Systemnahe Programmierung in C (SPiC)

35 Speicherorganisation – Stack

Jürgen Kleinöder, Daniel Lohmann, Volkmar Sieh

Lehrstuhl für Informatik 4
Verteilte Systeme und Betriebssysteme

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Erlangen-Nürnberg

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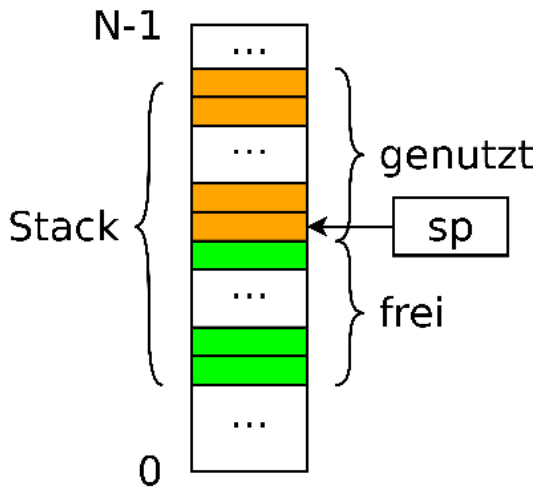
http://sys.cs.fau.de/lehre/SS22/spic

Dynamische Speicherallokation – Stack

- Lokale Variablen, Funktionsparameter und Rücksprungadressen werden vom Übersetzer auf dem Stack (Stapel, Keller) verwaltet
- Stack ist Teil des normalen Hauptspeichers
- Prozessorregister `sp` „**Stack Pointer**" zeigt immer auf das zuletzt abgelegte Datum (architekturabhängig)
- Stack „wächst" „von oben nach unten" (architekturabhängig)

=> `sp` zeigt damit immer auf den Anfang des genutzten Teil des Stacks



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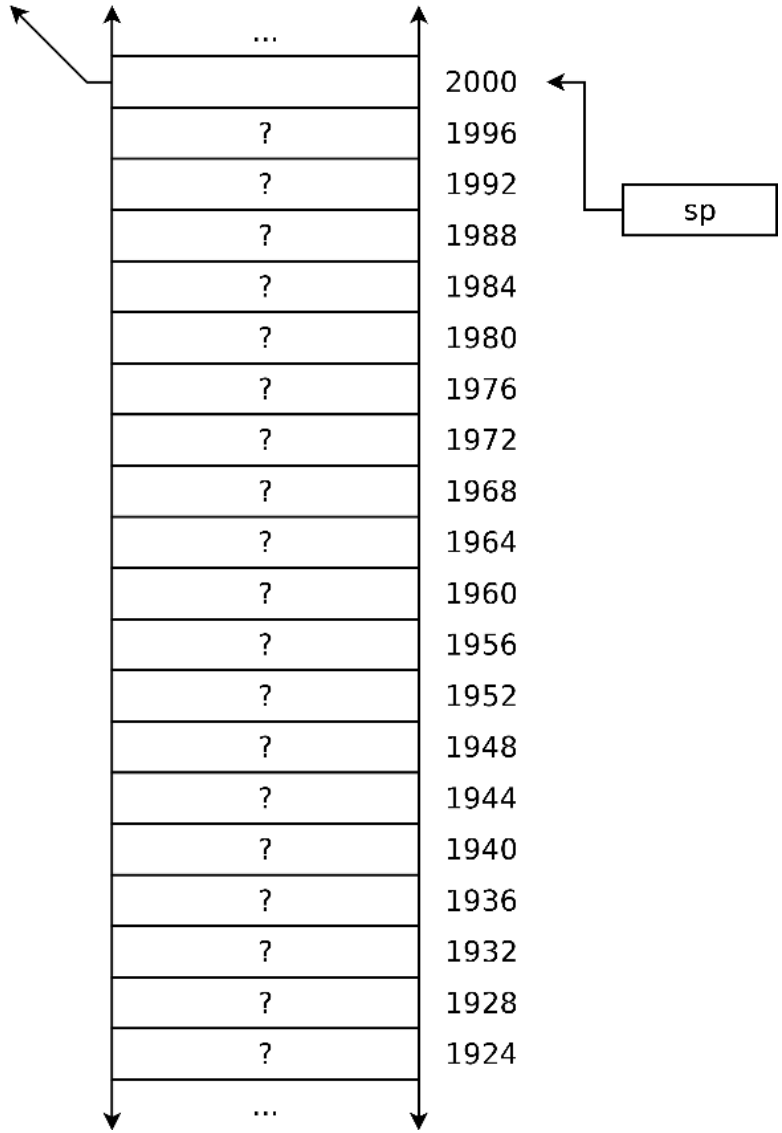

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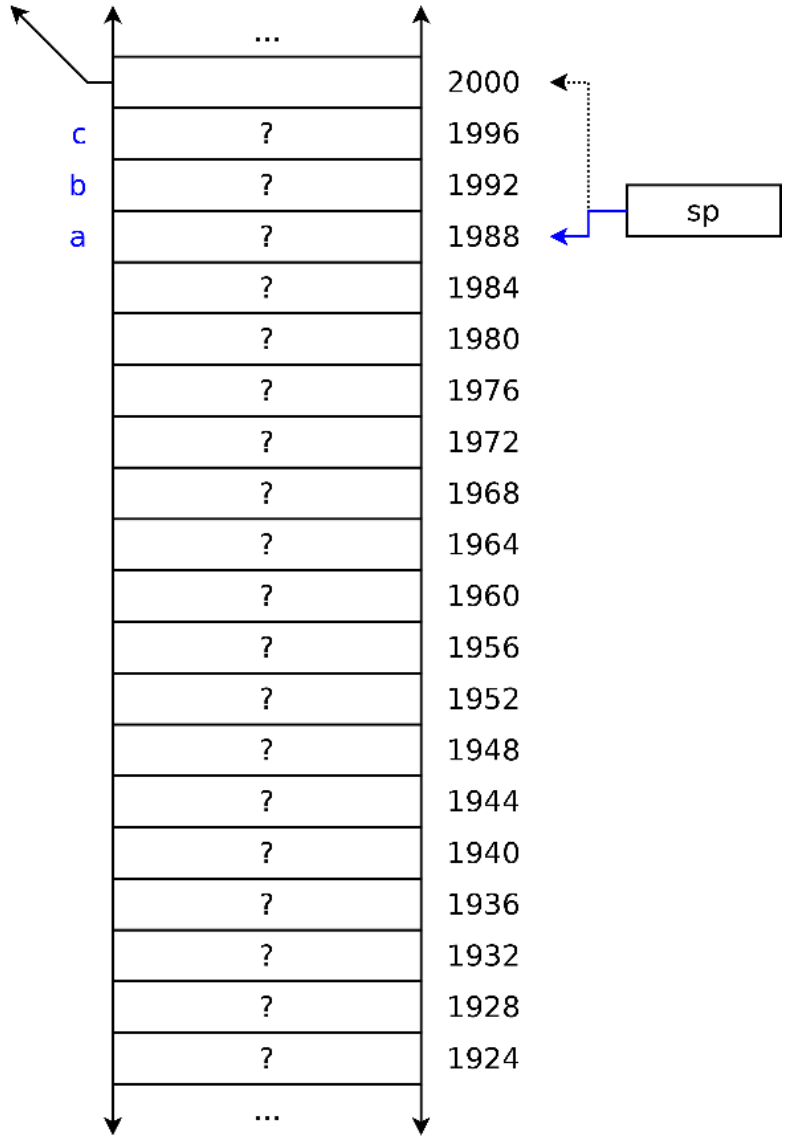
Anlegen von a, b, c



