#)

## Process(IObservable<Sound>)

public IObservable<string> Process(IObservable<Sound> source)

Parameters

source [IObservable<Sound>](#)

Returns

[IObservable<string>](#)

## Process(IObservable<Training>)

public IObservable<string> Process(IObservable<Training> source)

Parameters

source [IObservable<Training>](#)

Returns

[IObservable<string>](#)

Process([IObservable<TrialRepetition>](#))

```
public IObservable<string> Process(IObservable<TrialRepetition> source)
```

Parameters

source [IObservable<TrialRepetition>](#)

Returns

[IObservable<string>](#)

# Class SerializeToYaml

Namespace: [Training](#)

Assembly: Extensions.dll

Serializes a sequence of data model objects into YAML strings.

```
[WorkflowElementCategory(ElementCategory.Transform)]
[Combinator]
public class SerializeToYaml
```

## Inheritance

[object](#) ← SerializeToYaml

## Inherited Members

[object.ToString\(\)](#) , [object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) ,
[object.ReferenceEquals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) ,
[object.MemberwiseClone\(\)](#)

## Methods

### Process(IObservable<ABL>)

```
public IObservable<string> Process(IObservable<ABL> source)
```

#### Parameters

source [IObservable](#)<[ABL](#)>

#### Returns

[IObservable](#)<[string](#)>

### Process(IObservable<CriticalPerformance>)

```
public IObservable<string> Process(IObservable<CriticalPerformance> source)
```

Parameters

source [IObservable<CriticalPerformance>](#)

Returns

[IObservable<string>](#)

## Process([IObservable<FixationTime>](#))

```
public IObservable<string> Process(IObservable<FixationTime> source)
```

Parameters

source [IObservable<FixationTime>](#)

Returns

[IObservable<string>](#)

## Process([IObservable<ILD>](#))

```
public IObservable<string> Process(IObservable<ILD> source)
```

Parameters

source [IObservable<ILD>](#)

Returns

[IObservable<string>](#)

## Process([IObservable<ITI>](#))

```
public IObservable<string> Process(IObservable<ITI> source)
```

Parameters

source [IObservable<ITI>](#)

Returns

[IObservable<string>](#)

## Process([IObservable<Level>](#))

```
public IObservable<string> Process(IObservable<Level> source)
```

Parameters

source [IObservable<Level>](#)

Returns

[IObservable<string>](#)

## Process([IObservable<PenaltyTimes>](#))

```
public IObservable<string> Process(IObservable<PenaltyTimes> source)
```

Parameters

source [IObservable<PenaltyTimes>](#)

Returns

[IObservable<string>](#)

## Process([IObservable<ReactionTime>](#))

```
public IObservable<string> Process(IObservable<ReactionTime> source)
```

Parameters

source [IObservable<ReactionTime>](#)

Returns

[IObservable<string>](#)

## Process(IObservable<Sound>)

```
public IObservable<string> Process(IObservable<Sound> source)
```

Parameters

source [IObservable<Sound>](#)

Returns

[IObservable<string>](#)

## Process(IObservable<Training>)

```
public IObservable<string> Process(IObservable<Training> source)
```

Parameters

source [IObservable<Training>](#)

Returns

[IObservable<string>](#)

## Process(IObservable<TrialRepetition>)

```
public IObservable<string> Process(IObservable<TrialRepetition> source)
```

## Parameters

source [IObservable<TrialRepetition>](#)

## Returns

[IObservable<string>](#)

# Class Sound

Namespace: [Training](#)

Assembly: Extensions.dll

```
[WorkflowElementCategory(ElementCategory.Source)]
[Combinator(MethodName = "Generate")]
public class Sound
```

## Inheritance

[object](#) ← Sound

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

## Constructors

### Sound()

```
public Sound()
```

### Sound(Sound)

```
protected Sound(Sound other)
```

## Parameters

other [Sound](#)

## Properties

### Abl

Contains the ABL-related parameters.

```
[JsonProperty("abl", Required = Required.Always)]
[YamlMember(Alias = "abl")]
public ABL Abl { get; set; }
```

Property Value

[ABL](#)

## FullyLateralizedProbability

In the fully lateralized variation of the task, the real ILD value corresponds to the input ABL and the real ABL value corresponds to half of it. For example, if the input ABL value is 50 db SPL, one of the speakers will produce a sound of 50 dB SPL and the other one will produce a sound of 0 dB SPL. This parameter indicates the probability of a trial being fully lateralized in a given training level.

```
[JsonProperty("fully_lateralized_probability", Required = Required.Always)]
[YamlMember(Alias = "fully_lateralized_probability")]
public double FullyLateralizedProbability { get; set; }
```

