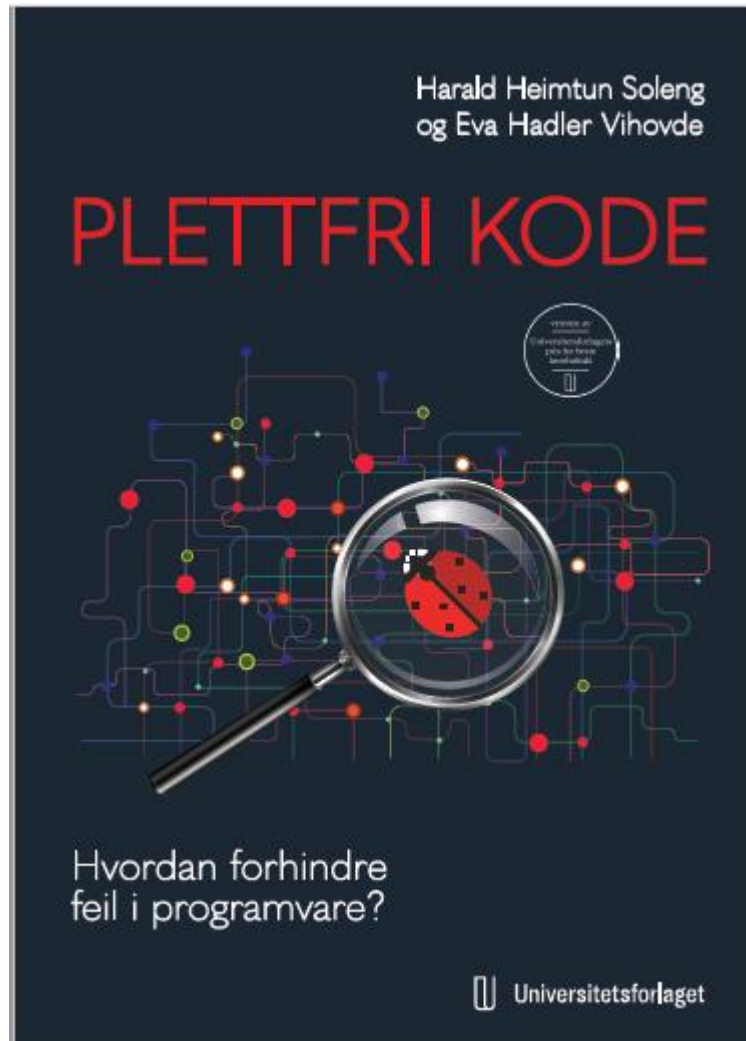


# Testing av programvare



Eva Hadler Vihovde

<https://www.universitetsforlaget.no/lytefri-koding>

# Testguide for studentprosjekter

## Generelle råd

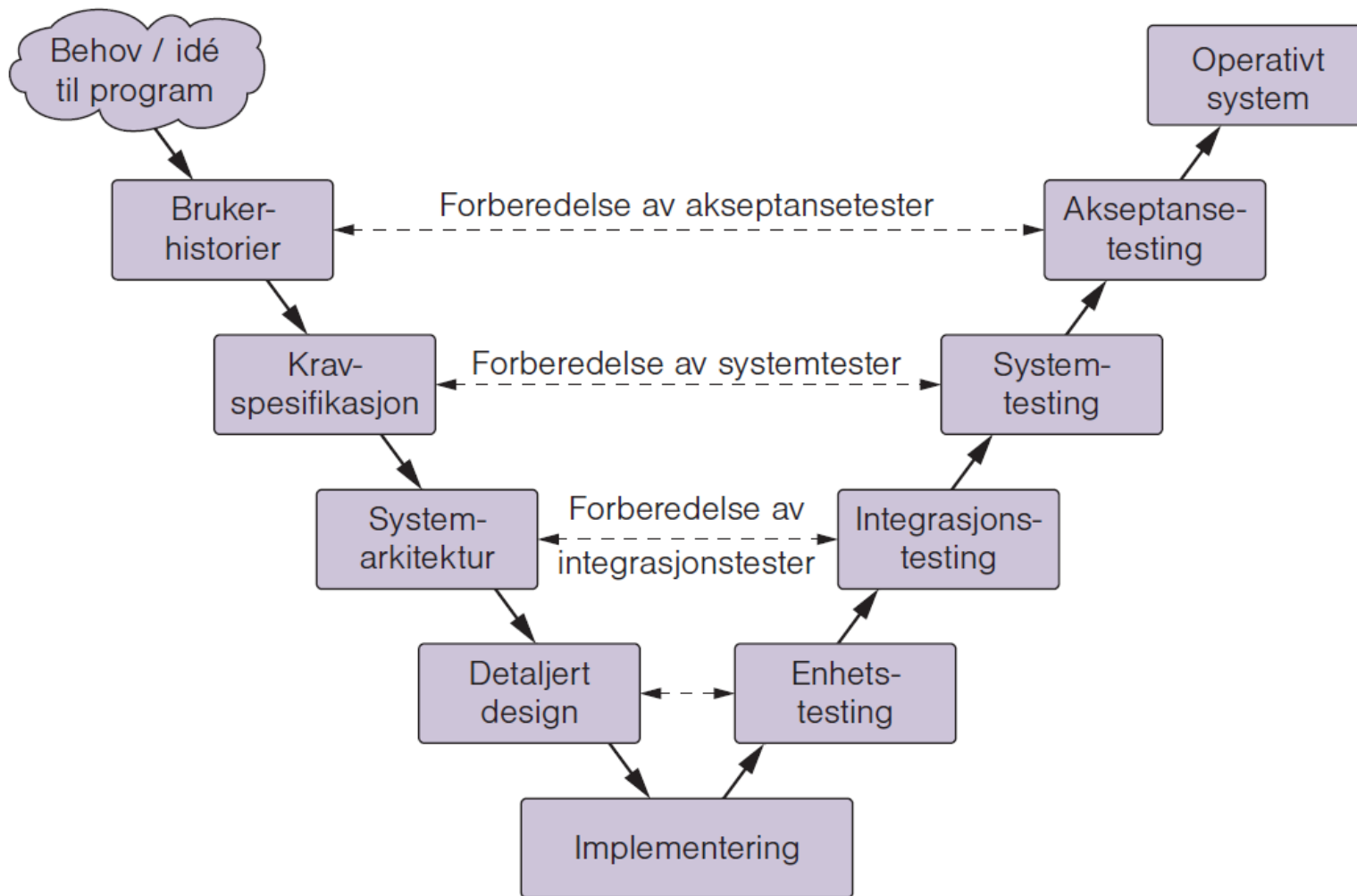
- Solid og testbar kode

- Versjonskontroll

- Bruk statiske testteknikker til å kvalitetssikre dokumentene

- Statisk analyse

- Feil har en tendens til å samle seg i klynger



Figur 5.2: V-modellen.

# Startfasen

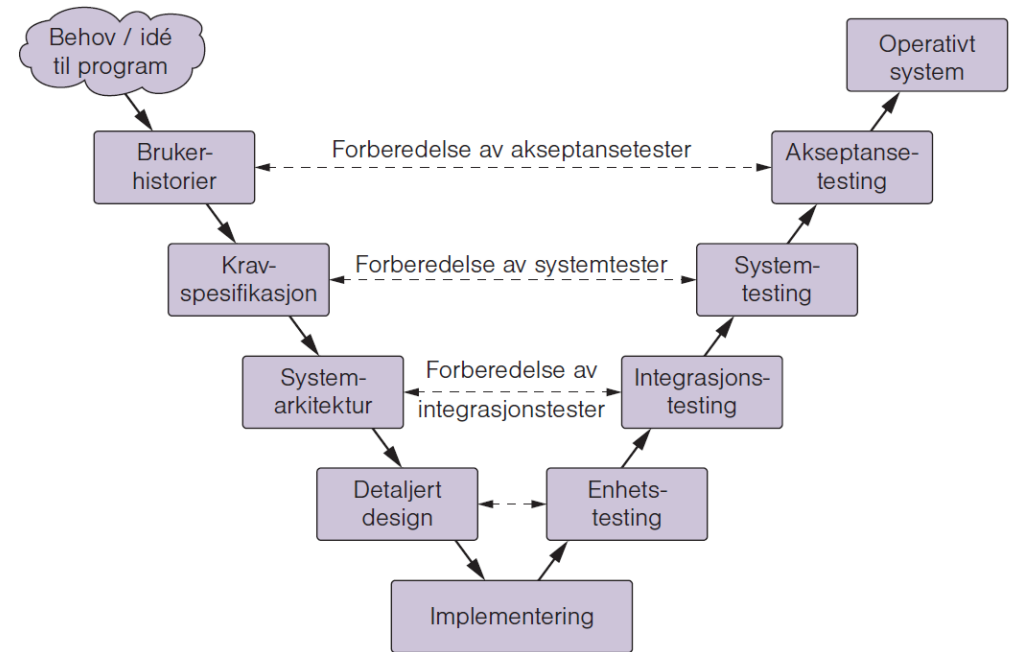
Er prosjektet liv laga?

Forstå oppdraget

Kartlegg konteksten

Bestem testingens mål og omfang

Programdokumentasjon og testrapport



Figur 5.2: V-modellen.