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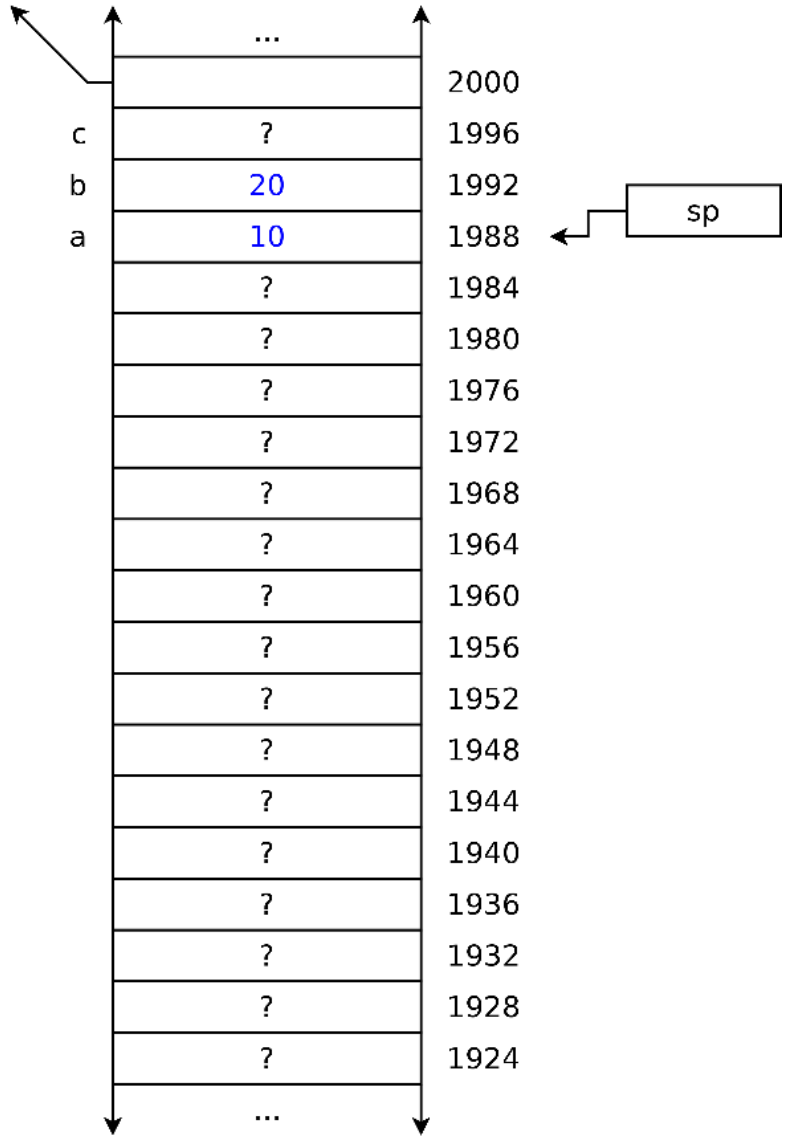
Schreiben von a, b



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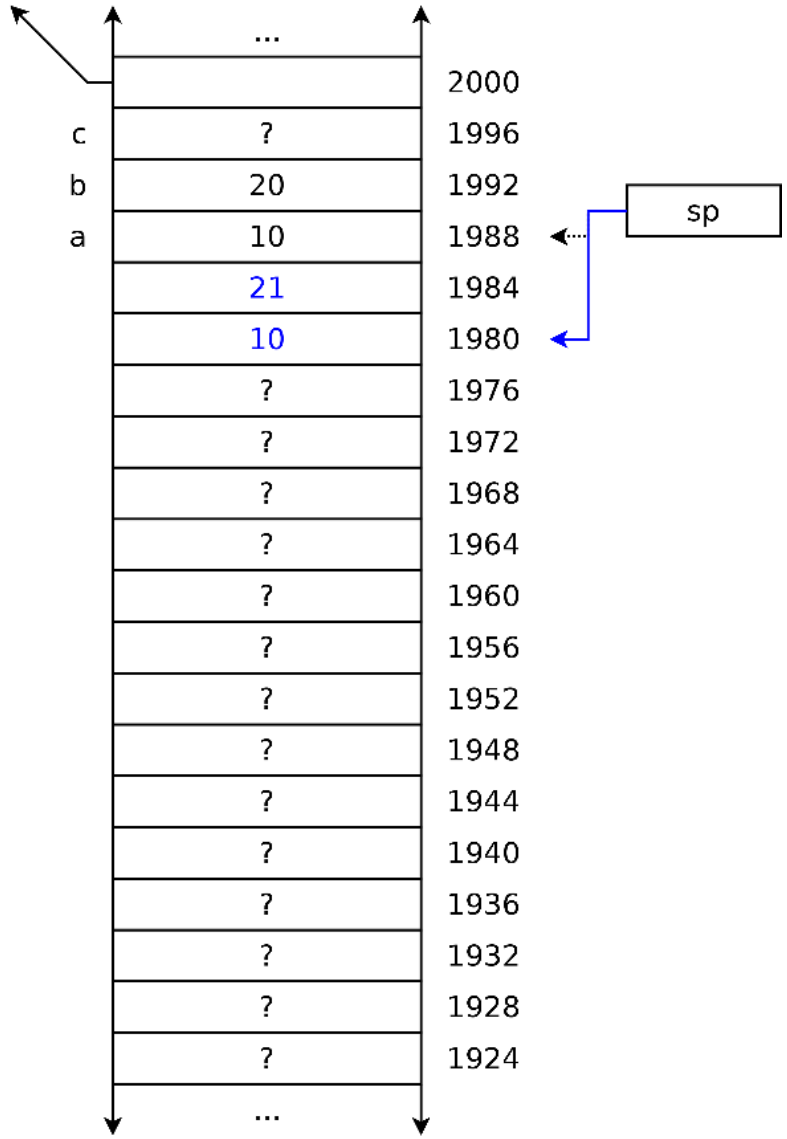
Berechnen der Parameter



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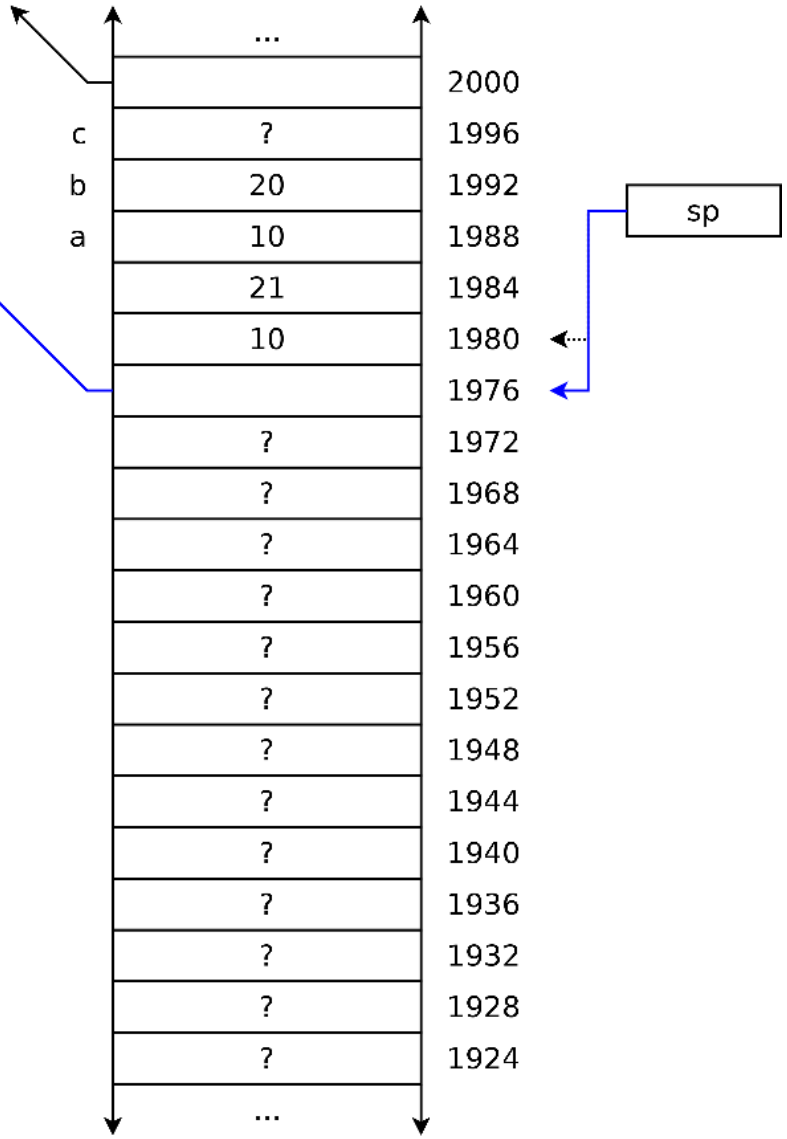
Speichern der Rückkehradresse



