

Objects (here 6 as example)

**Input container**  
(can't be modified)

1	2	3	4	5	6
---	---	---	---	---	---

Shallow  
Copies



**Nominal**

1	2	3	4	5	6
---	---	---	---	---	---

**Systematic  
variations**  
(Here 2 as  
example)

1	2	3	4	5	6
---	---	---	---	---	---

1	2	3	4	5	6
---	---	---	---	---	---

**Summary:**

- Shallow copies are made of the input (for nominal + systematic variations).

Objects (here 6 as example)

**Input container**  
(can't be modified)

1	2	3	4	5	6
---	---	---	---	---	---

Shallow  
Copies



**Nominal**

**Systematic  
variations**  
(Here 2 as  
example)



1	2	3	4	5	6
1	2	3	4	5	6
1	2	3	4	5	6

Calibration +  
Selection applied:

 Pass selection

 Fail selection

In this example, object 5  
doesn't pass the selection  
for nominal or any variation  
- it will not be stored!

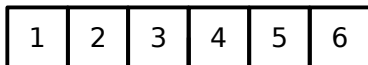
### Summary:

- Shallow copies are made of the input (for nominal + systematic variations).
- These are calibrated and the object selection is applied.

Objects (here 6 as example)

In this example, object 5 is not stored!

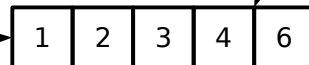
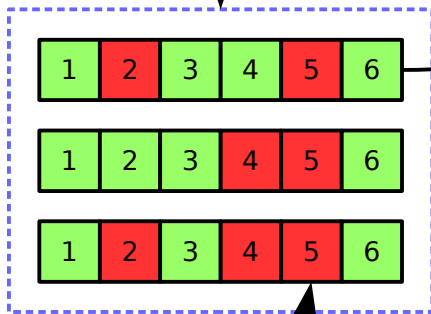
**Input container**  
(can't be modified)



Shallow  
Copies

**Nominal**

**Systematic  
variations**  
(Here 2 as  
example)



**Nominal output  
container** - new  
memory allocation for  
each object. Stored in  
output xAOD.

Calibration +  
Selection applied:

Pass selection

Fail selection

In this example, object 5  
doesn't pass the selection  
for nominal or any variation  
- it will not be stored!

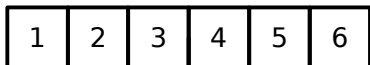
### Summary:

- Shallow copies are made of the input (for nominal + systematic variations).
- These are calibrated and the object selection is applied.
- For the nominal output, new memory allocations are made based on selected objects (across variations).

Objects (here 6 as example)

In this example, object 5 is not stored!

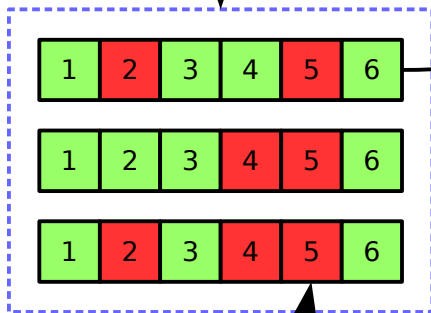
**Input container**  
(can't be modified)



Shallow  
Copies

**Nominal**

**Systematic  
variations**  
(Here 2 as  
example)

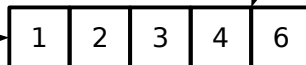


Calibration +  
Selection applied:

Pass selection  
Fail selection

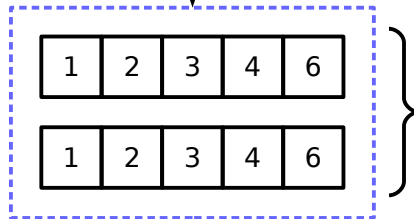
In this example, object 5  
doesn't pass the selection  
for nominal or any variation  
- it will not be stored!

**Nominal output  
container** - new  
memory allocation for  
each object. Stored in  
output xAOD.



Shallow  
Copies

**Systematic variations  
output containers.**  
Stored in output xAOD.



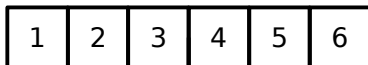
### Summary:

- Shallow copies are made of the input (for nominal + systematic variations).
- These are calibrated and the object selection is applied.
- For the nominal output, new memory allocations are made based on selected objects (across variations).
- For the systematic variations, shallow copies are made of the nominal output.

Objects (here 6 as example)

In this example, object 5 is not stored!

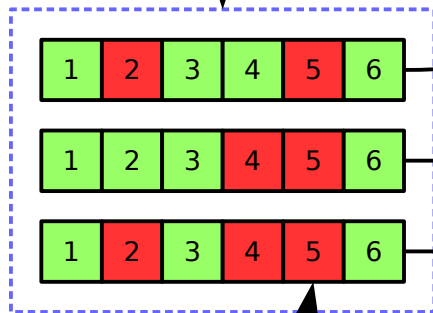
**Input container**  
(can't be modified)



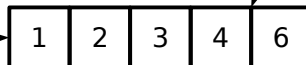
Shallow  
Copies

**Nominal**

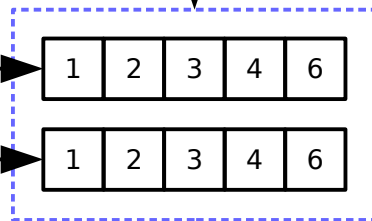
**Systematic  
variations**  
(Here 2 as  
example)



Properties are  
copied across



Shallow  
Copies



**Nominal output  
container** - new  
memory allocation for  
each object. Stored in  
output xAOD.

**Systematic variations  
output containers.**  
Stored in output xAOD.

Calibration +  
Selection applied:

Pass selection

Fail selection

In this example, object 5  
doesn't pass the selection  
for nominal or any variation  
- it will not be stored!

### Summary:

- Shallow copies are made of the input (for nominal + systematic variations).
- These are calibrated and the object selection is applied.
- For the nominal output, new memory allocations are made based on selected objects (across variations).
- For the systematic variations, shallow copies are made of the nominal output.
- Properties are copied from calibrated shallow copies to output containers.