# Programmets fundament – kravspesifikasjonen

## Analyser testforholdene og design testtilfellene

Ekvivalensklasseinndeling og grenseverdianalyse

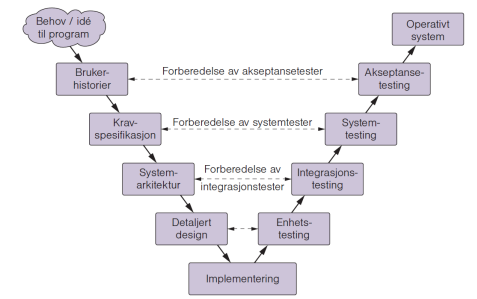
Tilstandsbasert testing

Beslutningstabeller

Brukerhistorier

Systemarkitektur

Detaljert design

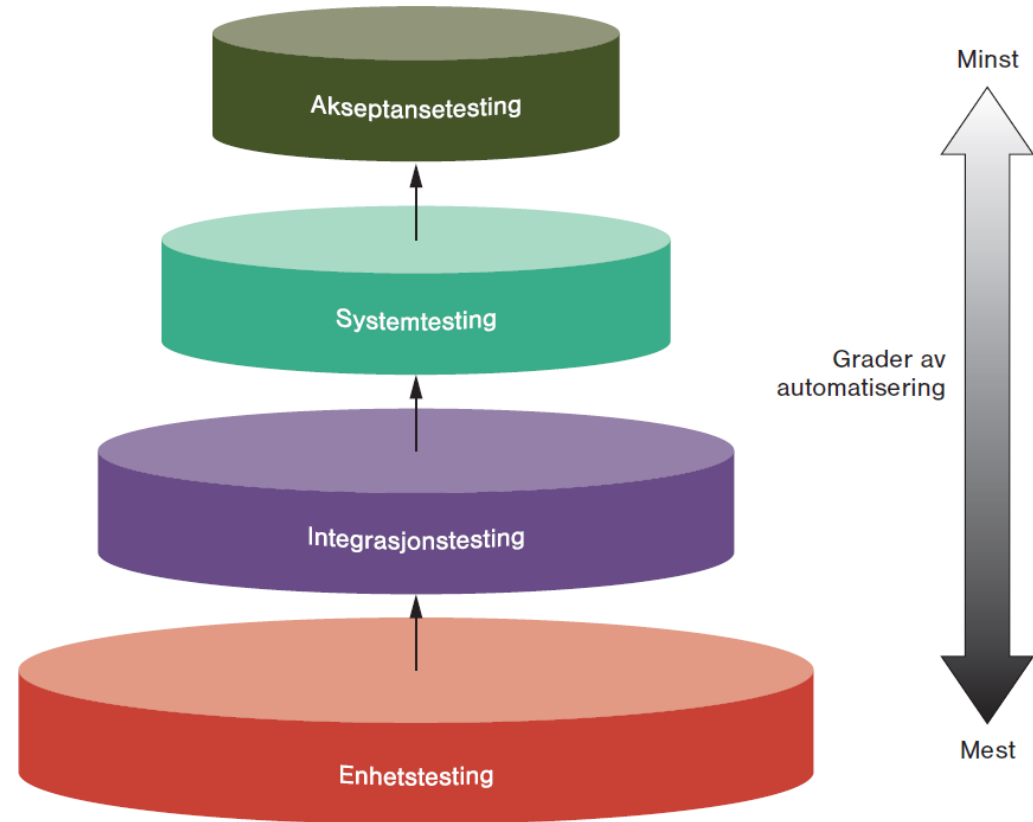


Figur 5.2: V-modellen.

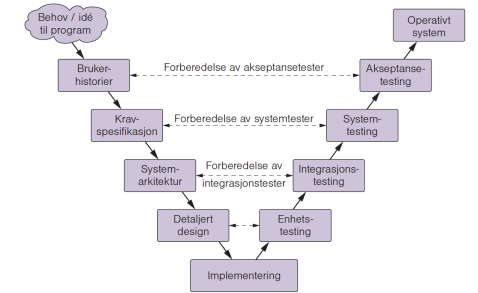
# Dynamisk testing gjennom fire testnivåer

Enhetstesting  
Integrasjonstesting  
Systemtesting  
Akseptansetesting

Regresjonstesting

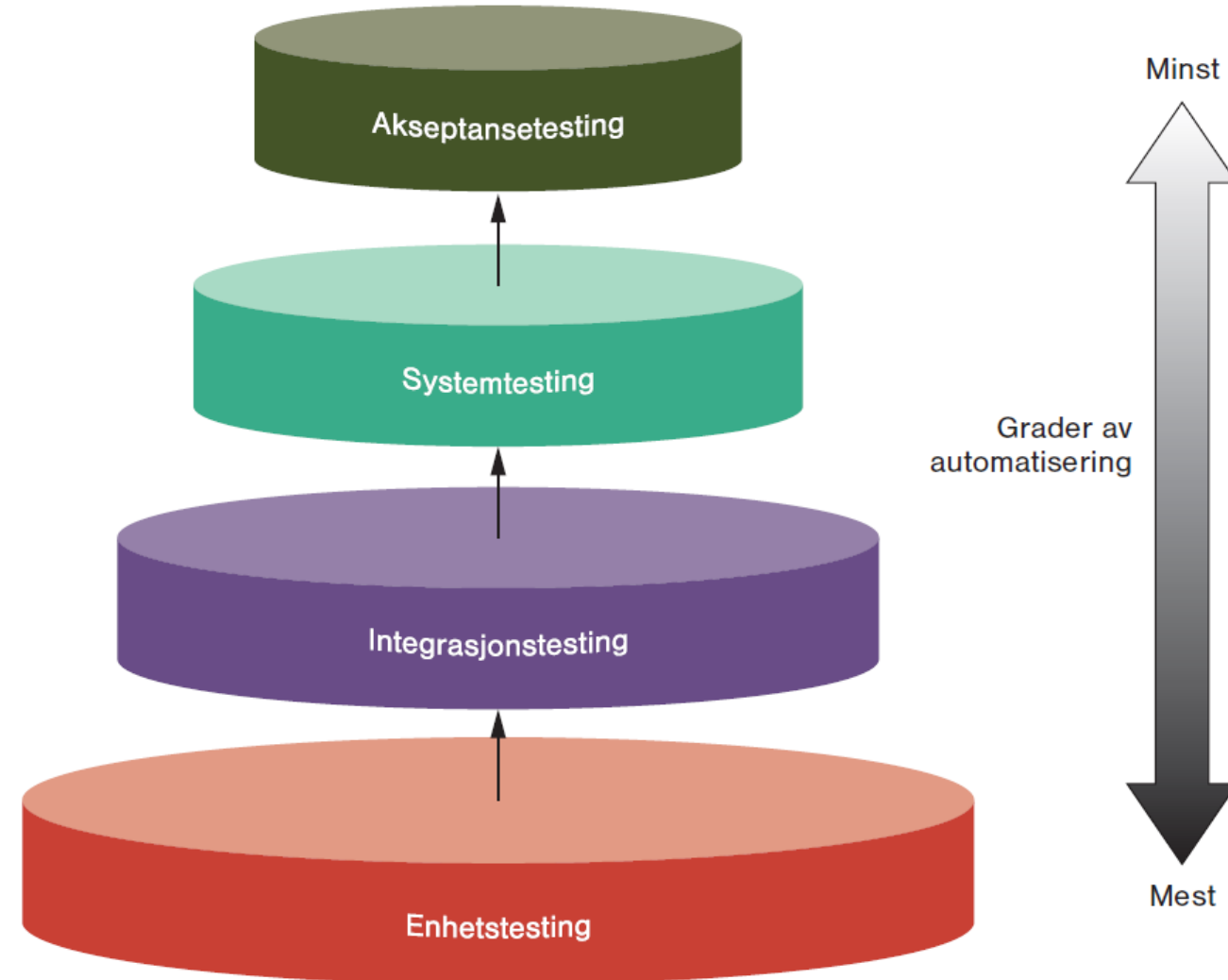


Figur 16.1: Anbefalt testautomatiseringsgrad.