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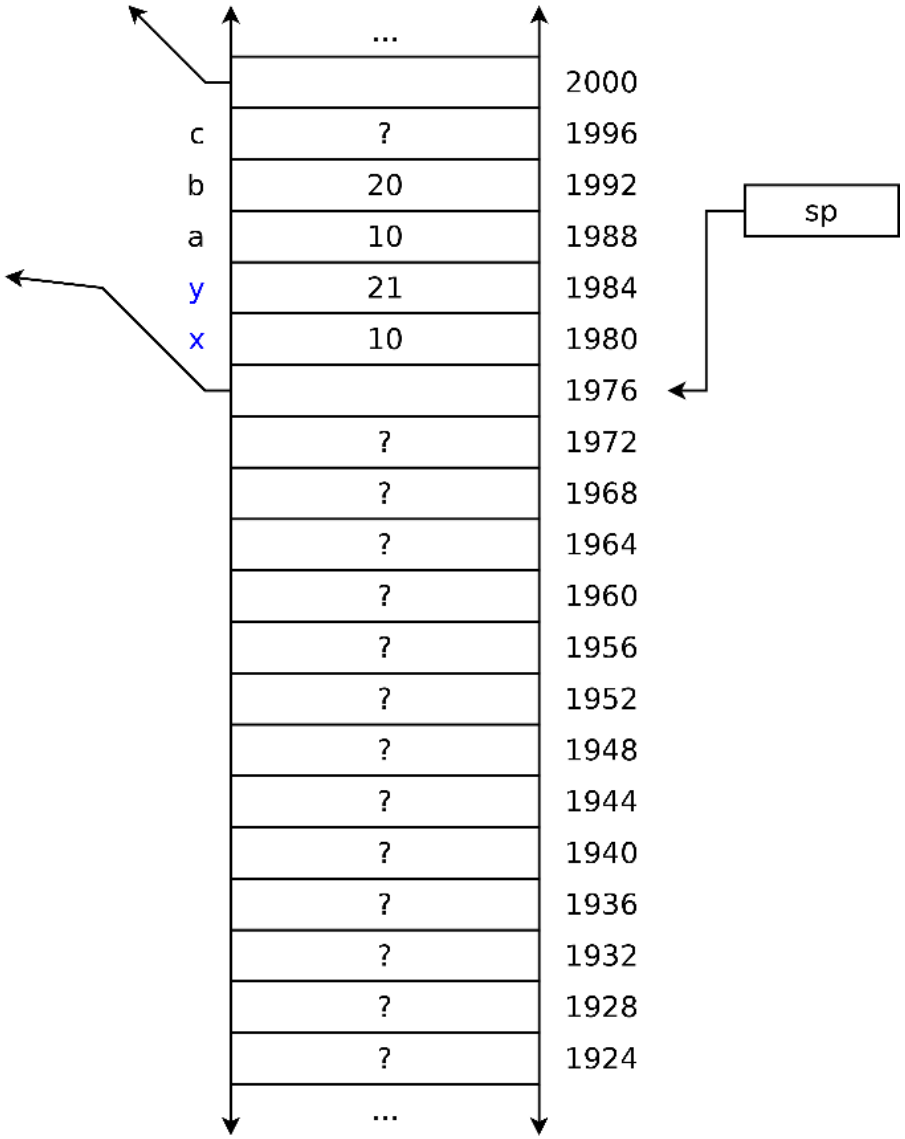
Start f1



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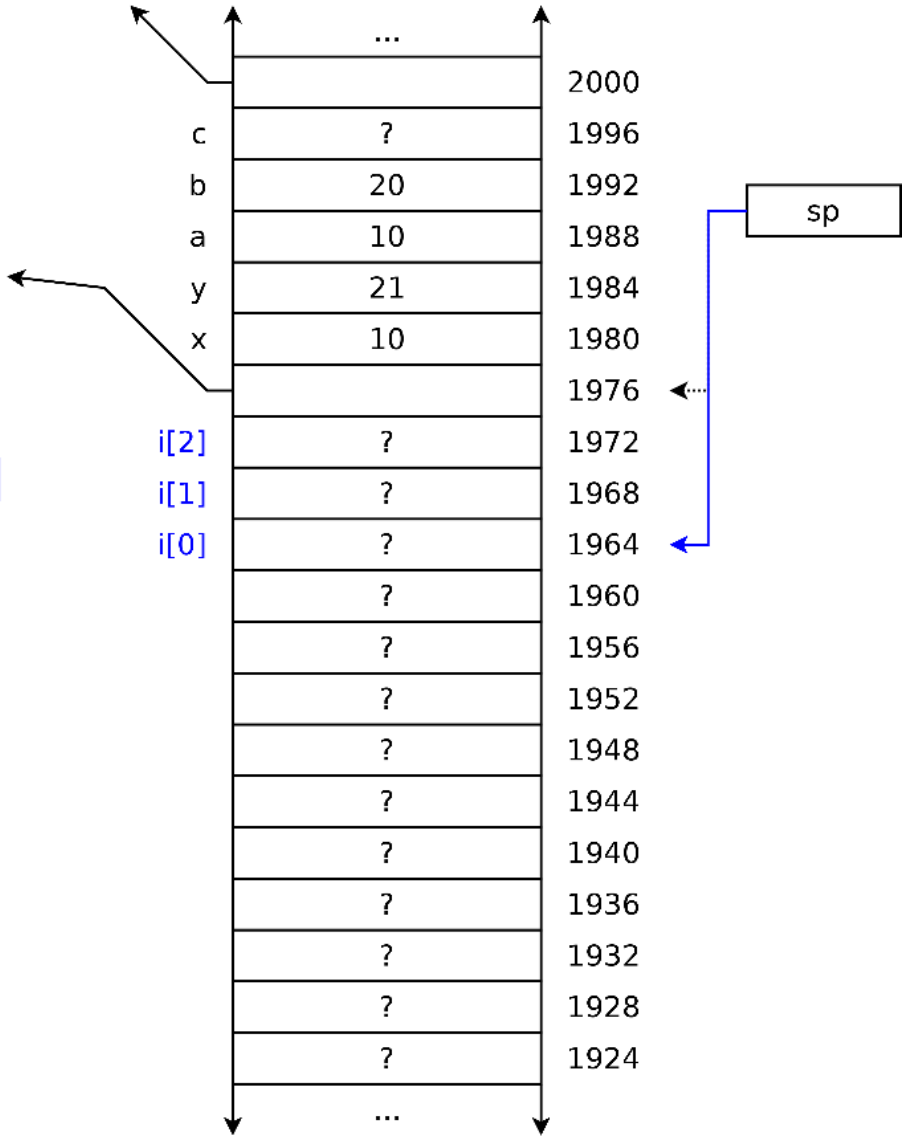
Anlegen von i[0]...i[2]



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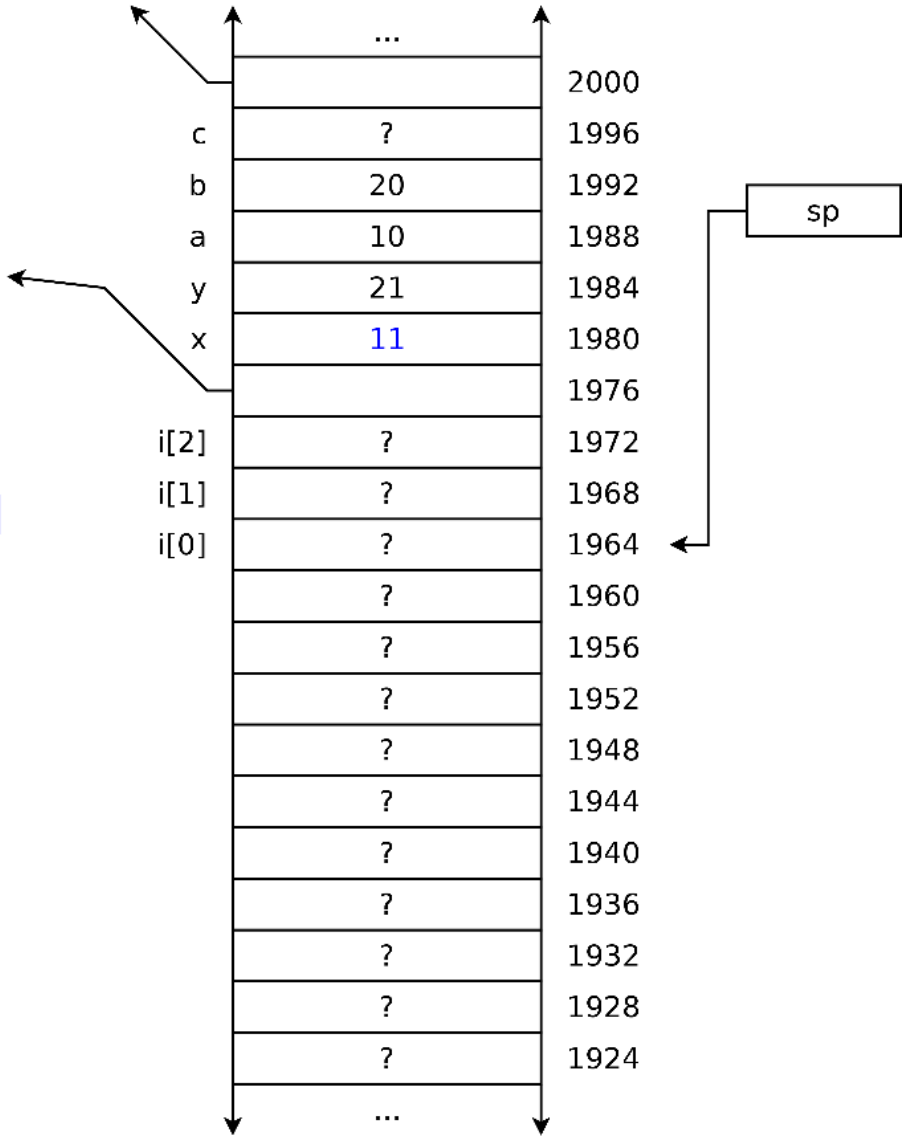
Inkrementieren von x