Property Value

[double](#) ↗

## ILD

Contains the ILD-related parameters.

```
[JsonProperty("ild", Required = Required.Always)]
[YamlMember(Alias = "ild")]
public ILD ILd { get; set; }
```

Property Value

[ILD](#)

## Methods

## Generate()

```
public IObservable<Sound> Generate()
```

Returns

[IObservable](#) <Sound>

## Generate<TSource>(IObservable<TSource>)

```
public IObservable<Sound> Generate<TSource>(IObservable<TSource> source)
```

Parameters

source [IObservable](#) <TSource>

Returns

[IObservable](#) <Sound>

Type Parameters

TSource

## PrintMembers(StringBuilder)

```
protected virtual bool PrintMembers(StringBuilder stringBuilder)
```

Parameters

stringBuilder [StringBuilder](#)

Returns

[bool](#)

## ToString()

Returns a string that represents the current object.

```
public override string ToString()
```

Returns

string ↗

A string that represents the current object.

# Class Training

Namespace: [Training](#)

Assembly: Extensions.dll

```
[WorkflowElementCategory(ElementCategory.Source)]
[Combinator(MethodName = "Generate")]
public class Training
```

## Inheritance

[object](#) ← Training

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

# Constructors

## Training()

```
public Training()
```

## Training(Training)

```
protected Training(Training other)
```

## Parameters

other [Training](#)

# Properties

## Levels

The list containing the parameters to be used for each training level.

```
[JsonProperty("levels", Required = Required.Always)]
[YamlMember(Alias = "levels")]
public List<Level> Levels { get; set; }
```

Property Value

[List](#) <[Level](#)>

## Methods

Generate()

```
public IObservable<Training> Generate()
```

Returns

[IObservable](#) <[Training](#)>

Generate<TSource>(IObservable<TSource>)

```
public IObservable<Training> Generate<TSource>(IObservable<TSource> source)
```

Parameters

source [IObservable](#) <TSource>

Returns

[IObservable](#) <[Training](#)>

Type Parameters

TSource

PrintMembers(StringBuilder)

```
protected virtual bool PrintMembers(StringBuilder stringBuilder)
```

Parameters

**stringBuilder** [StringBuilder](#)

Returns

[bool](#)

## ToString()

Returns a string that represents the current object.

```
public override string ToString()
```

Returns

[string](#)

A string that represents the current object.

# Class TrialRepetition

Namespace: [Training](#)

Assembly: Extensions.dll

```
[WorkflowElementCategory(ElementCategory.Source)]
[Combinator(MethodName = "Generate")]
public class TrialRepetition
```

## Inheritance

[object](#) ← TrialRepetition

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.ReferenceEquals\(object, object\)](#) ,  
[object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#)

# Constructors

## TrialRepetition()

```
public TrialRepetition()
```

## TrialRepetition(TrialRepetition)

```
protected TrialRepetition(TrialRepetition other)
```

## Parameters

other [TrialRepetition](#)

# Properties

## RepeatAborts

Indicates whether the stimulus is repeated after aborts.

```
[JsonProperty("repeat_aborts", Required = Required.Always)]
[YamlMember(Alias = "repeat_aborts")]
public bool RepeatAborts { get; set; }
```

Property Value

[bool](#) ↗

## RepeatErrors

Indicates whether the stimulus is repeated after incorrect responses.

```
[JsonProperty("repeat_errors", Required = Required.Always)]
[YamlMember(Alias = "repeat_errors")]
public bool RepeatErrors { get; set; }
```

Property Value

[bool](#) ↗

## RepeatFixTime

Indicates whether the fixation time is repeated after aborts.

```
[JsonProperty("repeat_fix_time", Required = Required.Always)]
[YamlMember(Alias = "repeat_fix_time")]
public bool RepeatFixTime { get; set; }
```

Property Value

[bool](#) ↗

## Methods

Generate()

```
public IObservable<TrialRepetition> Generate()
```

Returns

[IObservable](#)<[TrialRepetition](#)>

## Generate<TSource>(IObservable<TSource>)

```
public IObservable<TrialRepetition> Generate<TSource>(IObservable<TSource> source)
```

Parameters

source [IObservable](#)<TSource>

Returns

[IObservable](#)<[TrialRepetition](#)>

Type Parameters

TSource

## PrintMembers(StringBuilder)

```
protected virtual bool PrintMembers(StringBuilder stringBuilder)
```

Parameters

stringBuilder [StringBuilder](#)

Returns

[bool](#)

## ToString()

Returns a string that represents the current object.

```
public override string ToString()
```

Returns

[string](#)

A string that represents the current object.