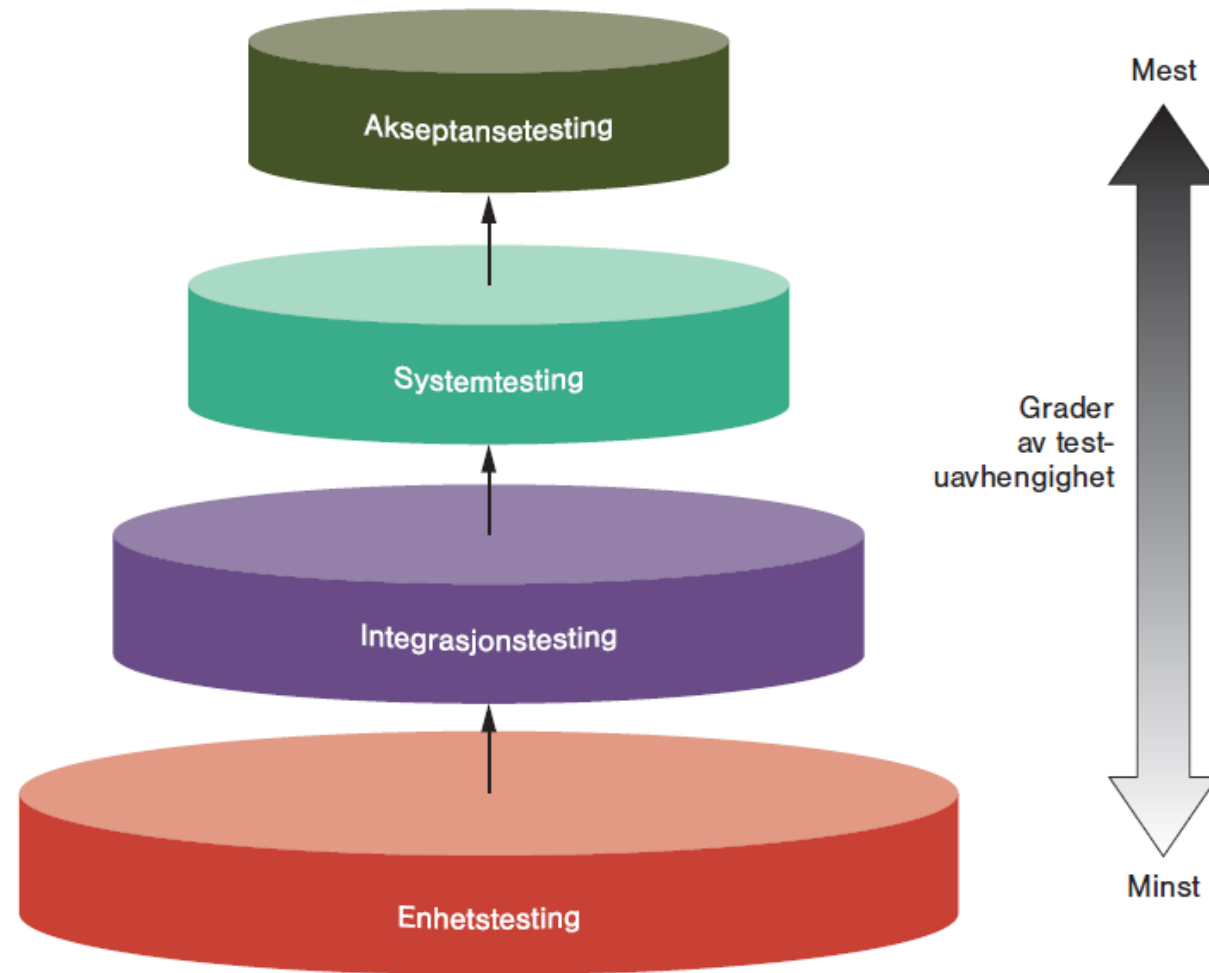
Figur 5.2: V-modellen.

# Testautomatisering



Figur 16.1: Anbefalt testautomatiseringsgrad.

# Testuavhengighet



Figur 15.1: Grader av uavhengighet.



# Syv prinsipper for testing

Prinsipp 1. Testing kan ikke bevise at koden er feilfri

Prinsipp 2. Fullstendig testing er umulig

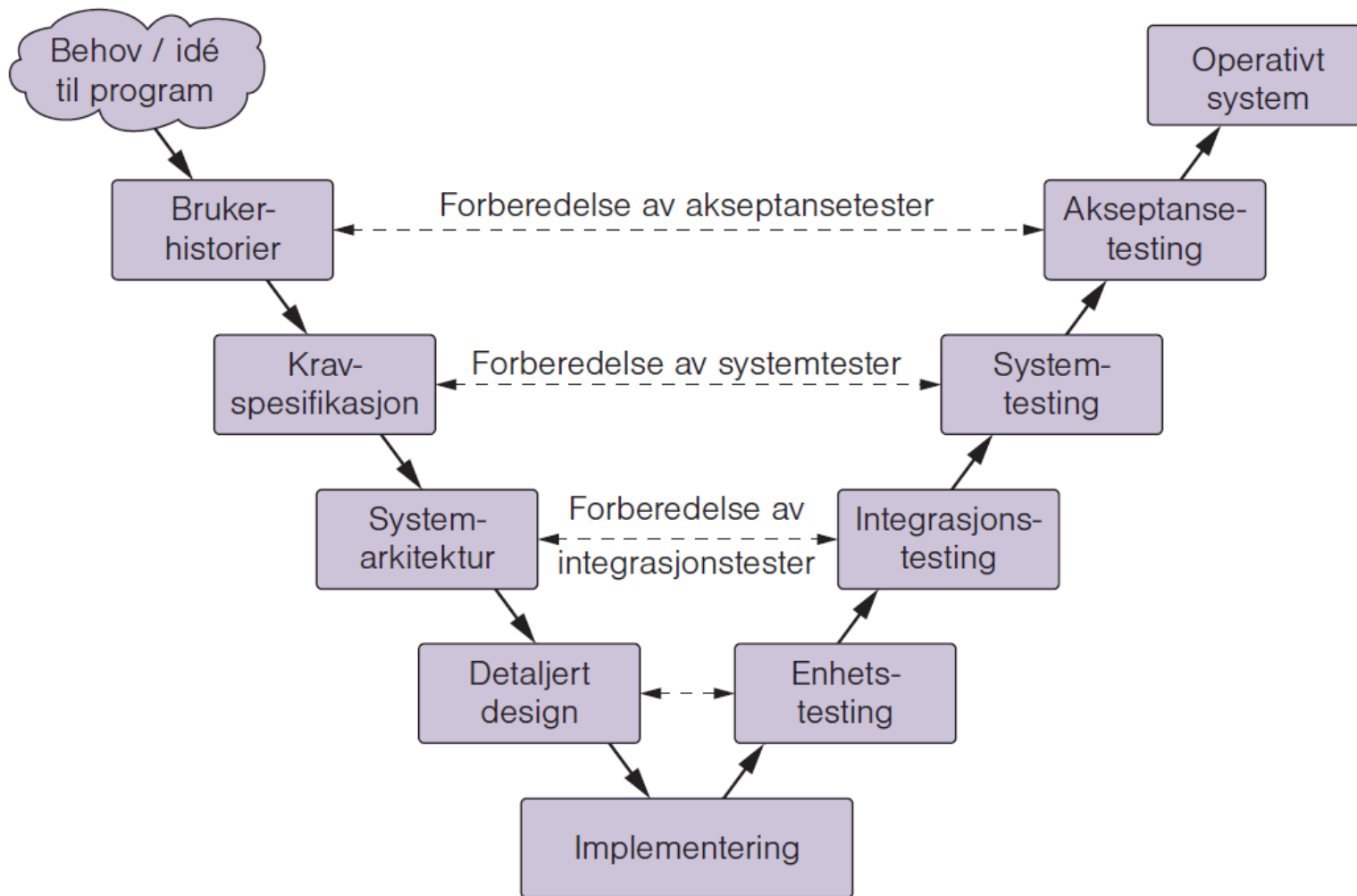
Prinsipp 3. Tidlig testing sparer tid og penger

Prinsipp 4. Feil samler seg i klynger

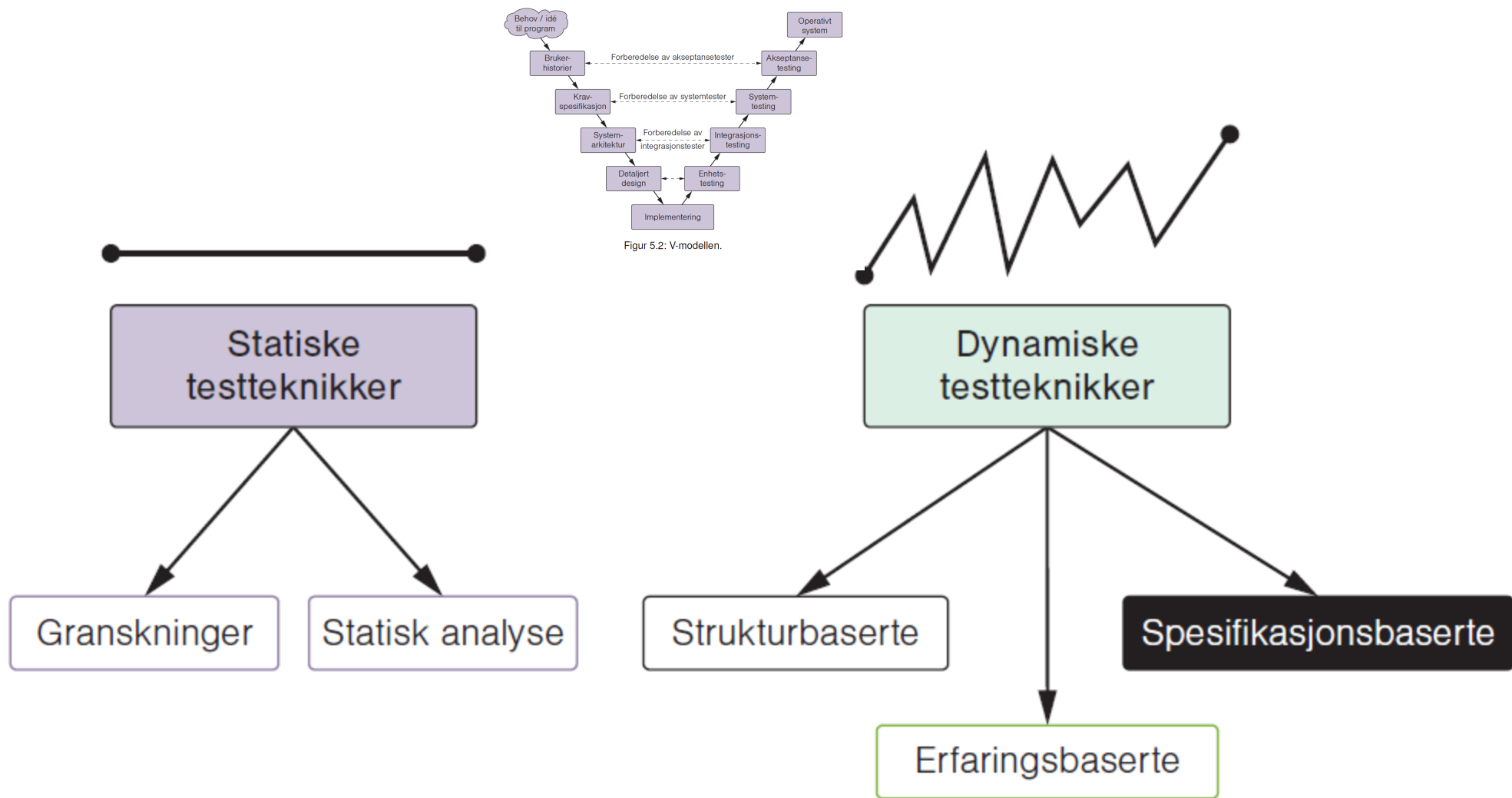
Prinsipp 5. Pass på sprøytemiddel-paradokset