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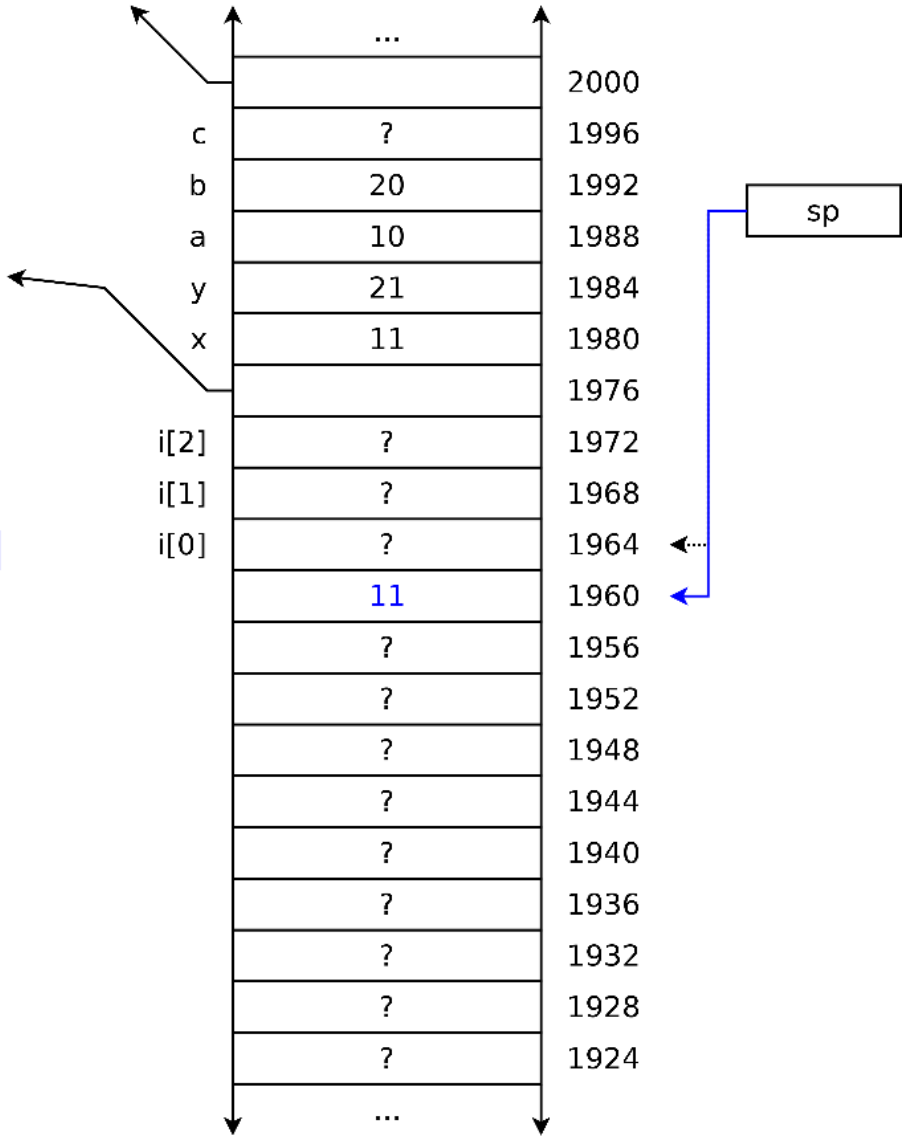
Berechnen des Parameters



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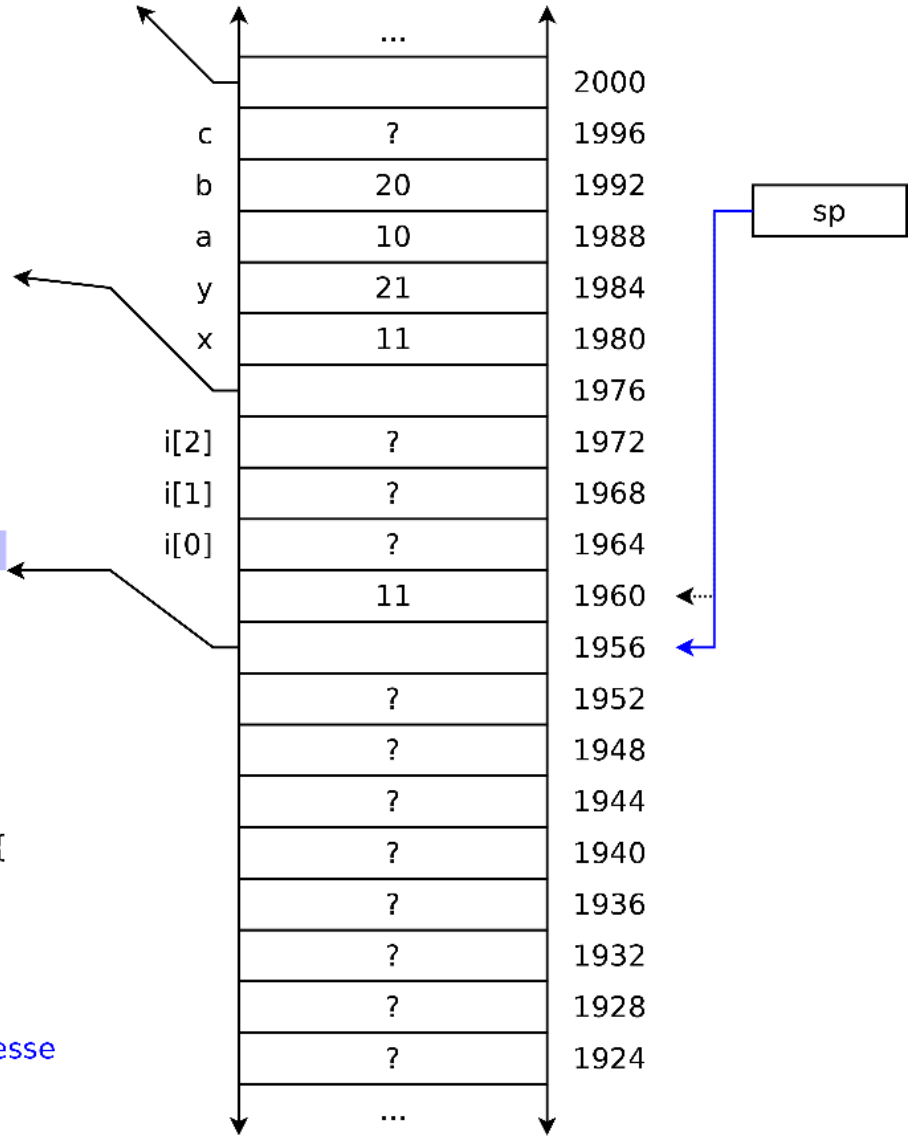

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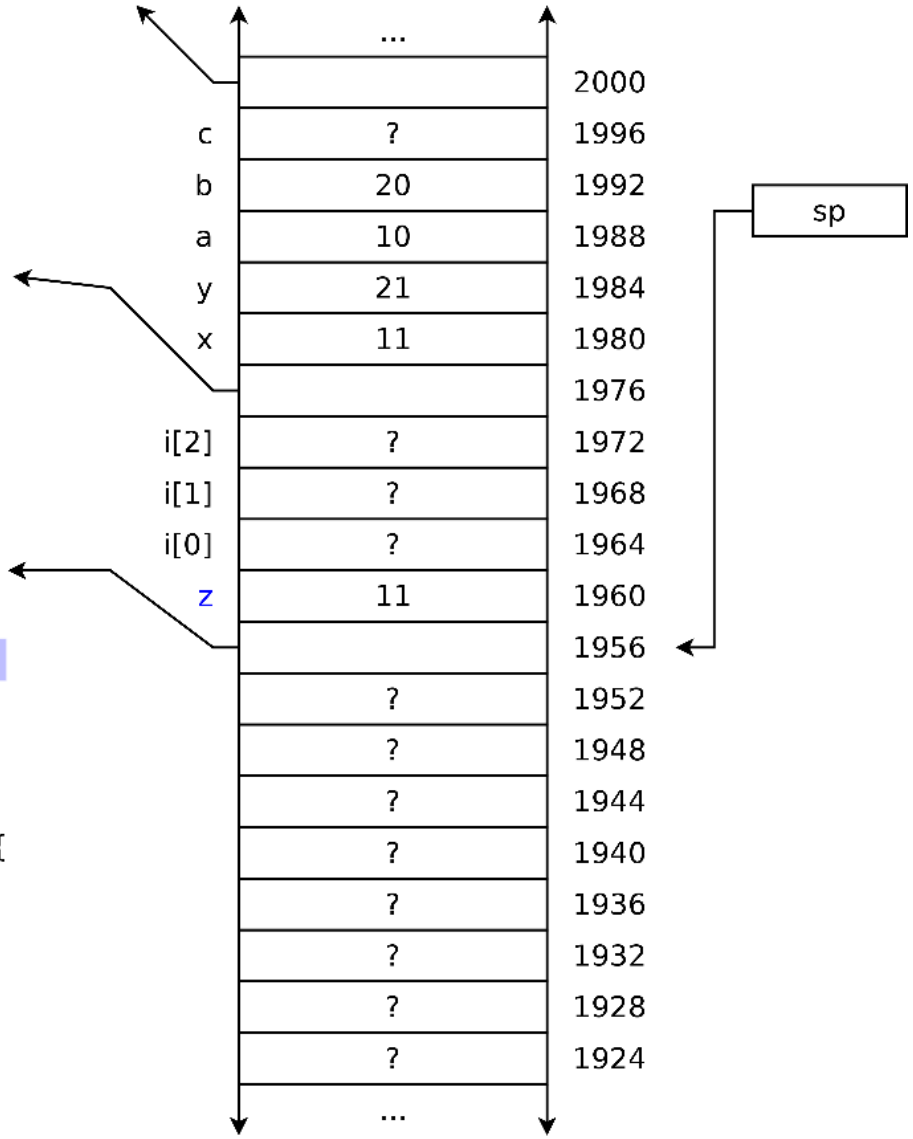
Start f2