Prinsipp 6. Testing er avhengig av konteksten

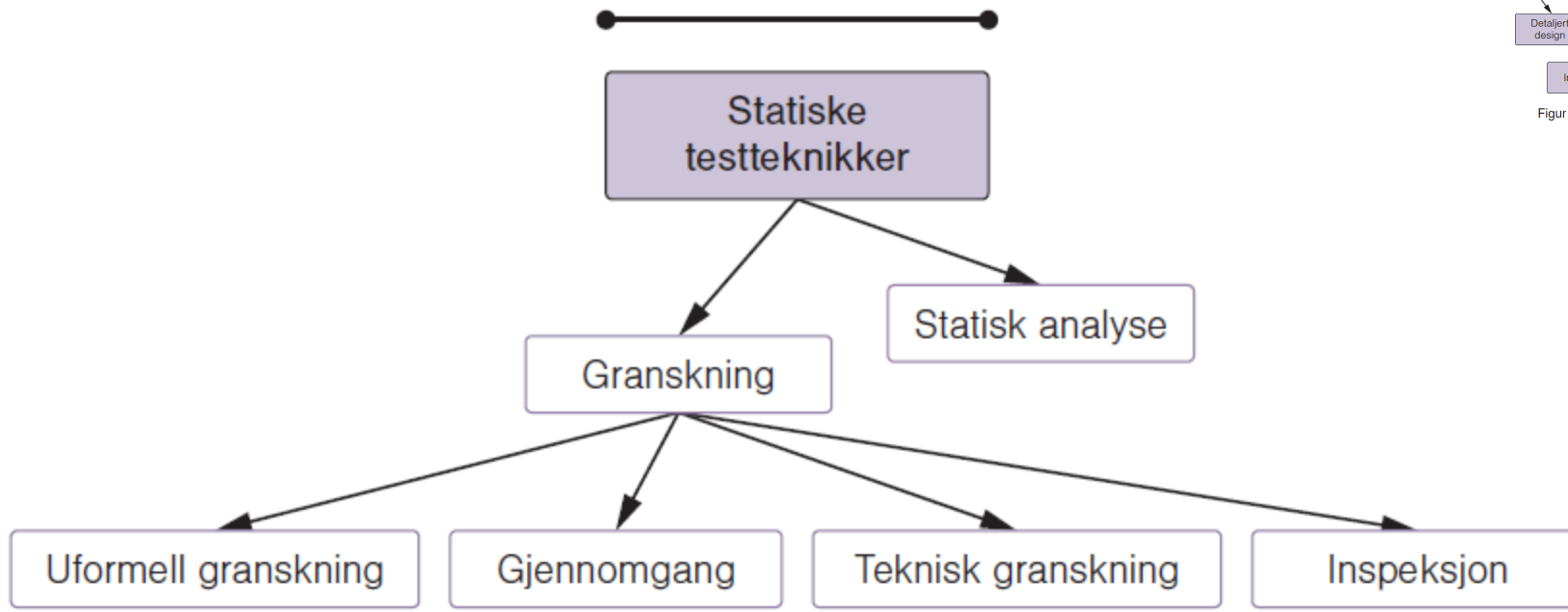
Prinsipp 7. Feilslutning vedrørende fravær av feil



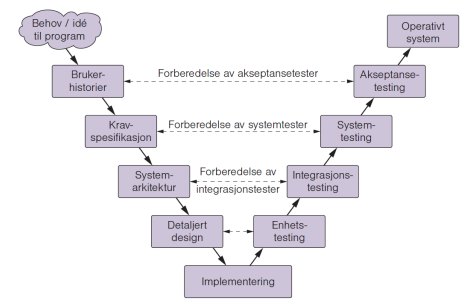
Figur 5.2: V-modellen.



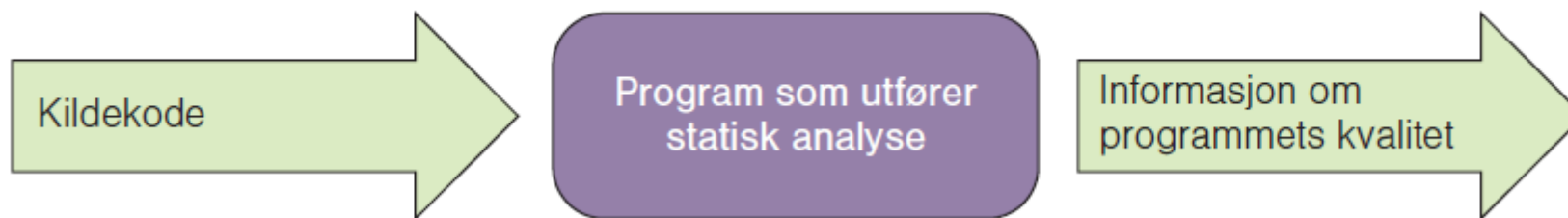
Figur 5.1: Statiske og dynamiske testteknikker.



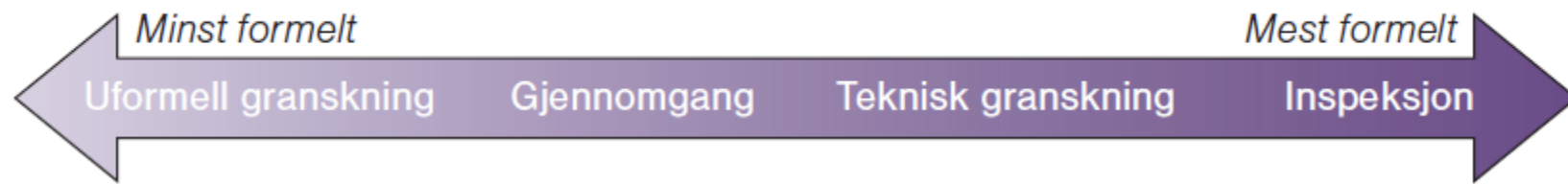
Figur 9.1: Statiske teknikker.



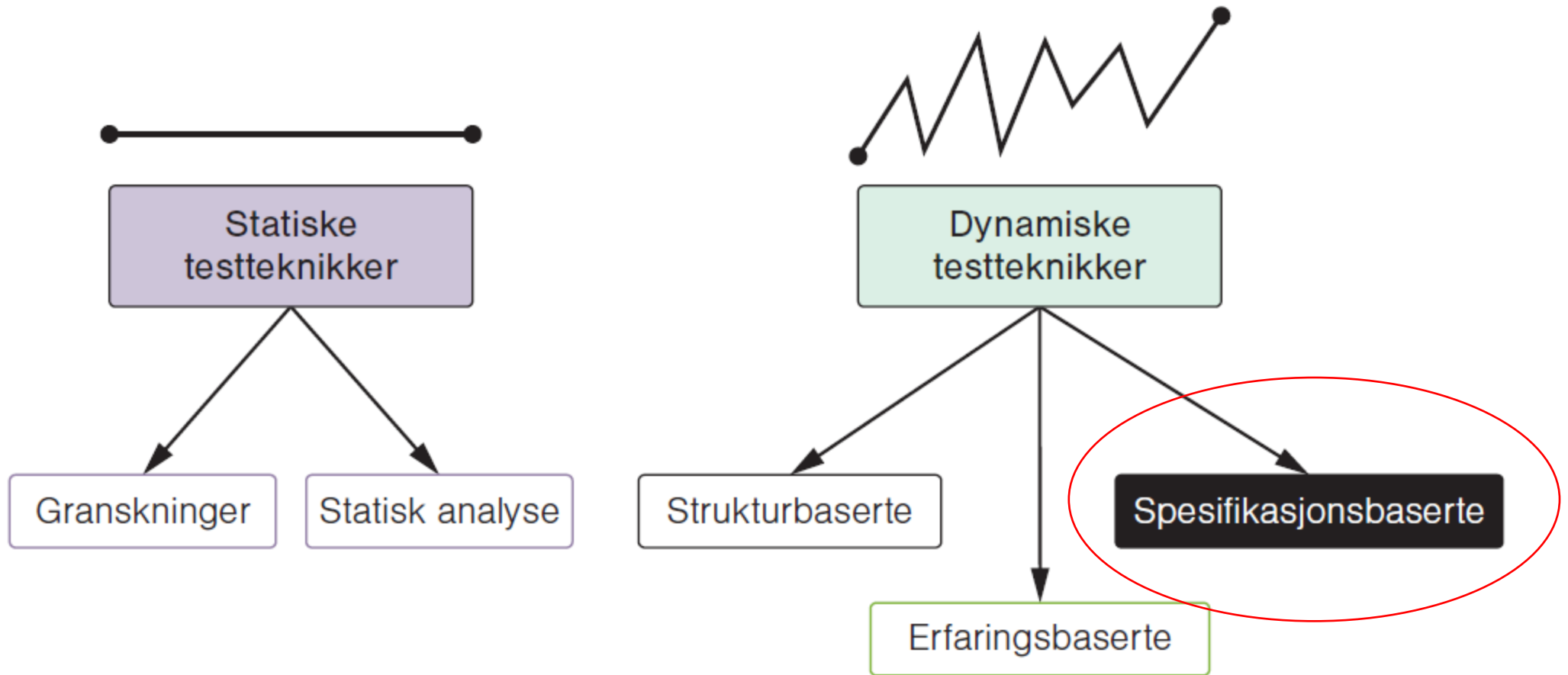
Figur 5.2: V-modellen.



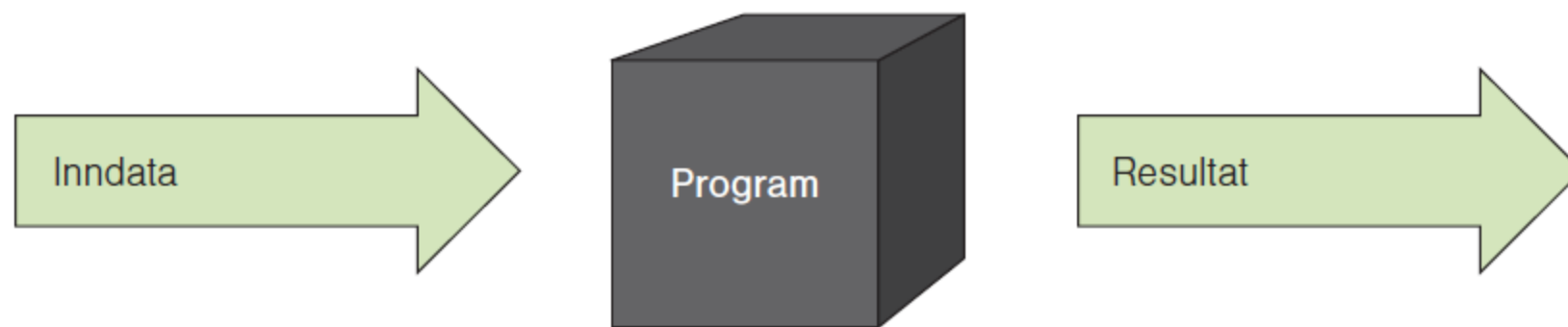
Figur 9.3: Statisk analyse.



Figur 9.2: Grader av formalitet.

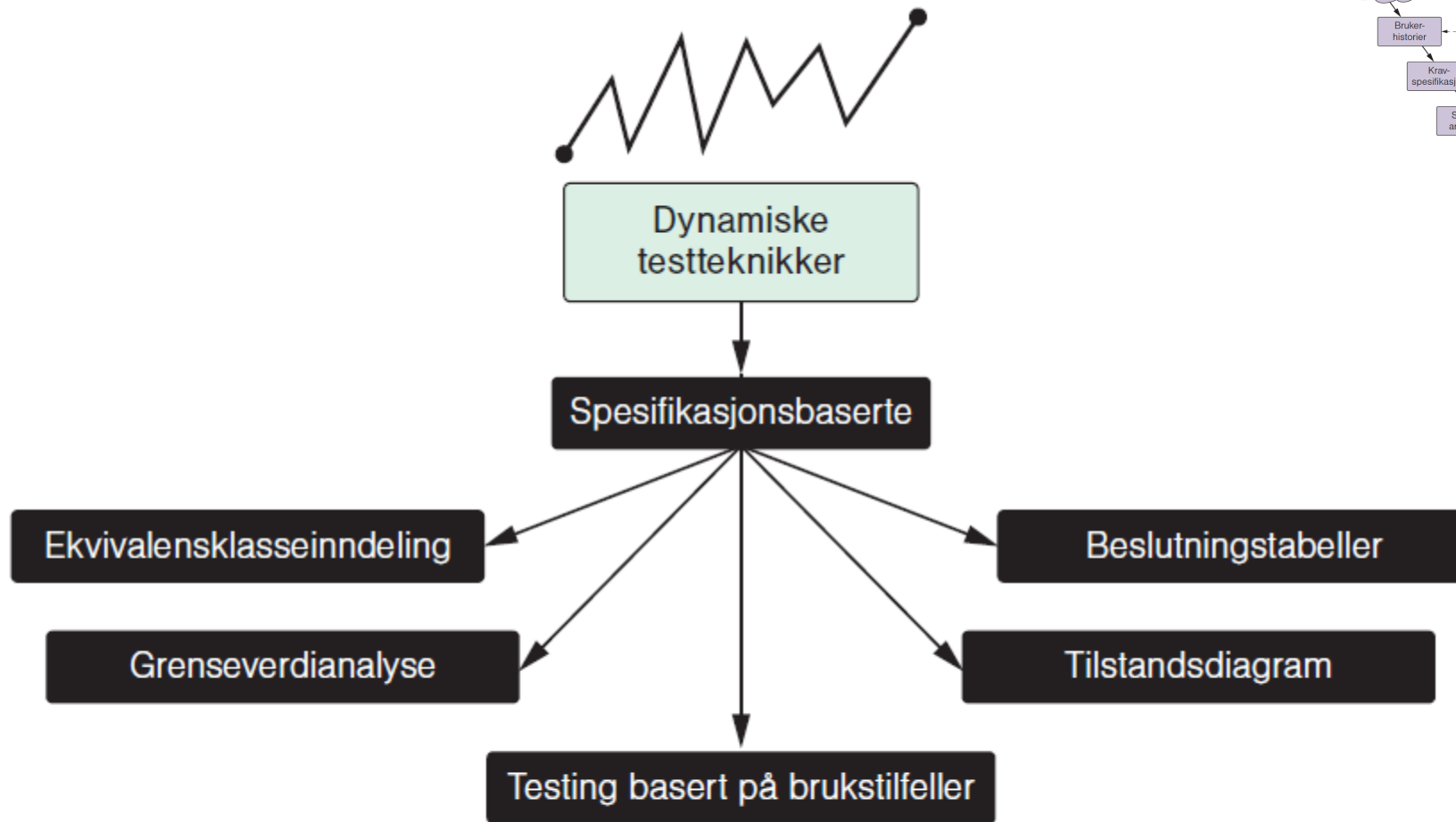


Figur 5.1: Statiske og dynamiske testteknikker.

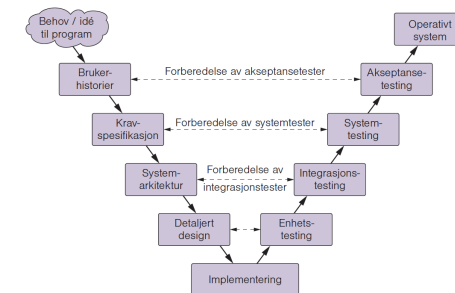


Figur 10.2: Svart boks-testing.