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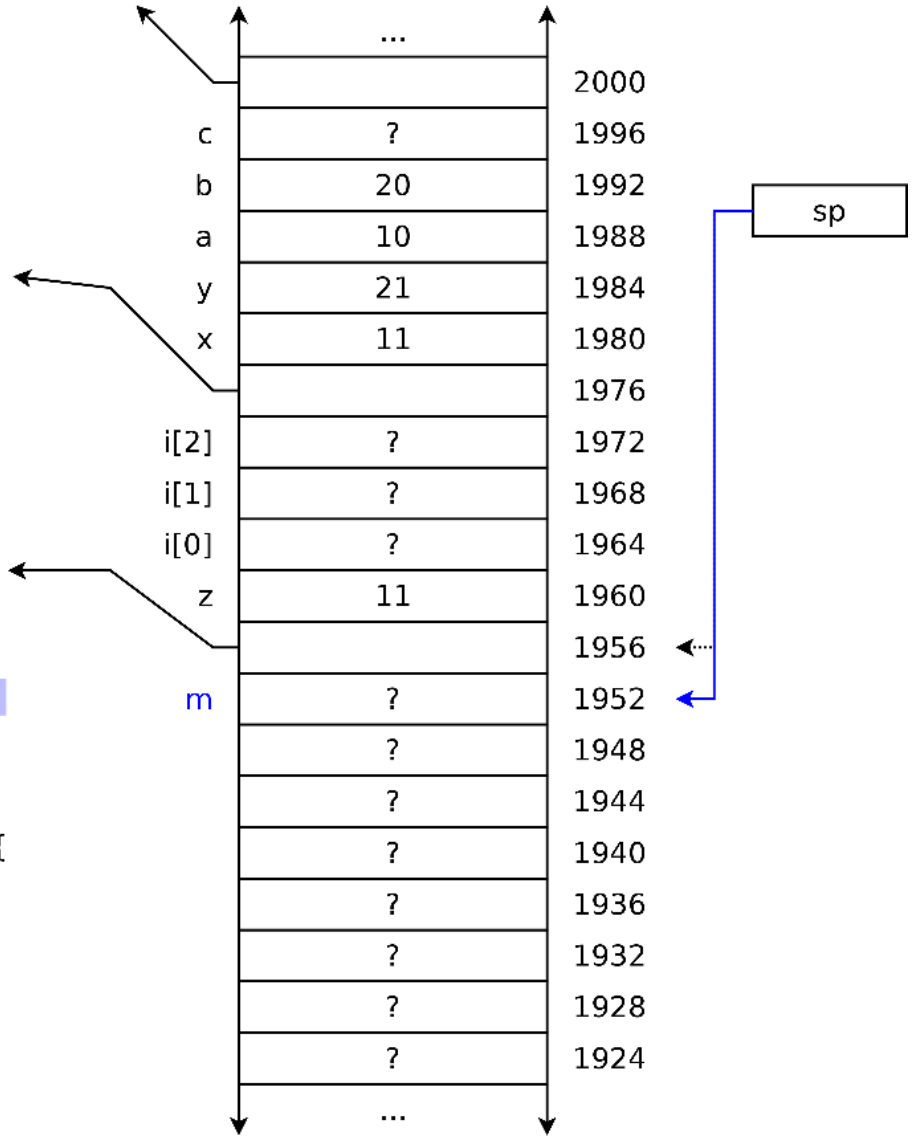
Anlegen von m



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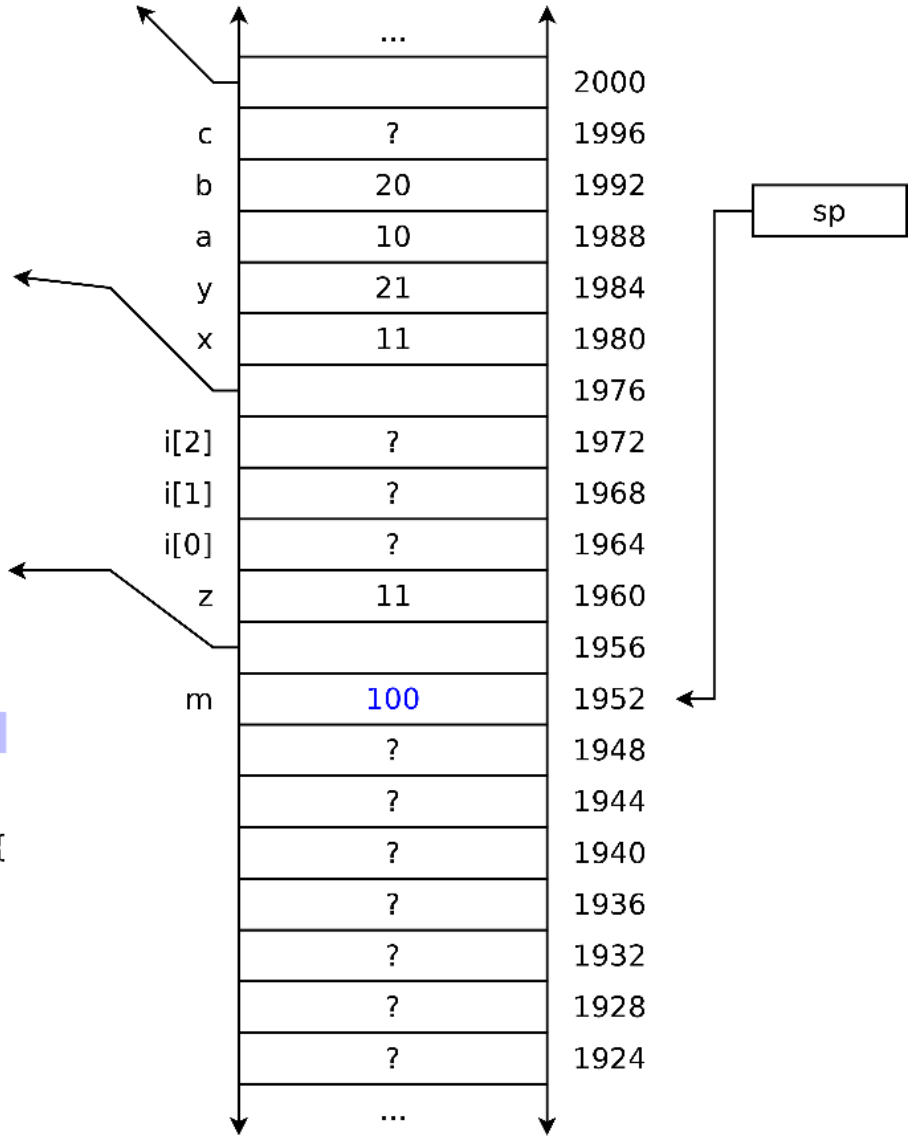

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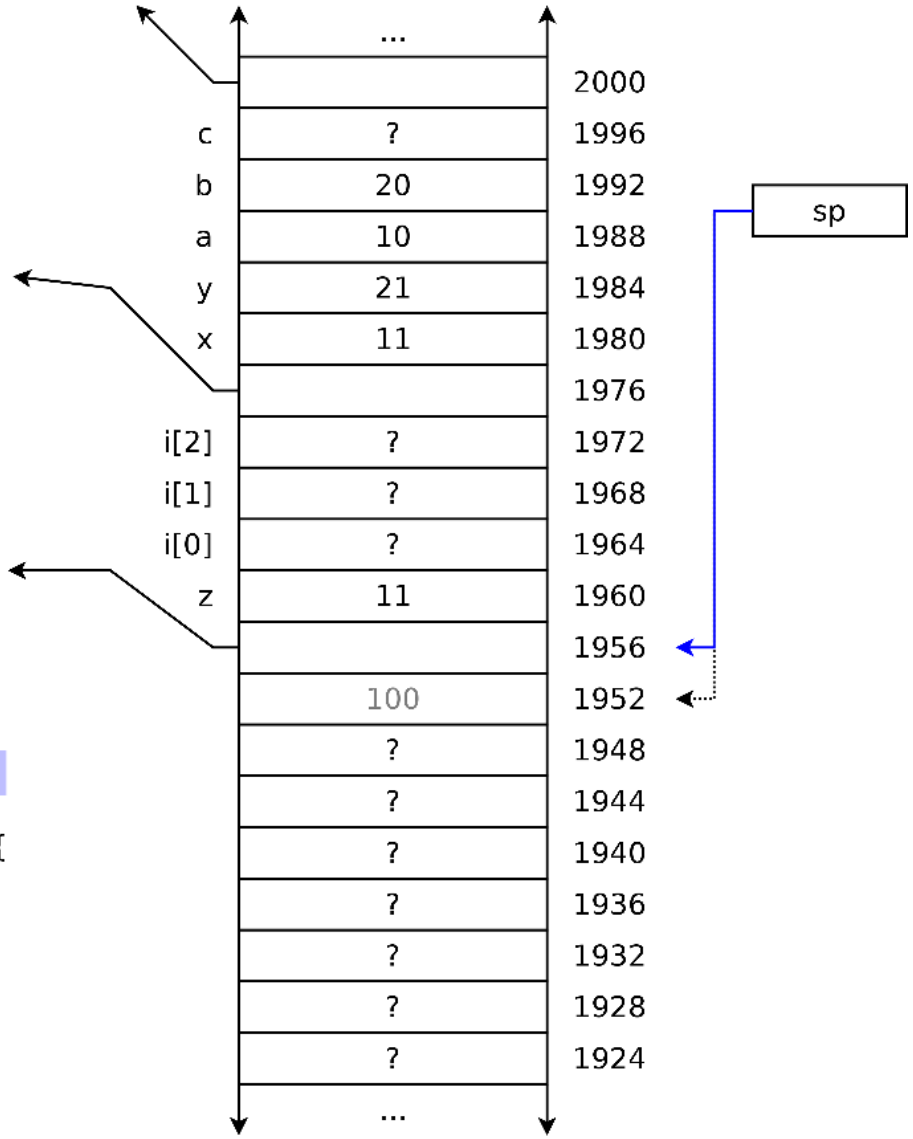
Entfernen von m



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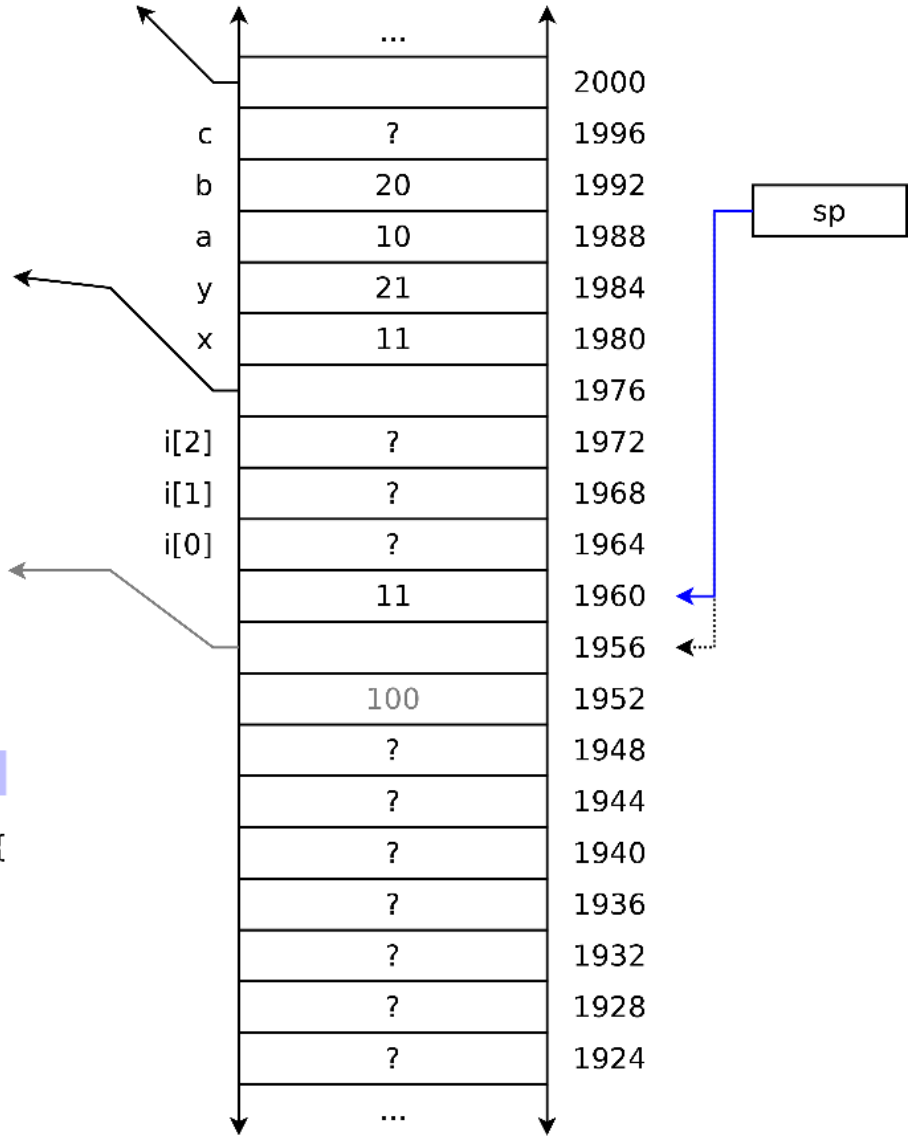
Rücksprung



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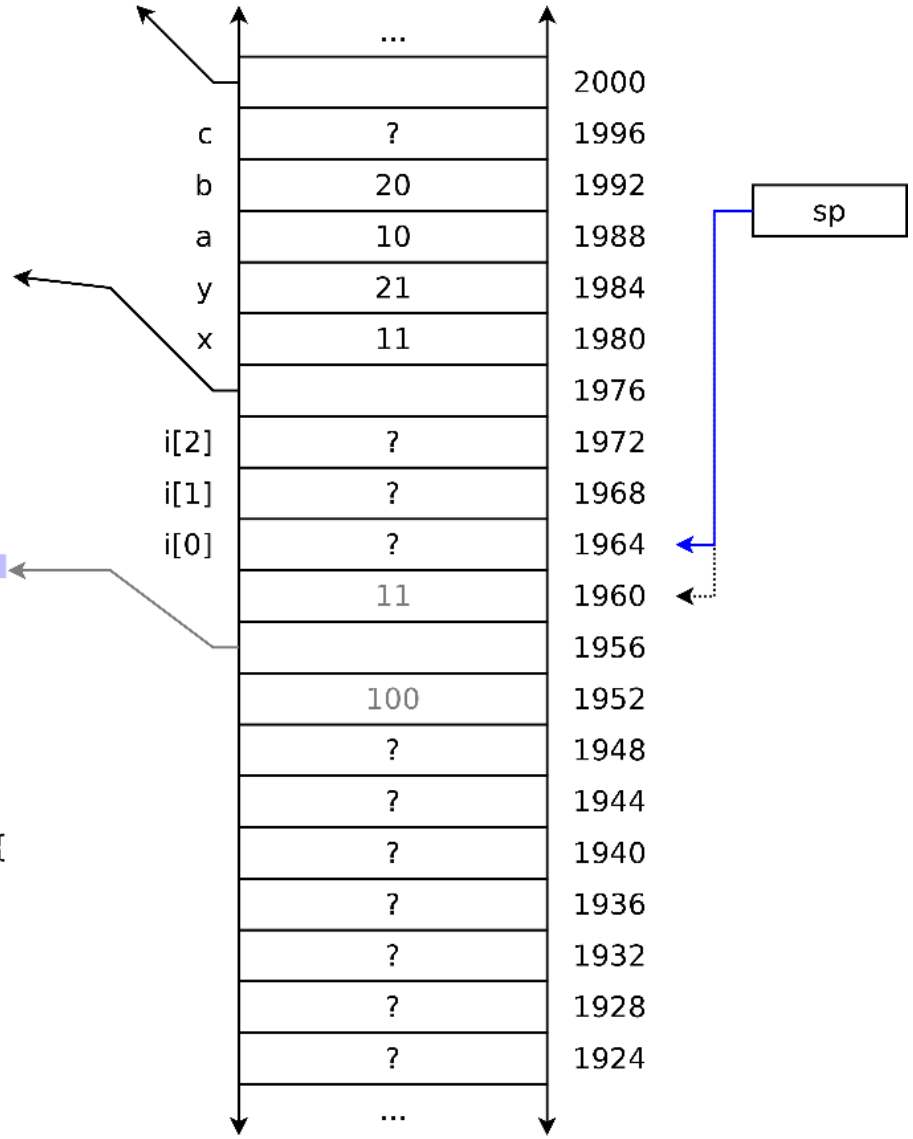