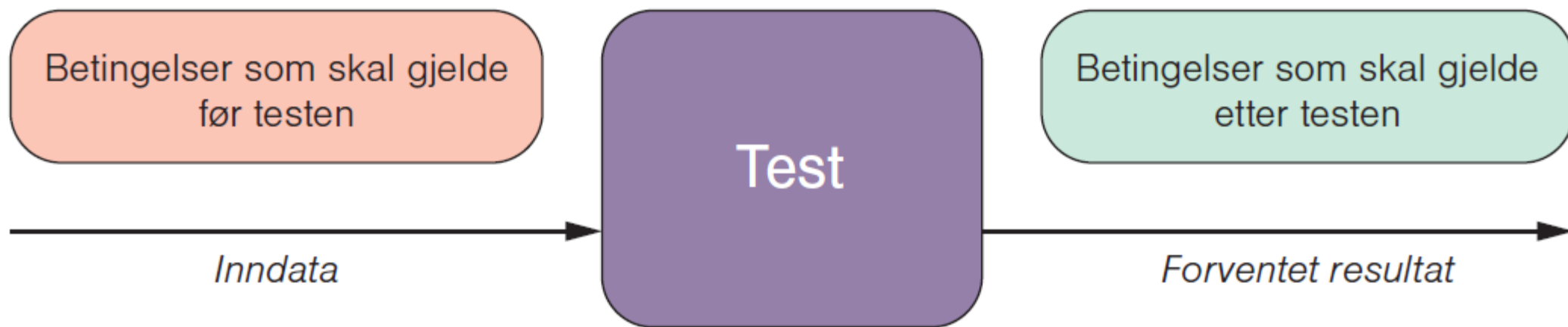




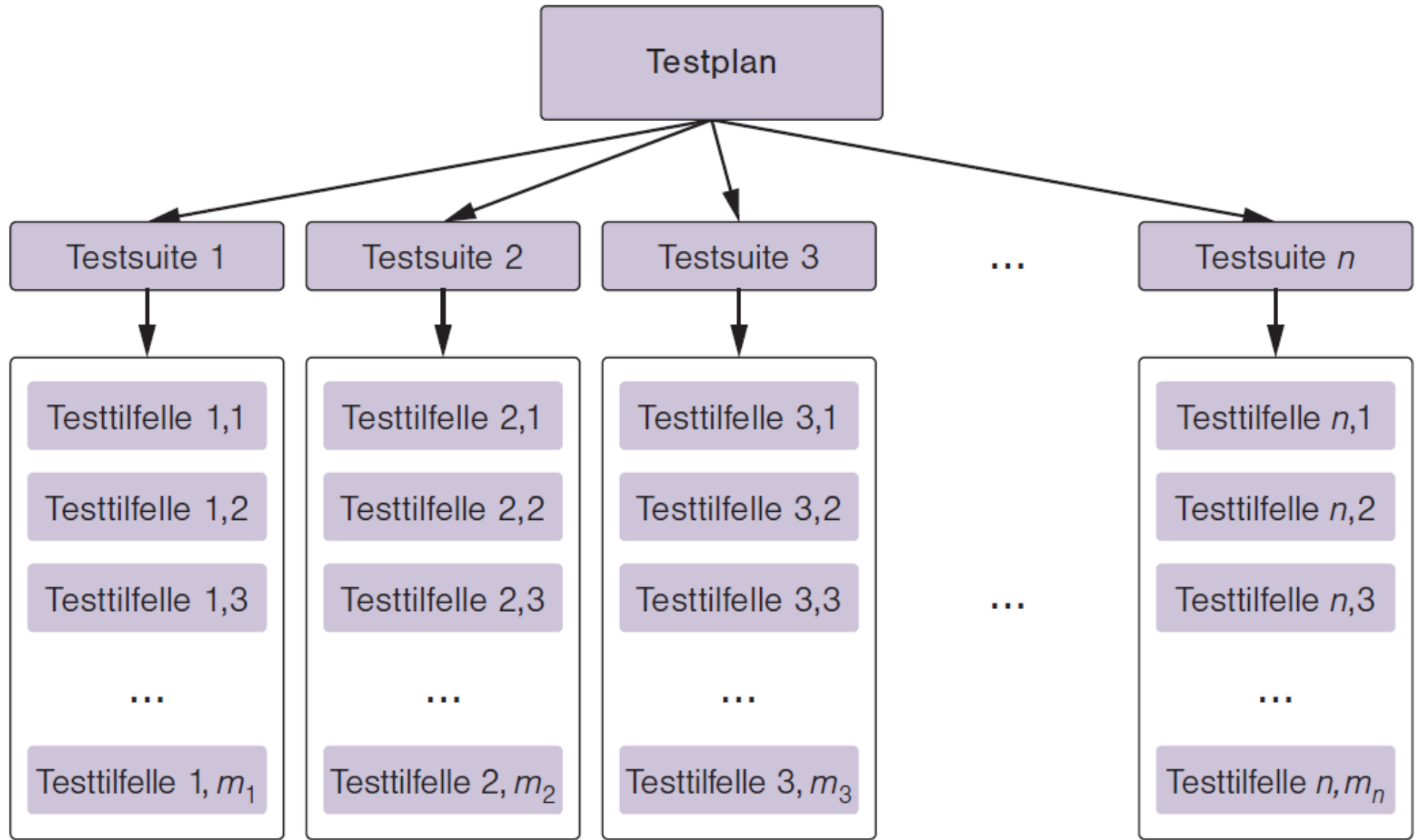
Figur 10.1: Spesifikasjonsbaserte teknikker.



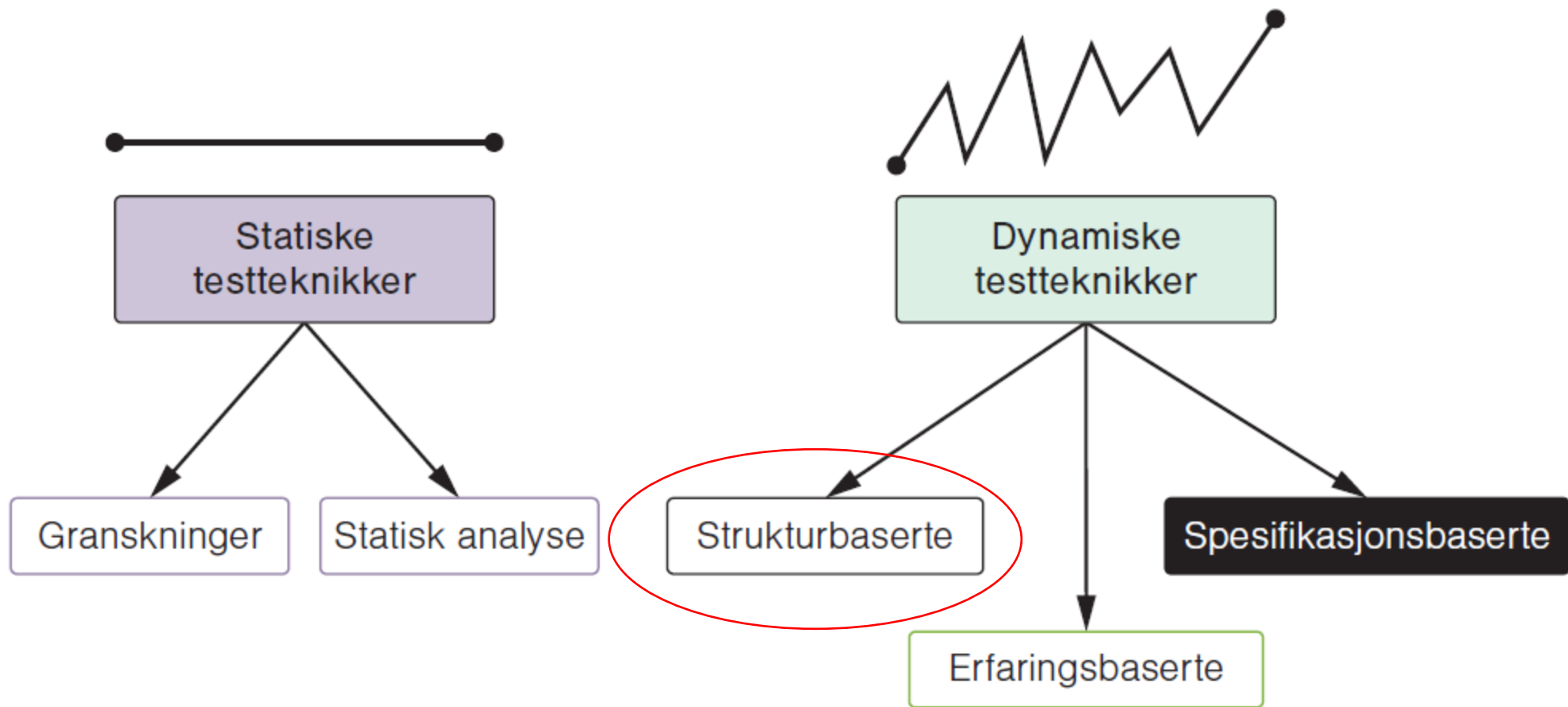
Figur 5.2: V-modellen.



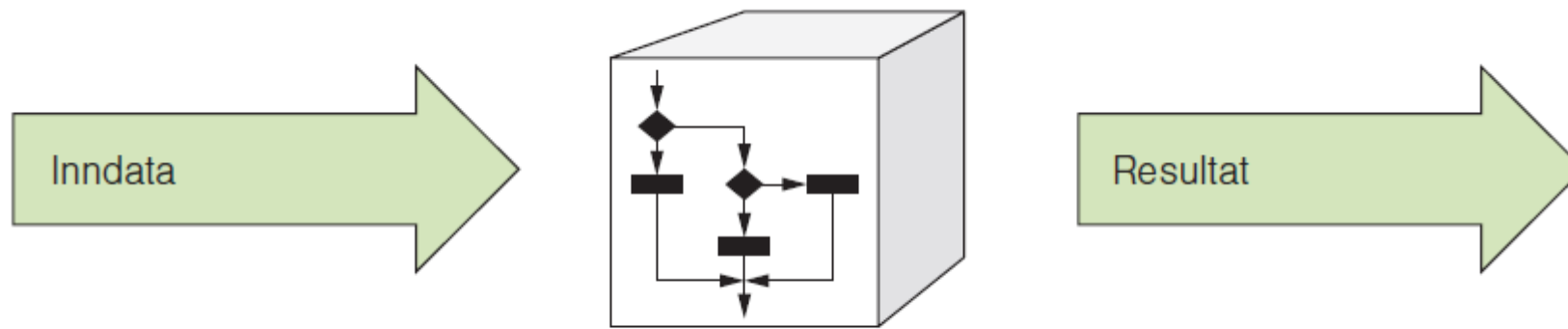
Figur 8.2: Testdesign.