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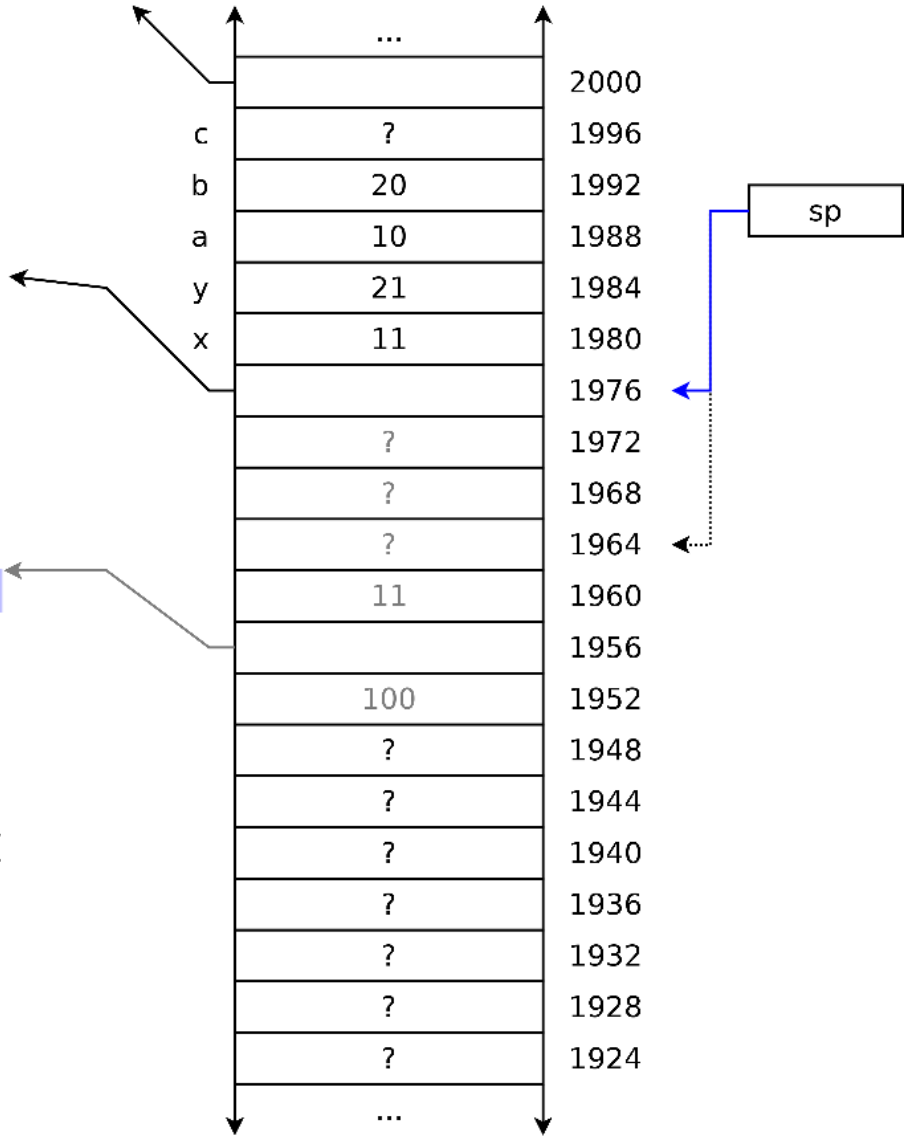

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Rückkehr
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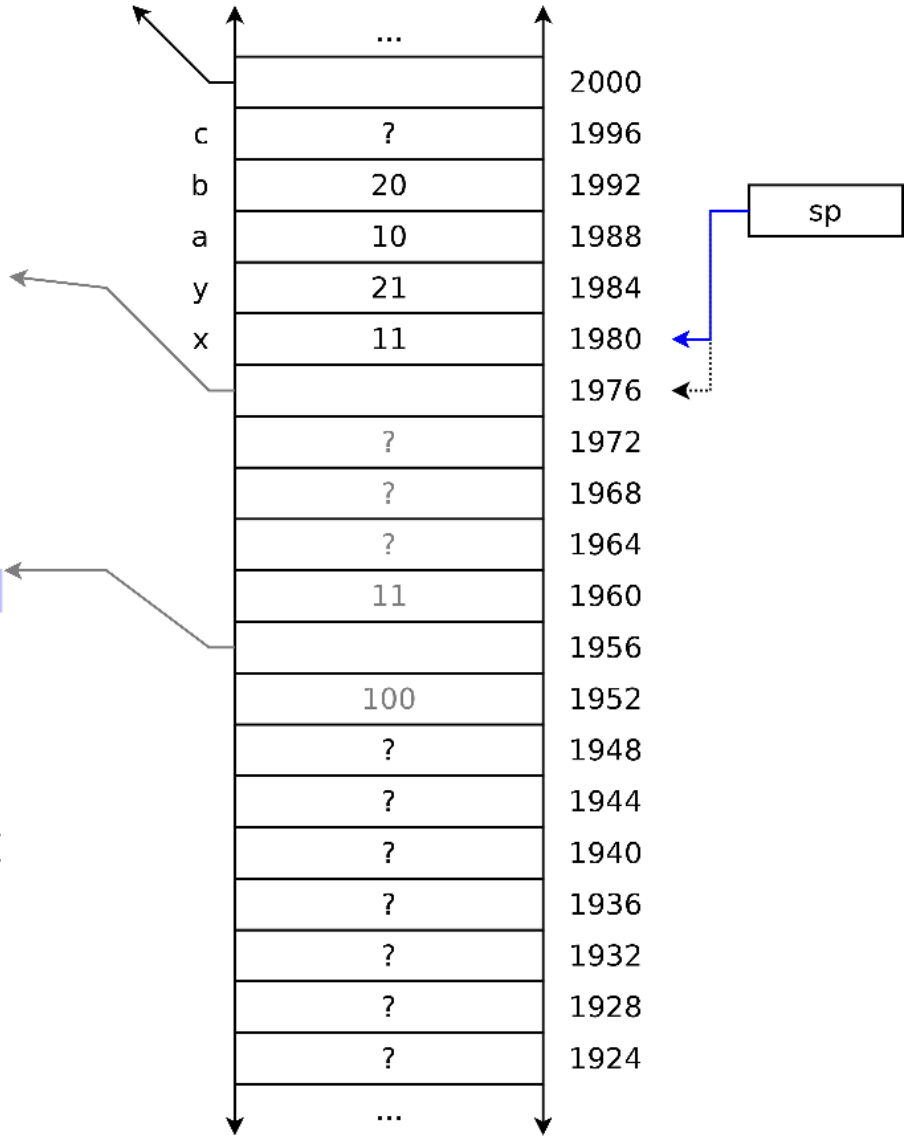

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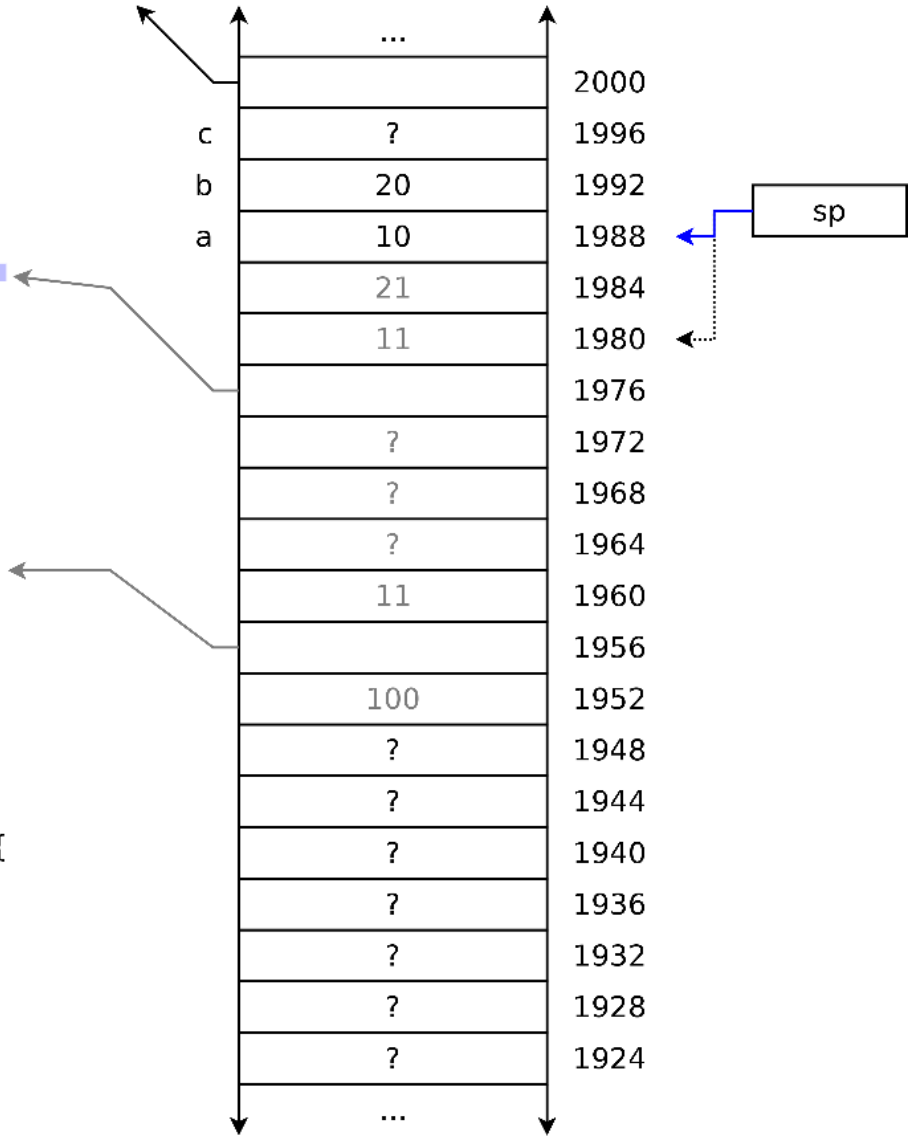

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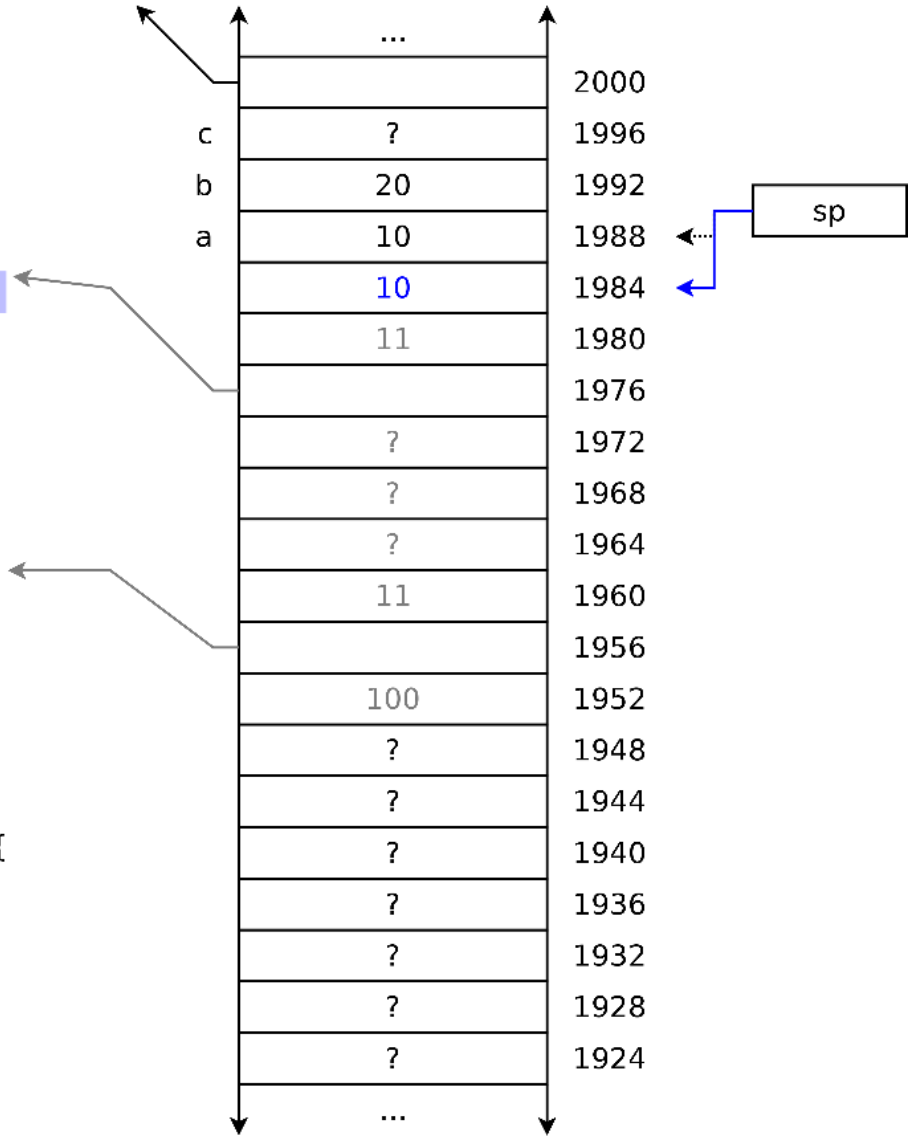

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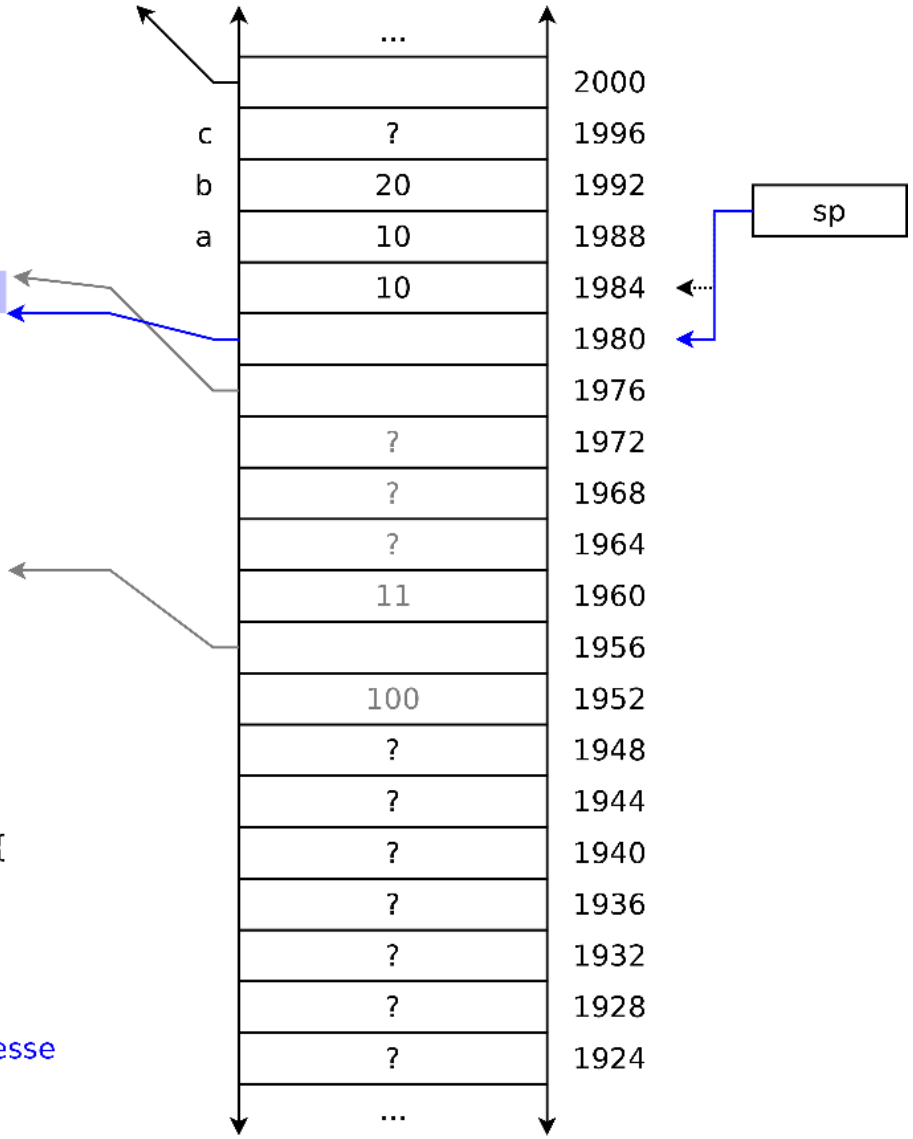

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Start f3
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