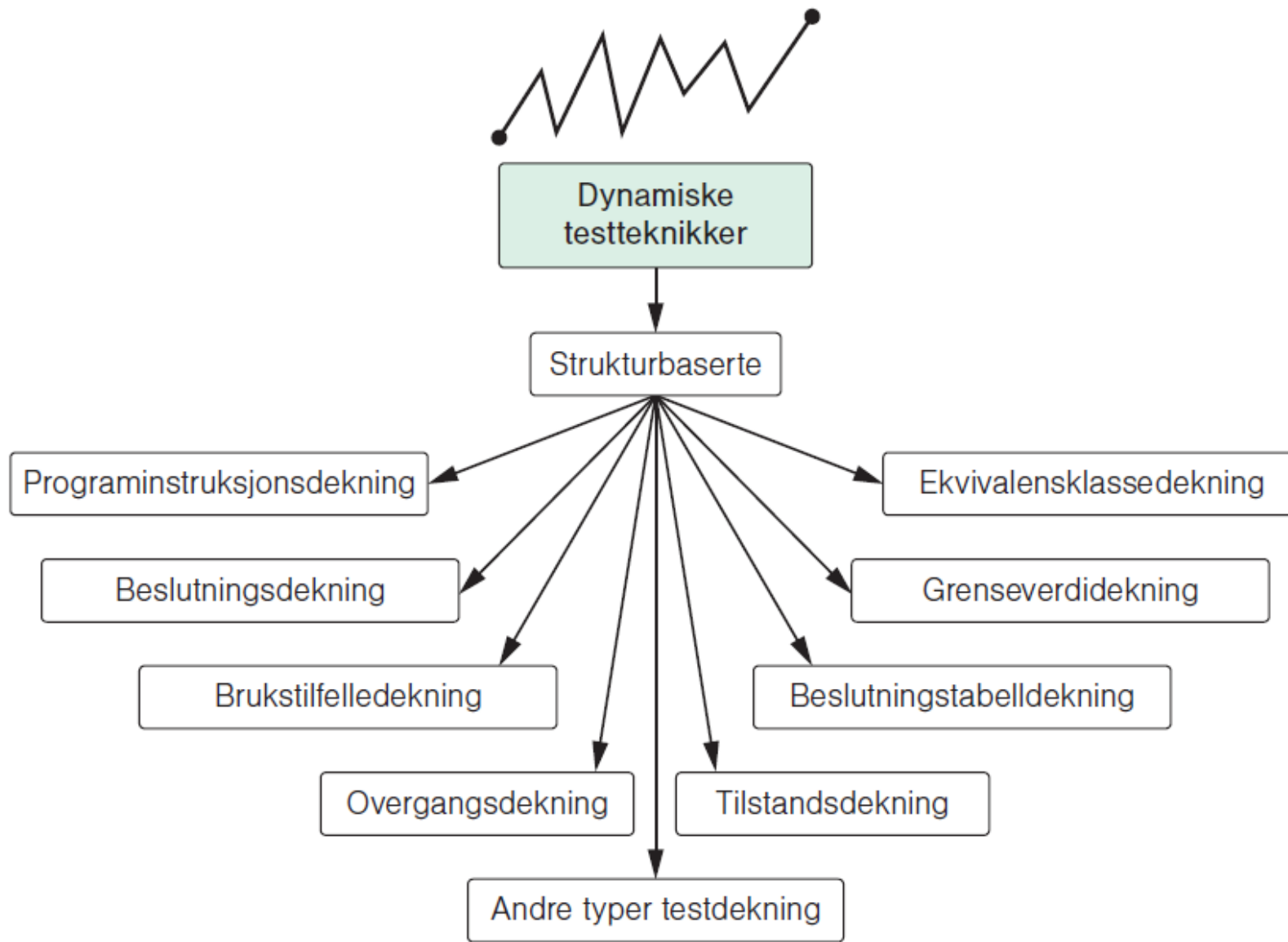
Figur 8.4: Testsuiter.



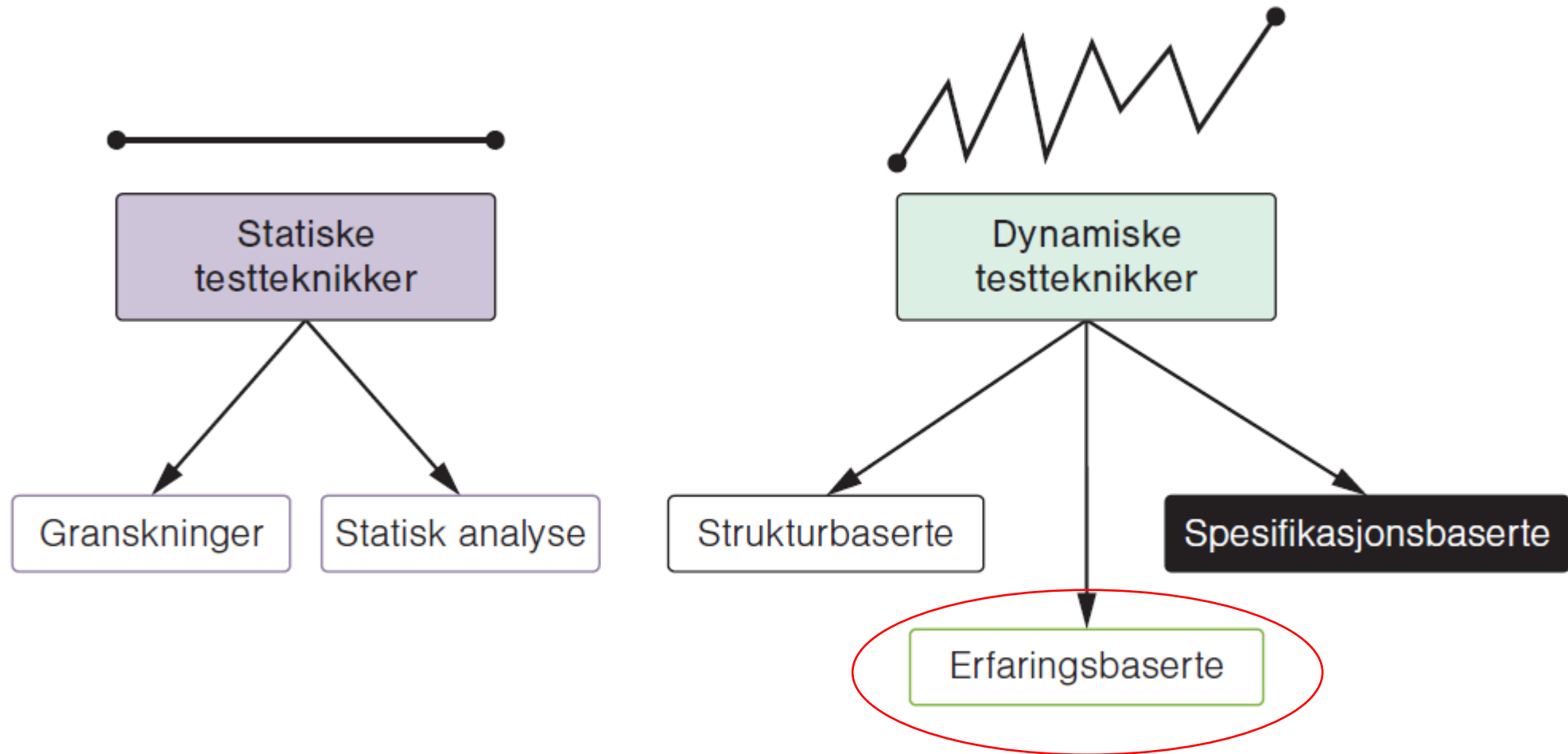
Figur 5.1: Statiske og dynamiske testteknikker.



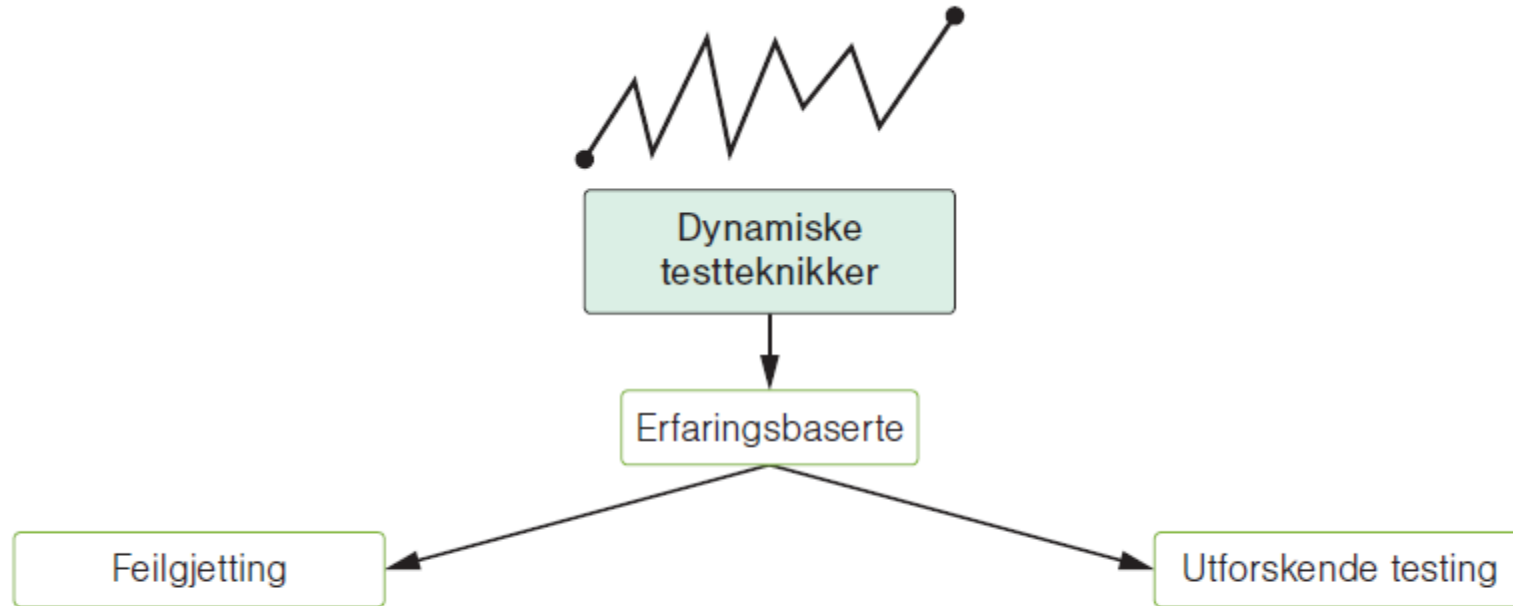
Figur 11.1: Hvit boks-testing.



Figur 11.2: Strukturbaserte teknikker og testdekning.

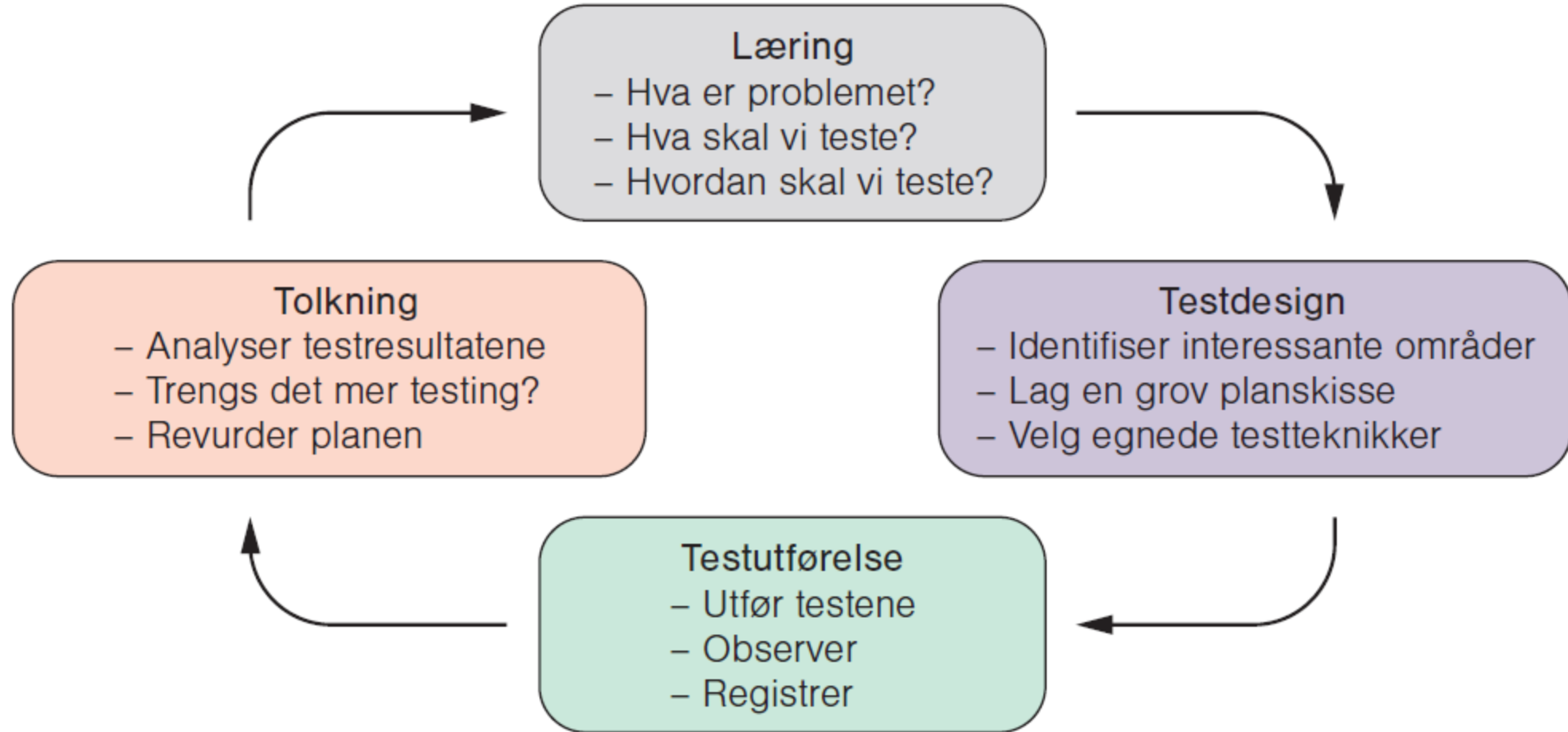


Figur 5.1: Statiske og dynamiske testteknikker.

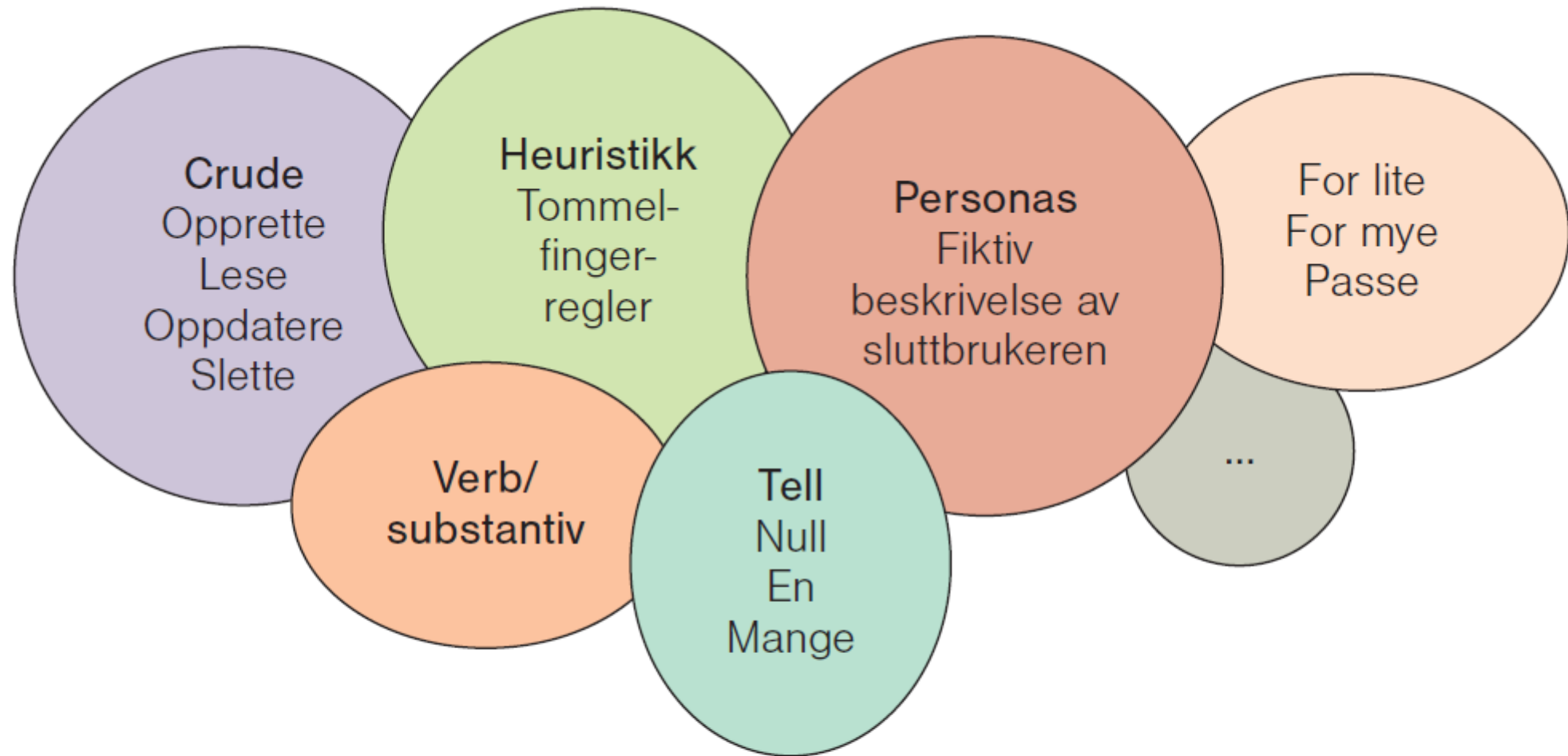


Figur 12.1: Erfaringsbaserte testteknikker.





Figur 12.2: Utforskende testing.



Figur 12.3: Et utvalg av heuristiske metoder.